

\* Austria's Leading Industrial Sectors: Machinery, Electronics, Mechatronics





### Dynamic Business Locations

The Austrian business location stands out in international comparison. Companies profit from a good business environment, qualified employees and a modern infrastructure.



Austria ranks among the most prosperous and innovative countries in the European Union, and has more effectively coped with the economically turbulent period prevailing since 2008 than most other European nations. The business location scores points thanks to its modern infrastructure, top-notch technologies, well-educated and highly-motivated employees, and also offers a high reliability of energy supplies in addition to political, social and economic stability. Moreover, Austria is the ideal base for ensuring market access to the dynamic markets of South East and Eastern Europe.

Austria can look back at a longstanding tradition in the field of mechanical engineering. Producers from all over the world rely on the special know-how Austria offers. The export ratio in the electronics industry is 75 percent. New educational facilities offering courses of study in the future-oriented mechatronics sector are continually being opened. Austria's skilled employees rank, in any case, among the best in the world – not least due to its internationally renowned dual education system. In spite of this good starting position, we are continually working on creating even better conditions on behalf of companies. In this spirit we would like to welcome you to Austria.

#### **Reinhold Mitterlehner**

Federal Minister of Science, Research and Economy

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Editorial: Owner&Publisher: Austrian Business Agency; Editor-in-Chief: Renè Siegl; Associate Editors: Maria Hirzinger, Karin Schwind-Derdak, Clifford Stevens; Print: Digital Druck Donau; Status: June 2014



### Austria's Leading Industries

Machine manufacturing, electronics and the innovative mechatronics sector have achieved major successes in the world marketplace

**High level of competence.** Mechanical engineering, electronics and mechatronics are the most important industrial sectors in Austria. Global market leaders such as Infineon, Philips, Bosch, GE, Liebherr and Rosenbauer manufacture and develop products in Austria. Siemens has set up six competence centers in Austria, whereas Voith has established its worldwide competence center for cardboard and packaging paper, TRUMPF Maschinen for bending technology and Eaton for IEC power distribution components (Moeller).

**"Made in Austria" – specialized know-how offered by world market leaders.** Austria stands out particularly due to its special know-how, and also impresses as a niche player as a result of its sophisticated customized individual production of the highest precision. For example, the American company SEMITOOL manufactures machinery and equipment for the semiconductor industry. BMW produces car body shell components for the BMWi3 with machines "Made in Austria". Doppelmayr equips Olympic sites with record-making cable railways, and 80 percent of the world's currencies are printed with KBA machinery from Austria.

**The most advanced training for specialized employees.** Above all, the Alpine Republic located in the heart of Europe mainly differs because of its dual educational system offered in the secondary vocational schools and higher technical colleges which train highly qualified specialists. Klaus Huttelmaier, Member of the Board of Management of Robert Bosch AG, not only praises the practice-oriented education at the higher technical colleges, but also the exemplary partnership between companies and research facilities in Austria.

**All advantages at a glance.** Innovative companies turn into global market leaders when all the requirements are fulfilled. Austria offers perfect conditions:

- Efficient business location with high labor productivity and low unit labor costs
- Practice-oriented education, highly qualified employees
- Exemplary cooperation between the business and scientific communities
- Highly-developed infrastructure with the most efficient and high-performance airport serving Central and Eastern European destinations
- Outstanding reliability of energy supply and low industrial electricity prices
- Political and social stability as well as a low crime rate
- Hardly any strikes due to the excellent relations between employers and employees
- Ideal basis for doing business in South East and Eastern Europe, featuring more than 1,000 CEE coordination centers of foreign companies
- Tax advantages thanks to the low corporate tax rate



# World Class Research and Education

### Business and scientific communities work hand in hand

Austria's educational system is one of the best anywhere. Austria employees are top motivated – rated fifth in the World Competitiveness Yearbook 2014.

**Dual education system.** One of Austria's specialties is the dual education system, a combination of theoretical and practical training practiced in apprenticeship programs and higher vocational schools. Curriculum and key courses of instruction are tailored to the needs of the business community. Companies such as Magna and Siemens professionally train apprentices and also offer the opportunity to complete an internship. It comes as no surprise that Austria is always ranked among the top in world championship competitions.

