



# Sector information

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## The aerospace industry in Munich

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## Munich – Germany's aerospace all-rounder

Despite all the negative headlines about cutbacks at the Defense division of the Airbus Group (formerly EADS) in and around Munich, the region remains one of the leading aerospace and satellite navigation hubs in Germany and Europe, alongside Hamburg/Bremen and Berlin. Although this highly innovative industry has seen demand in the defense sector decline in recent years due to downsizing and restructuring measures, the Airbus Group's civil aviation activities remain extremely successful and are continuing to grow. Singularly **broad** coverage – Munich occupies a strong position in **both** aerospace and satellite navigation – sets the city apart as a unique industry hub. Alongside the Airbus Group, other large international players of the caliber of MTU Aero Engines have joined with a plethora of small and medium-sized enterprises (SMEs) in making Munich and the surrounding region their home, combining breadth of coverage with a remarkable **depth** too. Major system providers are thus complemented by equipment and component manufacturers such as AOA Gauting and RUAG, technical service providers such as ESG, Assystem, PFW Aerospace and IAGB, and a large number of high-tech SMEs with an outstanding level of technology expertise, all clustered together in very close geographic proximity within the Munich region. As a result, the region is not overly dependent on the defense industry. Even after the cutbacks at Airbus, demand for suitably qualified specialists will continue to drive high employment levels in Munich's aerospace industry.



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## Leading research, development and educational organizations

The aerospace industry has a powerful technology transfer effect to other industries too and is therefore a driver of innovation and growth in the high-tech sector in general. The innovative capabilities of Munich's aerospace companies are reflected in the intensity of their research and development (R&D) activities. Oberpfaffenhofen-based German Aerospace Center DLR alone filed 226 patents in 2012, making it one of the 25 most active patent applicants recorded by the German Patent and Trade Mark Office.

Strong network links between research activities in the Munich aerospace industry and the ample research potential afforded by the city's universities and non-university research organizations adds an even sharper edge to the region's innovative potency. The Bavarian capital indeed boasts an enviable wealth of universities and other research institutions:

### 14 respected universities

- TUM (Technische Universität München)
- LMU (Ludwig Maximilians Universität)
- Munich University of Applied Sciences
- University of the Federal Armed Forces
- Ten other institutions of higher education

### Non-university research organizations

- The Fraunhofer Society (with its national headquarters and four individual institutes in the Munich region)
- The Max Planck Society (with its national headquarters and twelve individual institutes in the Munich region)
- The Helmholtz Zentrum München (Helmholtz Center Munich, a research organization run jointly by federal government and the Free State of Bavaria and featuring 45 scientific institutes and independent departments). This



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center focuses on research into health and the environment and is a member of the Helmholtz Association of German Research Centers

- DLR, the German Aerospace Center (with nine scientific institutes at its Oberpfaffenhofen campus)

At present, the following organizations conduct focused aerospace research and development in and around Munich.

### **Munich Aerospace**

[www.munich-aerospace.de/](http://www.munich-aerospace.de/)

To pool their key competencies in aeronautics and space travel, Technische Universität München (TUM), the University of the Armed Forces (UniBwM), the German Aerospace Center (DLR) and aeronautics think tank Bauhaus Luftfahrt (BHL) joined forces to found Munich Aerospace in July 2010. Conceived as a shared research, development and training center, Munich Aerospace combines research, teaching, post-graduate programs and graduate assistance. Carefully coordinated research groups which each include at least two of the four partners currently tackle the following basic topics: Aviation Management, Autonomous Flight Systems, Safety in Orbit, Geodetic Earth Observation and Advanced Aerospace Communication & Navigation.

### **Bauhaus Luftfahrt e.V.**

[www.bauhaus-luftfahrt.net](http://www.bauhaus-luftfahrt.net)

Bauhaus Luftfahrt is an interdisciplinary research institution that is backed by four aerospace companies: the Airbus Group, IABG, Liebherr-Aerospace and MTU Aero Engines. It is also subsidized by the Bavarian Ministry of Economic Affairs and Media, Energy and Technology. The non-profit association is a think tank with an international orientation. Its team of around 50 people applies itself to the future of mobility in general and the future of air travel in particular. Its research activities strive to examine the complex system that is aviation from a wide variety of angles. A holistic view, embracing technical, economic, social and ecological aspects, is taken of each and every project.



