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<tr>
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<td>Feinmess Dresden GmbH</td>
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<td>AWEBA Werkzeugbau GmbH Aue</td>
<td><a href="http://www.aweba.de">www.aweba.de</a></td>
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<tr>
<td>Roth &amp; Rau AG</td>
<td><a href="http://www.roth-rau.de">www.roth-rau.de</a></td>
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<td>H&amp;T ProduktionsTechnologie GmbH</td>
<td><a href="http://www.ht-pt.com">www.ht-pt.com</a></td>
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<tr>
<td>Chemieanlagenbau Chemnitz GmbH (CAC)</td>
<td><a href="http://www.cac-chem.de">www.cac-chem.de</a></td>
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<td>XENON Automatisierungstechnik GmbH</td>
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<td>USK Karl Utz Sondermaschinen GmbH</td>
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<td>pro-beam systems GmbH</td>
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<td>UNION Werkzeugmaschinen GmbH Chemnitz</td>
<td><a href="http://www.union-machines.com">www.union-machines.com</a></td>
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<tr>
<td>Oerlikon Barmag, a Business Unit of the Oerlikon Textile GmbH &amp; Co. KG</td>
<td><a href="http://www.oerlikon.com">www.oerlikon.com</a></td>
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<tr>
<td>NILES-SIMMONS Industrieanlagen GmbH</td>
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<td>Metrom GmbH</td>
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<td>KARL MAYER MALIMO Textilmaschinen GmbH</td>
<td><a href="http://www.karlmayer.com">www.karlmayer.com</a></td>
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<td>KAMA GmbH</td>
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<td>Heidelberg Postpress Deutschland GmbH</td>
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<td><a href="http://www.starrag.com">www.starrag.com</a></td>
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<td>INNtex Innovation Network Textile e. V.</td>
<td><a href="http://www.inntex.de">www.inntex.de</a></td>
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<td>West Saxon University of Applied Sciences of Zwickau (WHZ)</td>
<td><a href="http://www.fh-zwickau.de">www.fh-zwickau.de</a></td>
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<tr>
<td>Saxon Textile Research Institute (STFI)</td>
<td><a href="http://www.stfi.de">www.stfi.de</a></td>
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<td>Laser Institute at the University of Applied Sciences Mittweida (HSMW)</td>
<td><a href="http://www.laser.hs-mittweida.de">www.laser.hs-mittweida.de</a></td>
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<tr>
<td>KuZ Center for Plastics in Leipzig</td>
<td><a href="http://www.kuz-leipzig.de">www.kuz-leipzig.de</a></td>
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<td>Institute of Textile Machinery and High Performance Material Technology at the Dresden University of Technology (ITM)</td>
<td><a href="http://www.tu-dresden.de/mw/itm">www.tu-dresden.de/mw/itm</a></td>
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<td>Helmholtz-Zentrum Dresden-Rossendorf e. V. (HZDR)</td>
<td><a href="http://www.hzdr.de">www.hzdr.de</a></td>
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<td>Freiberg University of Mining and Technology</td>
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<td><a href="http://www.vemas-sachsen.de">www.vemas-sachsen.de</a></td>
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<td>IMPRO Metal and Precision Technology Association Osterzgebirge e. V.</td>
<td><a href="http://www.impro-praezision.de">www.impro-praezision.de</a></td>
</tr>
<tr>
<td>German Engineering Federation (VDMA)</td>
<td><a href="http://www.vdma.org">www.vdma.org</a></td>
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<td>Carbon Composites e. V., Regional Department East</td>
<td><a href="http://www.cc-ost.eu">www.cc-ost.eu</a></td>
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<tr>
<td>Collaborative Research Center 799 »TRIP Matrix Composite«</td>
<td><a href="http://www.eniprod.tu-chemnitz.de">www.eniprod.tu-chemnitz.de</a></td>
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<tr>
<td>Cluster »MERGE – Merge Technologies Process Innovations in Production Engineering (eniPROD)«</td>
<td><a href="http://www.eniprod.tu-chemnitz.de">www.eniprod.tu-chemnitz.de</a></td>
</tr>
<tr>
<td>Cluster »Energy-efficient Product and Processes Dresden«</td>
<td><a href="http://www.ecemp.tu-dresden.de">www.ecemp.tu-dresden.de</a></td>
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<td>+ customized service packages for business site selection,</td>
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Source: Wirtschaftsförderung Sachsen GmbH (Saxony Economic Development Corporation)
### Register of Companies and Institutions Mentioned in This Brochure