**Research institutes supply know-how.** Internationally recognized research and development institutes specializing in the fields of mechanical engineering, mechatronics and electrical engineering are located in the cities of Vienna, Linz and Graz. More than 60 university institutes and a series of research companies provide the entire spectrum of required services which companies expect in a thriving research environment, ranging from scientific know-how to the finished product.

#### Most important industrial sectors

Industrial production by sector, 2013 (%)



#### **Research / Education**

Vienna University of Technology → www.tuwien.ac.at

 $\begin{array}{l} \text{Graz University of Technology} \\ \rightarrow www.tugraz.at \end{array}$ 

Johannes-Keppler-University → www.mechatronik.uni-linz.ac.at

Austrian Reserach Centers  $\rightarrow$  www.arcs.ac.at

 $\begin{array}{l} \mathsf{PROFACTOR} \\ \rightarrow \mathsf{www.profactor.at} \end{array}$ 

 $Linz \ Center \ of \ Mechatronics \\ \rightarrow \ www.lcm.at$ 

Upper Austrian Research GmbH (UAR)  $\rightarrow$  www.uar.at

University of Innsbruck  $\rightarrow$  www.uibk.ac.at/advancedmaterials

Austrian Institute of Technology  $\rightarrow$  www.ait.ac.at

University of Applied Sciences, FH Campus Vienna

→ www.fh-campuswien.ac.at

FH JOANNEUM Uni. of Applied Sciences  $\rightarrow$  www.fh-joanneum.at

University of Applied Sciences Upper Austria − Wels Campus → www.fh-wels.at

Carinthia University of Applied Sciences  $\rightarrow$  www.cti.ac.at

University of Applied Sciences Technikum Wien

→ www.technikum-wien.at

Vorarlberg University of Applied Sciences  $\rightarrow$  www.fhv.at

University of Applied Sciences Wr. Neustadt  $\rightarrow$  www.fhwn.ac.at

Salzburg University of Applied Sciences  $\rightarrow$  www.fh-salzburg.ac.at

MCI Management Center Innsbruck  $\rightarrow$  www.mci.edu

UMIT  $\rightarrow$  www.umit.at

University of Applied Sciences FH Kufstein  $\rightarrow$  www.fh-kufstein.ac.at

Further information at:  $\rightarrow$  www.innovationszentren-austria.at

# Mechanical Engineering: Tops in Austria

### Growth leader and innovation driver

The mechanical engineering industry will once again be in the vanguard of growth in the years 2014/15, posting an average increase of six percent. It is the most important industrial sector in Austria, accounting for 14 percent of total industrial value creation (compared to the EU27 average of eleven percent). Accordingly, Austria ranks among the most specialized European countries in the field of mechanical engineering along with Germany, Denmark, Sweden and Italy.

**High-quality niche products.** More than one-third of Austria's entire industrial production is derived from machinery and plant construction as well as metal products. 7,750 companies throughout Austria operate in the mechanical and plant engineering sectors, producing primarily for the global market. The main success factors in the industry are the concentration on high quality niche products, smallseries and single item production.

**Above-average R&D expenditures.** This strongly exportoriented industry once again expanded its share of foreign trade by 5.2 percent in 2013. R&D expenditures of the mechanical engineering sector are three percent higher than the average for Austrian companies.

#### Top mechanical engineering sectors

Revenue in EUR million, 2012/13



Source: Bank Austria Economics & Market Analysis Austria, April 2014

### **Core strengths**

- Special and custom machinery
- Boiler construction

### **Clusters / Research**

Austrian Institute of Technology → www.ait.ac.at

AVL List →www.avl.com

Fraunhofer Austria Research → www.fraunhofer.at

Industrial Mathematics Competence Center  $\rightarrow$  www.indmath.uni-linz.ac.at

Mechanical and environmental engineering construction → www.mbu.at

RECENDT → www.recendt.at

PROFACTOR → www.profactor.at

RISC Software → www.risc-software.at/de

Materials Cluster Styria → www.materialcluster.at

KnetMET Industrial Competence Network for Metallurgical and Environmental Process Development → www.industry.siemens.com/knetmet