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## **The German Aerospace Center (DLR) in Oberpfaffenhofen**

Deutsches Zentrum für Luft- und Raumfahrt e.V.

[www.dlr.de](http://www.dlr.de)

The DLR campus in Oberpfaffenhofen is the second-largest research facility in Germany, after Cologne. Some 1,700 people currently work here. The Bavarian research center focuses on participation in space travel missions, climate research, research and development in the field of earth observation, the development of navigation systems and the improvement of robotic systems. One of the aims of DLR is to use technology marketing to put its knowledge and technological potential to sound entrepreneurial use in a business context too. The DLR campus in Oberpfaffenhofen comprises the following institutes:

### **German Remote Sensing Data Center (DFD)**

[www.dlr.de/eoc/desktopdefault.aspx/tabid-5278/8856\\_read-15911/](http://www.dlr.de/eoc/desktopdefault.aspx/tabid-5278/8856_read-15911/)

Director: Professor Stefan Dech

The German Remote Sensing Data Center (DFD) and the Remote Sensing Technology Institute (IMF) together constitute Germany's earth observation competence center, known as the Earth Observation Center or EOC. The DFD operates the World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT) and the Center for Satellite-Based Crisis Information (ZKI) services.

### **Remote Sensing Technology Institute (IMF)**

[www.dlr.de/eoc/desktopdefault.aspx/tabid-5279/8913\\_read-16239/](http://www.dlr.de/eoc/desktopdefault.aspx/tabid-5279/8913_read-16239/)

Director: Professor Richard Bamler

As its name suggests, the IMF researches and develops remote sensing technologies. The primary technologies in focus are synthetic aperture radar (SAR), imaging with optical sensors and atmospheric spectrometry.

### **Microwave and Radar Institute**

[www.dlr.de/hr](http://www.dlr.de/hr)

Director: Professor Alberto Moreira

This institute is instrumental in the development and improvement of ground-based, airborne and spaceborne sensors. Research work on the conceptual design and development of new microwave techniques and systems also enables it to produce related sensor-specific applications. These techniques are used to observe the movement of glaciers in Greenland, for example, and also supported the rescue of the Russian research vessel Akademik Shokalskiy in the Antarctic in February 2014.



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### **Institute of Communications and Navigation**

[www.dlr.de/kn](http://www.dlr.de/kn)

Director: Professor Christoph Günther

This institute develops new systems and methods for radio transmission and positioning. Its methods are widely used in broadcasting multimedia content and providing Internet connectivity to satellites, aircraft and remote areas. The institute also works on optical free-space transmission methods in the field of high-rate data communications between satellites and the ground. Another focus of its activities is the Galileo project: By 2015, 27 Galileo satellites should be orbiting the Earth and terrestrial receiving stations should be fully operational.

### **Institute of Atmospheric Physics**

[www.dlr.de/pa/](http://www.dlr.de/pa/)

Director: Dr. Markus Rapp

The Institute of Atmospheric Physics focuses on research into physical and chemical processes in the Earth's atmosphere. A thorough knowledge of dynamic global and regional cloud physics and chemical processes is fundamental to many aerospace applications. All relevant processes are quantified and analyzed using remote sensing, research aircraft and computational models.

### **Robotics and Mechatronics Center (RMC)**

[www.dlr.de/rm/desktopdefault.aspx/tabid-8016/](http://www.dlr.de/rm/desktopdefault.aspx/tabid-8016/)

Mechatronics constitutes the deepest level of integration of mechanics, electronics and information technology in order to realize "intelligent mechanisms" and robots that can interact with their environment. The DLR Robotics and Mechatronics Center succeeded the Institute of Robotics and Mechatronics. Its core competence is the (virtual) interdisciplinary design, computer-aided optimization, simulation and implementation of complex mechatronic systems and human-machine interfaces.

In its present form, the Robotics and Mechatronics Center (RMC) is a cluster comprising three institutes which tackle issues collaboratively in a matrix constellation.



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These institutes are:

- Institute of Robotics and Mechatronics (Director: Dr. Alin Albu-Schäffer)
- Institute of System Dynamics and Control (Director: Dr. Johann Bals)
- Institute for Optical Sensor Systems (Acting Director: Professor Dr. Heinz-Wilhelm Hübers)

### **Space Operations and Astronaut Training**

[www.dlr.de/rb/](http://www.dlr.de/rb/)

Professor Felix Huber

DLR Space Operations is the central facility for spaceflight operations in Germany. Its activities range from satellite missions for Earth observation, communication and reconnaissance to human spaceflight missions and the exploration of the solar system. The center also trains astronauts.

### **DLR Flight Experiments**

[www.dlr.de/fb](http://www.dlr.de/fb)

Director of Flight Operations: Jürgen Fütterer

This department is responsible for preparing and deploying DLR's research aircraft. The aircraft themselves serve both as the object of aviation research and as a platform for the launch of scientific equipment used to monitor the Earth, its oceans and its atmosphere.

### **Columbus Control Center**

[www.dlr.de/columbus-kontrollzentrum](http://www.dlr.de/columbus-kontrollzentrum)

The Columbus Control Center is regarded as the figurehead for the DLR's presence in the Munich region. The entire Columbia space shuttle mission was accompanied by this center. DLR enjoyed unfiltered access to all data and assumed full responsibility for payload operation. The Columbia was also manned by German astronauts Ulrich Walter and Hans Schlegel.

Today, the center operates the Columbus Laboratory under the aegis of the European space station program, overseeing the research module that was launched from Cape Canaveral, delivered by space shuttle to the ISS and docked onto the space station on February 7, 2008. At the Columbus Control Center in Oberpfaffenhofen, more than 40 DLR staff and a further 60 in-house staff collaborate closely with ESA, NASA and partners from Russia, Japan and Canada to oversee both the module itself and the scientific work that takes place on board.



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**Max Planck Institute for Extraterrestrial Physics**

[www.mpe.mpg.de](http://www.mpe.mpg.de)

Managing Director: Professor Kirpal Nandra

Founded in 1963 as a sub-institute of the Max Planck Institute for Physics and Astrophysics in Munich, this organization was established as an independent institute in 1991. Its principal research topics are astronomic observations in spectral ranges (such as remote infrared radiation, X-rays and gamma rays) that can only be studied from space because of the absorbent effects of the Earth's atmosphere, and in-situ measurements in near-Earth space to investigate the collisionless interaction of cosmic plasmas. Scientific work is conducted by four research groups: High-Energy Astrophysics, Infrared/Submillimeter Astronomy, Optical and Interpretative Astronomy, and Theory.

**Technische Universität München (TUM)**

TUM was one of the first higher education institutions in Germany to be recognized as a university of excellence. It sees itself as an entrepreneurial university whose findings and outcomes should be put to sound economic uses. Technology transfer is thus a key focus at TUM. (Contact: TUM ForTe Office for Research and Innovation; phone +49 (0)89 289-25206). 40,000 students were enrolled at TUM for the winter semester 2016/2017 and are served by a staff of around 10,000 people. The university's strong focus on research is attested by the large number of doctoral degrees awarded (1,021 in 2016) and the roughly 5,800 scientific publications it produces every year. TUM's impressive research performance is also reflected in its ability to source substantial third-party funding, which totaled EUR 285 million in 2015 (including the hospital).

The following chairs, faculties and institutes currently conduct research into issues relating to aerospace:

**Institute of Aircraft Design**

[www.ils.mw.tum.de/](http://www.ils.mw.tum.de/)

Professor Mirko Hornung

The Institute of Aircraft Design has an integrative focus, covering aerospace systems in their entirety and addressing specific areas of research. Alongside aircraft design for civil and military uses, research at this institute focuses strongly on the analysis and evaluation of future requirements.



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**Chair of Space Transport Technologies  
Institute of Astronautics**

[www.lrt.mw.tum.de/](http://www.lrt.mw.tum.de/)

Professor Ulrich Walter

Real-time teleoperation, exploration technologies and systems engineering are the main areas of research at the Chair of Space Transport Technologies. Robotic applications in the Earth's orbit are simulated and evaluated. The institute also concerns itself with manned space exploration and conducts research into innovative methods of concept development and model-based design.