IKMA Competence Center for Mechatronics and Automation → www.vatron.com

Light Metals Competence Center (LKR)  $\rightarrow$  www.lkr.at

#### Other institutions at:

→ www.innovationszentren-austria.at



# Global Market Leaders from Austria

Leading-edge firms with special know-how

#### Global market leaders (1st, 2nd or 3rd in the world) or No. 1 in Europe

Andritz: Plant engineering → www.andritz.com **AVL:** Power machinery and aggregates → www.avl.com Beda-Lutz Werke: Metal goods → www.benda-lutz.com **Bertsch:** Environmental technology  $\rightarrow$  www.bertsch.at **Binder+Co:** Construction machines → www.binder-co.at **BOEHLERIT:** Hard metal → www.boehlerit.com **BWT:** Apparatus engineering → www.bwt.at Constantia Teich: Packaging materials → www.cflex.com **Doppelmayr: Lifts** → www.doppelmayr.at **Doubrava:** Steel and shipbuilding → www.doubrava.at **Ebner:** Industrial furnaces → www.ebner.cc **EMCO Maier:** Machine tools → www.emco-world.com **ENGEL** Machines for the plastics industry  $\rightarrow$  www.engelglobal.com **EVVA:** Locks, fittings  $\rightarrow$  www.evva.at Neuman Aluminium: metal goods → www.neuman.at Fröling: Steam and heating boilers → www.froeling.com **GE:** Gas engine production → www. ge.com/at **GREENoneTEC:** Environmental technology → www.greenonetec.com Greiner Extrusion: Machines for the plastics industry → www.areiner-extrusion.com Haas: Waffle machines → www.haas.com **HB-Brditschka:** Jewellry → www.lorena.at Herz Armaturen: Fittings → www.herz.eu **HOERBIGER VENTILWERKE:** Valves → www.hoerbiger.com **HTM Sport:** Sheet metal and metal goods → www.tyrolia.com iSi: Automobile component supplier  $\rightarrow$  www.isi-automotive.com Knill – Mosdorfer Verzinkerei: Steel → www.knillgruppe.com **Lisec:** Construction and mining machines  $\rightarrow$  www.lisec.com **Miba**: Automobile component supplier  $\rightarrow$  www.miba.com **M-U-T:** Environmental technology  $\rightarrow$  www.m-u-t.at

**Ochsner Wärmepumpen:** Heat pumps → www.ochsner.de **pewag:** Screws, chains, springs → www.pewag.at **Plansee:** Material technologies → www.plansee.com Plasser & Theurer: Locomotive and railway installations  $\rightarrow$  www.plassertheurer.at **Pollmann:** Automobile component supplier → www.pollmann.at **Polytechnik:** Environmental technology → www.polytechnik.com **Pöttinger:** Agricultural equipment → www.poettinger.at **REFORM-Werke Bauer:** Agricultural machinery → www.reform.at Röhren- und Pumpenwerk Bauer: Pipes and pumps → www.bauer-vo.com **Rosenbauer:** Firefighting equipment → www.rosenbauer.com Schukra Berndorf: Automobile component supplier → www.schukra.com Silhouette: Medical and optical equipment → www.silhouette-international.com **Starlinger:** Textile machines  $\rightarrow$  www.starlinger.com Swarovski-Optik: Medical, optical equipment → www.swarovskioptik.at **Teufelberger:** Steel cables → www.teufelberger.com **Thöni:** Environmental technology  $\rightarrow$  www.thoeni.com **TWG Mechanics:** Storage technology → www.tgw-group.com **Unger Stahlbau:** Steel → www.ungersteel.com VAE Eisenbahnsysteme: Railway systems → www.voestalpine.com/vaee W&H Dentalwerk Bürmoos: Medical and optical equipment → www.wh.com Waagner-Biro Stahlbau: Steel construction → www.waagner-biro.com **Wild:** Medical and optical equipment  $\rightarrow$  www.wild.at Windhager: Steam and heating boilers → www.windhager.com

**Zizala:** Automobile component supplier  $\rightarrow$  www.zkw.at

# Electronics: Innovative Core Industry

### Electronic components as an export hit

It is no coincidence that the lighting of the famous tower clock in the pilgrimage city of Mecca comes from Austria. This is because Austrian industry is one of the most specialized in Europe when it comes to manufacturing in the fields of electronics and electrical engineering. The sectors account for twelve percent of total industrial value creation, compared to the EU27 average of 10 percent.