**Institute of Flight System Dynamics**

[www.fsd.mw.tum.de/](http://www.fsd.mw.tum.de/)

Professor Florian Holzapfel

This institute concentrates on optimizing the mechanical and control systems used in flight systems, including modeling and simulation, flight dynamics, flight control, sensor systems, data fusion, estimation techniques and navigation, and trajectory optimization.

**Institute of Aerodynamics and Fluid Mechanics**

[www.aer.mw.tum.de](http://www.aer.mw.tum.de)

Professor Nikolaus A. Adams, Professor Hans-Jakob Kaltenbach, Professor Christian Breitsamter, Dr. Christian Stemmer, Dr. Xiangyu Hu, Dr. Thomas Indinger  
This chair investigates the aerodynamic properties of aircraft, vehicles and buildings, as well as concerning itself with turbulent transition processes and complex fluids.

**Institute of Flight Propulsion**

[www.lfa.mw.tum.de](http://www.lfa.mw.tum.de)

Professor Dr-Ing. Volker Gümmer

This chair applies itself to ways of raising efficiency and reducing harmful emissions in flight propulsion systems. Accordingly, it conducts research into suitable designs for jet and rocket propulsion systems, for example.



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**Institute of Lightweight Structures**

[www.llb.mw.tum.de](http://www.llb.mw.tum.de)

Professor Horst Baier

This chair focuses on design and materials, analysis and simulation, production and testing for lightweight structures in aerospace contexts. In particular, its research centers around key technologies such as fiber composite and smart structures. These new technologies are used not only in aerospace applications, but also in automotive engineering and special equipment engineering.

**Institute of Astronomical and Physical Geodesy (IAPG)**

[www.iapg.bv.tum.de](http://www.iapg.bv.tum.de)

Professor Roland Pail, Professor Urs Hugentobler, Professor Florian Seitz

This Institute of Astronomical and Physical Geodesy (headed by Professor Pail) and the Faculty of Satellite Geodesy (Professor Hugentobler) are subsumed under this institute. Research at the IAPG addresses themes such as gravity field modeling on the basis of terrestrial and satellite data, precise global positioning (GNSS satellites) and geodetic space techniques.

**Munich University of Applied Sciences (MUAS)**

[www.hm.edu](http://www.hm.edu)

President: Professor Michael Kortstock

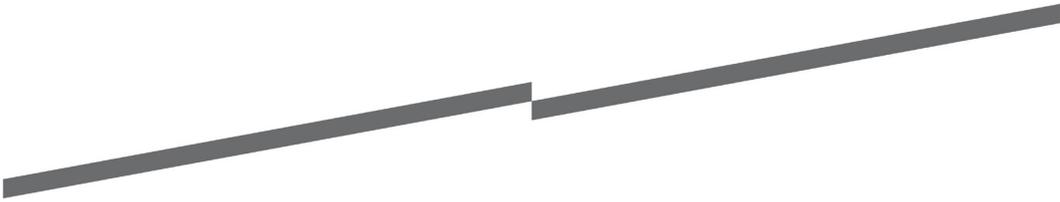
Munich University of Applied Sciences is one of the largest institutions of its kind in Germany, with roughly 17,500 students enrolled. More than 80 bachelor's and master's courses are currently on offer here. Some 475 professors, 745 staff and around 750 lecturers are on the university's payroll.

**Department of Mechanical, Automotive and Aeronautical Engineering**

[www.me.hm.edu/](http://www.me.hm.edu/)

Dean: Professor Andreas Gubner

Munich University of Applied Sciences conducts research into specialized areas such as flight mechanics, design, testing and simulation and both aircraft aerodynamics and aircraft design.



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**University of the Federal Armed Forces  
Faculty of Aerospace**

[www.unibw.de/lrt/](http://www.unibw.de/lrt/)

Dean: Professor Axel Schulte

The Faculty of Aerospace oversees courses in aerospace engineering at the University of the Federal Armed Forces in Munich. Students can choose either the Aerspatial Engineering or the Technology and Innovation Management course. The 15 institutes subsumed under this faculty devote themselves to the study of lightweight structures, flow systems, aerodynamics, space travel systems and space applications, for example.

## Trade shows and events

**Automatica**

June 19-22, 2018

New Munich Exhibition Center

[www.automatica-munich.com/](http://www.automatica-munich.com/)

The International Trade Fair for Automation and Mechatronics will be held in 2014 for the sixth time. It brings all aspects of the robotics and automation segment together under one roof. The fair concentrates primarily on areas such as material assembly and handling systems, robots, industrial image processing and related technologies.

**Inter Airport Europe**

October 10-13, 2017

New Munich Exhibition Center

[www.interairport.com/europe/deutsch](http://www.interairport.com/europe/deutsch)

21<sup>th</sup> International Exhibition for Airport Equipment, Technology, Design & Service  
Inter Airport Europe is the leading international event for the international airport industry. Buyers, traders, consultants, developers and architects focusing on every aspect of the airport business attend this premier exhibition.



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**Air Cargo Europe 2017**

December, 09 -12, 2017

Neue Messe München

<http://aircargoeurope.com/>

Aircargoeurope is the world's leading trade fair for air cargo and logistics gathering every 2 years in Munich. Part of transport logistic.

**Airtec – International Aerospace Supply Fair**

October, 24 -26, 2017

Neue Messe München

<http://airtec.aero/>

AIRTEC shows the entire aerospace supply chain from design, engineering, testing, simulation via materials, production, tools, components and systems, electronics, avionics, sensors up to lifecycle support at one exhibition place. The trade exhibition presents in a focused way new technologies, innovations and trends and provides a comprehensive overview about the aerospace supply industry.

**Aviation Electronics Europe**

April, 25-26, 2017

Neue Messe München

<http://www.ae-expo.eu/>

Aviation Electronics Europe is the premier platform for the international aviation electronics industry to learn, network and to meet interesting business partners.



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## Networks and organizations

### **bavAIRia e.V.**

Sonderflughafen Oberpfaffenhofen  
Friedrichshafener Strasse 1  
82205 Gilching  
Phone: +49 (0)8105 272927-0  
Fax: +49 (0)8105 272927-15  
President: Johann Heitzmann  
mailto:info@bavairia.net  
www.bavairia.net

BavAIRia e.V. coordinates the region's aerospace cluster on behalf of the Bavarian government. The aim of this organization is to forge close network links between key players in Bavaria's aerospace industry and with a view to space exploration applications, in order to give this industry a sharper competitive edge in global competition. The members and participants who make up the bavAIRia network span the entire industry and research landscape in the Free State of Bavaria.

### **Anwendungszentrum GmbH Oberpfaffenhofen**

Friedrichshafener Strasse 1  
82205 Gilching  
Phone: +49 (0)8105 77277-10  
Fax: +49 (0)8105 77277-55  
mailto:info@anwendungszentrum.de  
www.anwendungszentrum.de

Managing Director: Thorsten Rudolph

Based at the Oberpfaffenhofen aerospace hub, the "Application Center" concentrates on satellite navigation activities. Its mission is to support both startups and the relocation of companies that develop and wish to market products and services relating to satellite navigation. The center today ranks as one of Europe's most successful incubation programs for the commercial use of space travel, having accompanied the launch of more than 70 new companies to date.



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## **Other organizations**

### **Bayern Innovativ**

Chief Executive: Dr. Rainer Seßner  
Gesellschaft für Innovation und Wissenstransfer mbH  
Gewerbemuseumsplatz 2  
90403 Nürnberg  
Phone: +49 (0)911 20671-0  
Fax: +49 (0)911 20671-792  
mailto:info@bayern-innovativ.de  
www.bayern-innovativ.de

Bayern Innovativ's mission is to bring different skill sets and competencies together and to quickly and efficiently facilitate cooperation between the business and scientific communities in order to drive innovation.