The electrical and electronics industry is the second biggest industrial employer in Austria. Many companies, from Infineon, Eaton, AKG and Alcatel to Hewlett Packard, Siemens and Sony already benefit from the numerous advantages of Austria as a business location. They have set up international R&D centers in Austria as well as production facilities to manufacture quality products.

**Export champion.** The export rate is 80 percent, and even rises to 98 percent for motor vehicle equipment. Electronic components "Made in Austria" are particularly coveted internationally, from LED lighting and semiconductor components to generators and tram cars. Austria's semiconductor industry plays an important role, especially with respect to automobile electronics.

**Research-friendly and actively innovative**. The Austrian electronics industry is among the frontrunners in Europe, boasting research investments totaling 21 percent of revenue. The Community Innovation Survey also concluded that 90 percent of Austrian companies are "actively innovative". This means Austria is ranked second within the EU27.

Top electronic products		Percent of revenue
•	Engines and generators	41
•	Component parts	13
•	Electronic equipment	11
•	Lighting	7

#### **Clusters / Research**

 $\stackrel{\mathsf{CEST}}{\longrightarrow} \mathsf{www.cest.at}$ 

Competence Center for Automobile and Industrial Electronics (KAI)  $\rightarrow$  www.k-ai.at

Competence Center for Light Systems  $\rightarrow$  www.k-licht.at

Micro Electronic Cluster → www.me2c.at

Automobile Cluster  $\rightarrow$  www.automobil-cluster.at

Mobility Cluster Vienna → www.clusterwien.at

Competence Center for Optoelectronics → www.tz-burgenland.at

Carinthian Tech Research CTR  $\rightarrow$  www.ctr.at

Advanced Computer Vision → www.acv.ac.at

Competence Center for Applied Electrochemistry → www.cest.at

The FOTEC Research and Technology Transfer GmbH  $\rightarrow$  www.fotec.at

Software Competence Center Hagenberg → www.scch.at

Other institutions at:

→ www.innovationszentren-austria.at



### Mechatronics at the Forefront

### Future-oriented branch for intelligent products

The mechatronics branch – a fusion of machine construction, electronics and information technology – is a pulsating high-growth sector. Mechatronics is considered to be one of the most important drivers of innovation, especially in optimizing products and processes. The Mechatronics Cluster Upper Austria alone encompasses 314 companies with 59,400 employees, generating revenue of more than EUR 12 billion. Mechatronics is also one of the most important business sectors in Lower Austria, accounting for 44,000 jobs in more than 1,700 companies.

Some 800 firms and institutions represented in the Cluster Mechatronics Tyrol have gained extensive international experience. The "International Mechatronics Forum" consisting of business partners from Germany, Austria and Switzerland serves as a central exchange platform for application-oriented research and development in the field of mechatronics systems and components.

**Tops in Europe.** Regardless of whether it involves medical devices, tools, wood processing machines or the automotive sector, Austria has developed an outstanding knowhow in the production of custom and special purpose machinery. One key reason is the intensive cooperation which has evolved between the scientific and business communities in the field of mechatronics. Highly qualified R&D specialists are available to companies.

In Austria, students can get an engineering degree in mechatronics from many higher technical colleges (HTL). Courses of study in mechatronics are also offered at universities (Johannes Kepler University of Linz). Numerous Bachelor's and Master's degree programs guarantee the availability of optimally trained specialized employees for mechatronics companies.

#### **Clusters / competence centers**

Mechatronics Cluster Upper Austria → www.mechatronik-cluster.at

Cluster Mechatronics Tyrol  $\rightarrow$  www.standort-tirol.at

Linz Center of Mechatronics → www.lcm.at

V-Research Center for Tribotronics and Technical Logistics → www.v-research.at

Mechatronics Development Center of the Mahle Group → www.mahle.at

Materials Center Leoben → www.mcl.at

 $\begin{array}{l} \mbox{Material Center Tirol} \\ \rightarrow \mbox{www.transidee.ac.at/mct-material-center-tirol} \end{array} \\ \end{array}$ 

Other institutions at: → www.innovationszentren-austria.at



"One of our future priorities will continue to be ensuring the qualifications of employees. They represent our potential. The training center in Linz instructs 50 – 60 trainees on an ongoing basis, above all in the fields of mechatronics and electronics".