### **Bayerische Patentallianz GmbH**

Managing Director: Peer Biskup  
Nussbaumstrasse 12  
80336 München  
Phone: +49 (0)89 5480177-0  
Fax: +49 (0)89 5480177-99  
mailto:kontakt@baypat.de  
www.baypat.de/

The "Bavarian Patent Alliance", established in January 2007, acts as a patent licensing agency, valuing and marketing the inventions of over 17,000 university-based scientists and engineers in Bavaria. Acting as a link between science and the business community, its aim is to empower industry to commercially exploit the excellent inventions that are discovered by Bavaria's universities/universities of applied sciences and whose industrial property rights are protected.

### **Invest in Bavaria**

Manager Aerospace | Satellite Navigation: Bernd Buchenberger  
Prinzregentenstr. 28  
80538 München  
Phone: +49 (0)89 2162-2582  
Fax: +49 (0)89 2162-3582  
bernd.buchenberger@invest-in-bavaria.de



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[www.invest-in-bavaria.de](http://www.invest-in-bavaria.de)

Director: Dr. Wolfgang Hübschle  
Prinzregentenstr. 28  
80538 München  
Phone: +49 (0)89 2162-2642  
Fax: +49 (0)89 2162-2803  
mailto: [info@invest-in-bavaria.de](mailto:info@invest-in-bavaria.de)  
[www.invest-in-bavaria.de](http://www.invest-in-bavaria.de)

Invest in Bavaria is the relocation agency operated jointly by the Bavarian Ministry for the Economy and Bayern International GmbH. The team assists investors who are looking to move to or expand their business in Bavaria, providing information, helping with the search for suitable premises and putting investors in touch with local authorities, partners and networks.

**City of Munich**

**Department of Labor and Economic Development**

Economic Development

Director: Kurt Kapp

Herzog-Wilhelm-Str. 15

80331 München

Phone: +49 (0)89 233-22402

Fax: +49 (0)89 233-27966

mailto: [wirtschaftsfoerderung@muenchen.de](mailto:wirtschaftsfoerderung@muenchen.de)

[www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Arbeit-und-Wirtschaft/Wirtschaftsfoerderung.html](http://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Arbeit-und-Wirtschaft/Wirtschaftsfoerderung.html)

The Department of Labor and Economic Development provides an array of professional services to companies that are based in or considering moving to Munich. Corporate customers are given a single point of contact to walk them through the various administrative requirements. Advice on locations and relocation is another focus. The Economic Development unit also provides support for business startups, information on the availability of premises and a contact service to put firms in touch with the right authorities, chambers of industry and commerce, networks and associations. A wealth of information about Munich as a place to do business is available too.



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**Chamber of Industry and Commerce for Munich and Upper Bavaria  
Industry, Innovation and the Environment**

Director: Dr. Herbert Vogler

Balanstrasse 55-59

81541 München

Phone: +49 (0)89 5116-1321

Fax: +49 (0)89 5116-8341

<mailto:ihkmail@muenchen.ihk.de>

[www.muenchen.ihk.de](http://www.muenchen.ihk.de)

Representing industrial, trading and service companies in the region, the Chamber of Industry and Commerce is committed to improving conditions for the business community. The chamber sees itself as a parliament that represents the interests of the business community to government and administrative bodies and the public at large. It also provides services (such as consulting) to companies, assumes responsibilities on behalf of the public sector (such as examinations in the context of vocational training) and takes action to promote fair and sustainable business practices.

**Munich Network – Netzwerk München e.V.**

Chairman: Oliver Gajek

Rosenheimer Strasse 145i

81671 München

Phone: +49 (0)89 630253-0

Fax: +49 (0)89 630253-10

<mailto:info@munichnetwork.com>

[www.munichnetwork.com](http://www.munichnetwork.com)

The Munich Network actively helps technology firms to get started, grow and remain successful in the long run. It brings them into contact with regional drivers of innovation and forges ties with the world's leading high-tech regions.



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## Key companies

### **328 Support Services GmbH**

[www.328support.de](http://www.328support.de)

Founded in 2006, 328 Support Services GmbH (328SSG) holds the exclusive rights (type certificates) for Dornier's short-haul 328 aircraft. The company owns UK-based 328 Group Limited and has its headquarters at Oberpfaffenhofen Airport near Munich, where it employs more than 100 people.

### **Airbus Group (until 2013: EADS)**

[www.airbus-group.com](http://www.airbus-group.com)

The Airbus Group is the biggest aerospace and defense corporation in Europe, operating in three distinct lines of business:

- Airbus
- Airbus Defense and Space
- Airbus Helicopters

The Airbus Group operates at more than 170 locations worldwide, and the majority of its orders come from markets outside Europe in which the group is enlarging its industrial footprint. Examples include final assembly lines in Tianjin, China, and in Mobile/Alabama, USA. The Airbus Group also manufactures helicopters in Brazil, operates research centers in Singapore, India, the USA, China and Russia and runs maintenance, repair and overhaul hubs on five continents.

As part of the restructuring drive that accompanied the transformation of EADS into the Airport Group, the former Astrium and Cassidian businesses, both of which were based in and around Munich, have been merged to form Airbus Defense and Space. As a result, the Airbus Group is planning to shed around 380 jobs in Upper Bavaria (in Unterschleissheim and Ottobrunn) and 1,000 more in Manching/Ingolstadt.

### **AOA apparatebau gauting gmbh**

[www.aoa-gauting.de](http://www.aoa-gauting.de)

This Gauting-based company produces and water supply and wastewater disposal systems, auxiliary air-conditioning systems, high-performance fans, sensor systems and fuel system components for aircraft.



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**Assystem GmbH**

[www.assystem-germany.com/](http://www.assystem-germany.com/)

Assystem GmbH is part of the French Assystem Group. In the aerospace industry and in its Turbo Machines division, it is the market leading engineering service provider in Germany. Assystem GmbH came into being when Assystem Aerospace Germany and Atena Engineering merged in spring 2011.

**Berner & Mattner GmbH Systemtechnik GmbH Deutschland**

[www.berner-mattner.com](http://www.berner-mattner.com)

Like Assystem GmbH, Berner & Mattner too is part of the Assystem Group. The company specializes in systems engineering across a broad spectrum of industries and developing and testing powerful electronic and mechanical systems. The space exploration industry is one of its key customers.

**DDW-Group GmbH**

[www.ddw-group.de](http://www.ddw-group.de)

Headquartered in Oberhaching near Munich, the DDW Group is a service organization with an international scope and a focus on aerospace. DDW-Group GmbH serves as the parent company for ABCS GmbH, BLUE SILVER GmbH and Sysberry GmbH and provides a broad array of services: consulting, engineering and technical support, electrical system design and development, software engineering, software support, infrastructure solutions, 3D visualization and multimedia services.

**ESG - Elektroniksystem- und Logistik-GmbH**

[www.esg.de](http://www.esg.de)

ESG is an international systems and software house that handles the development and service processes for software-intensive, complex and technologically sophisticated products in the security sector. The company has its roots in aviation systems.

**GAF AG**

[www-gaf.de](http://www-gaf.de)

GAF AG is one of the leading consultancies in Europe. Its key strength lies in integrating space travel technologies such as satellite-based communication, Earth observation and geopositioning in other specific thematic applications. GAF is headquartered in Munich, where it employs around 200 highly qualified staff.



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**GE Aviation**

[www.geaviation.com/](http://www.geaviation.com/)

The German subsidiary of one of the world's leading makers of jet engines is headquartered in Munich.

**GKN Aerospace GmbH**

[www.gknplc.com](http://www.gknplc.com)

Headquartered in the UK, this company designs, develops and manufactures high-performance structural composite components for the aerospace industry.

**IABG mbH**

[www.iabg.de](http://www.iabg.de)

IABG operates a space transport test center whose activities are coordinated by the European Space Agency (ESA). Satellites and large structures such as the Ariane rockets are tested here.

**IfEN GmbH**

[www.ifen.com](http://www.ifen.com)

IfEN is a leading company in all areas of satellite navigation. Processing, disseminating and augmenting satellite-derived signals are the focus of many of its activities. GATE, a flexible, ground-based testing and development environment, was developed under IfEN's leadership.

**Kayser-Threde GmbH**

[www.kayser-threde.de](http://www.kayser-threde.de)

This systems house focuses on the high technology sector, delivering scientific instruments and systems for use in space missions, optical systems, space-borne telescopes, cameras, Earth observation, satellite-based geoinformation services, space travel systems for manned and unmanned missions, systems to measure and store data for the automotive and aircraft industries, and process control and telecontrol systems.