# SMEs Exploit Advantages

# Multinationals such as Infineon, Voith and Liebherr bundle their know-how in Austria

In addition to numerous multinationals, Austria is above all an ideal location for small and medium-sized enterprises such as Felder, Durst, Mendel and Ratgeber. The Austrian business location is ideal for companies which manufacture and conduct research in the key industrial sectors of mechanical engineering, electronics and mechatronics and which hope to capture international markets.

Electronics, machinery and plant engineering, mechatronics			
Company/country	Activities in Austria	Internet	
Infineon / Germany	Researches; develops and produces microchips; R&D centers in Villach, Graz, Klagenfurt and Linz	www.infineon.com	
Philips / Netherlands	Center for the Healthcare, Consumer Lifestyle and Lighting segments; compe- tence center for research and development	www.philips.at	
Liebherr / Germany	Production of cooling and freezing equip- ment, wheel loaders, bulldozers and backhoe loaders,, cranes, air conditioners and hydraulics for rail vehicles	www.liebherr.com	
Voith / Germany	"Cradle of Hydrodynamics"; drive technology for railways, industry and road vehicle; competence center for cardboard and packaging paper machines; production of rolls and roll systems; power plant technology	www.austria.voithturbo.at www.sanktpoelten.voithpaper.de	
TRUMPF Maschinen / Germany	Competence center for bending technology	www.at.trumpf.com	
MHI Engineering / Japan	Competence center for turn-key plants focusing on sustainable energy produc- tion, mainly gas-fired combined cycle power plants	www.mhiengineering.com	
Mahle / Germany	Production of turbochargers for the automotive sector	www.mahle.com	
Eaton / USA	Competence center for IEC power distribution components	www.eaton.at	
GE Jenbacher / USA	Production of gas engines and combined heat and power plants	www.jenbacher.com	
Steyr Motors / China	Production of diesel engines and hybrid technology	www.steyr-motors.com	
SEMITOOL / USA	Produces machinery and installations for the semiconductor industry	www.semitool.com	
Celestica / Canada	Healthcare Center of Excellence for Europe specializing in 3D ultrasound technology	www.celestica.com	

#### Austria is a highly sought-after business location for multinational companies.





"Austria stands out due to the availability of qualified staff – more than 50 percent of the engineers at Bosch have a higher technical college degree – as well as the professional, strategic R&D partnerships between companies, the political sphere and educational institutions."

Highly specialized and internationally renowned companies such as Andritz, Rosenbauer, Keba, KBA, Swarco and Tyrolit rank among the trailblazers in the fields of mechanical engineering, electronics and mechatronics. For example, the Andritz Group constructs mega power plants in Brazil, Chile or Turkey, Doppelmayr builds cable railways for the Olympic cities of London and Sotchi and cable railways with a record length of more than 10,000 kilometers in Brazil, and Rosenberger equips airports around the world with fire-fighting vehicles and customers such as Saudi Arabia and the U.S. Army. Almost every single euro note is printed on machines "Made in Austria" by KBA Mödling, and cash is frequently supplied by self-service banking terminals produced in the Alpine Republic by Keba.

#### Top 10 Austrian mechanical engineering companies

Revenue in EUR million, 2012/13



Source: Bank Austria, Trend, Industriemagazin



Source: Bank Austria, Trend



# Systematic Approach to Service

As a consulting company set up by the Republic of Austria, ABA-Invest in Austria (ABA) is the top choice of international investors

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- Award-winning ABA. ABA-Invest in Austria has won several awards for its consulting services: World's Best Investment Promotion Agency, World Bank Benchmarking (2009); Global Leader in Online Investment Promotion, World Bank Benchmarking (2012); Second-Best Investment Promotion Agency and third-place award for its program to strengthen Austria as a headquarters location, FDI World Forum (2013).



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