**Ketek GmbH**

[www.ketek.net](http://www.ketek.net)

This award-winning medium-sized firm develops, produces and markets special-purpose semiconductor-based detector modules for use in X-ray spectroscopy. The most spectacular job given to the company's systems to date came during the



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Mars mission in early 2004, when detector modules from Ketek were used to investigate soil and rock samples on our neighboring planet.

**MBDA Deutschland GmbH**

[www.mbda-systems.com](http://www.mbda-systems.com)

MBDA Deutschland is Germany's leader in missiles and missile systems. The company develops, produces and maintains missile systems and related components for military clients. Created in 2001, MBDA Deutschland GmbH today employs around 1,200 people and is headquartered in Schrobenhausen.

**MT Aerospace AG**

[www.mt-aerospace.de](http://www.mt-aerospace.de)

MT Aerospace covers a broad spectrum of aerospace products and services. It is a leading developer and manufacturer of subsystems and components for the Ariane rockets, orbital transfer systems and satellites. The company also supplies subsystems to Airbus, as well as building and providing services to launch facilities.

**MTU Aero Engines**

[www.mtu.de](http://www.mtu.de)

The head offices of MTU Maintenance and MTU Aero Solutions are located at the headquarters of their parent company, MTU Aero Engines. Here in Munich, aircraft engines are assembled and components manufactured for all the major OEMs.

**PFW Aerospace AG**

[www.garner.de](http://www.garner.de)

PFW Aerospace supplies systems, structural assemblies and components to leading aerospace technology companies.

In 2009, the company acquired Oberpfaffenhofen-based Garner CAD Technik (GCT), a design and engineering service provider for global aircraft companies.

**P+Z Engineering GmbH**

[www.puz.de](http://www.puz.de)

Munich-based P+Z Engineering employs more than 900 engineers and has been helping customers develop their products for 45 years. The company focuses on five key areas of technology: design, CAE and simulation, testing and validation, electrics and electronics, and project and quality management.



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**Reiser Systemtechnik GmbH**

[www.reiser-systemtechnik.de](http://www.reiser-systemtechnik.de)

Reiser Systemtechnik GmbH employs over 100 specialists in serial production, specialized technical production, mechanical components and design. These activities combine with the production of simulation and test systems to account for 75% of the company's sales. The production of laser systems for industrial applications delivers the remaining 25%.

**RUAG Aerospace Deutschland GmbH**

[www.ruag.com](http://www.ruag.com)

This Swiss-owned company operates three subsidiaries in Oberpfaffenhofen. These firms provide maintenance services for civil and military aircraft, handle systems integration, manufacture assemblies and components, paint aircraft, handle completion services and also provide technical and logistical support. In addition, RUAG develops and produces structural and underbody assemblies such as pressure bulkheads, fuselage sections, tail cones and floor structures for all Airbus aircraft.

**Sitec Aerospace**

[www.sitec-aerospace.com](http://www.sitec-aerospace.com)

Headquartered in Singapore, Sitec Aerospace manufactures actuators, valves, engine control systems and mechanical flight control systems.

**TechConnect**

[www.techconnect.de](http://www.techconnect.de)

TechConnect employs a permanent staff of around 220 people and is a successful development partner to leading manufacturers in the aerospace, defense, automotive, automation and medical engineering industries. Starting in 2014, the company also became a StratX2020 supplier to Cassidian – a title Cassidian confers only on selected suppliers in the context of aerospace projects.

**Telair International GmbH**

[www.telair.com](http://www.telair.com)

This US-owned company develops, produces and certifies cargo loading systems for wide-body aircraft. These services are provided on an OEM basis for Airbus and Boeing and on a buyer furnished equipment (BFE) basis for a large number of airlines.



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This sector information bulletin has been carefully researched and diligently compiled. Nevertheless, the City of Munich accepts no liability for incorrect or incomplete information. Please address any questions, comments or suggestions to Eva Puckner: <mailto:eva.puckner@muenchen.de>, +49 (0)89 233-21626