#### Machine Tools, Printing and Textile Machines
- **Heckert GmbH**
  - **URL**: [www.heckert.com](http://www.heckert.com)
- **Heidelberger Postpress Deutschland GmbH**
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  - **URL**: [www.karl-mayer.com](http://www.karl-mayer.com)
- **Metron GmbH**
  - **URL**: [www.metron.com](http://www.metron.com)
- **MIKROMAT GmbH**
  - **URL**: [www.mikromat.net](http://www.mikromat.net)
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  - **URL**: [www.niles-simmons.de](http://www.niles-simmons.de)
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  - **URL**: [www.oerlikon.com](http://www.oerlikon.com)
- **Profroll Technologies GmbH**
  - **URL**: [www.profroll.de](http://www.profroll.de)
- **Radebeul Facility of the Koenig & Bauer AG Group**
  - **URL**: [www.kba.de](http://www.kba.de)
- **Schaudt Mikrosa GmbH**
  - **URL**: [www.schaudtmikrosa.com](http://www.schaudtmikrosa.com)
- **Terrot GmbH**
  - **URL**: [www.terrot.de](http://www.terrot.de)
- **UNION Werkzeugmaschinen GmbH Chemnitz**
  - **URL**: [www.union-machines.com](http://www.union-machines.com)

#### Production Technology
- **3D-Micromac AG**
  - **URL**: [http://3d-micromac.de](http://3d-micromac.de)
- **LASERVORM GmbH**
  - **URL**: [www.laservorm.com](http://www.laservorm.com)
- **TRUMPF Sachsen GmbH**
  - **URL**: [www.trumpf.com](http://www.trumpf.com)

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- **Siemens AG**
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- **SITEC Industrie-,technologie GmbH**
  - **URL**: [www.sitc-technology.de](http://www.sitc-technology.de)
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  - **URL**: [www.usk-utz.de](http://www.usk-utz.de)
- **XENON Automatisierungstechnik GmbH**
  - **URL**: [www.xenon-automation.com](http://www.xenon-automation.com)

#### Plant Construction / Process Engineering
- **Chemieanlagentechnik GmbH (CAC)**
  - **URL**: [www.cac-chem.de](http://www.cac-chem.de)
- **H&T Produktionstechnologie GmbH**
  - **URL**: [www.h-t-pt.com](http://www.h-t-pt.com)
- **KRAN UNION GmbH & Co. KG**
  - **URL**: [www.kranunion.de](http://www.kranunion.de)
- **Linde Engineering Dresden GmbH**
- **Roth & Rau AG**
  - **URL**: [www.roth-tau.de](http://www.roth-tau.de)
- **Thysenkrupp System Engineering GmbH**
  - **URL**: [www.thysenkrupp-systemengineering.com](http://www.thysenkrupp-systemengineering.com)
- **VON ARDENNE GmbH**
  - **URL**: [www.vonardenne.biz](http://www.vonardenne.biz)
- **VTD Vakuumentwicklung Dresden GmbH**
  - **URL**: [www.vtd.de](http://www.vtd.de)

#### Toolmaking and Mold Construction
- **Anchor Lamina GmbH**
  - **URL**: [www.anchorlamina.de](http://www.anchorlamina.de)
- **AWEBA Werkzeugbau GmbH Aue**
  - **URL**: [www.aweba.de](http://www.aweba.de)
- **KUKA Systems GmbH, Tools and Dies Business Unit**
  - **URL**: [www.kuka-systems.com](http://www.kuka-systems.com)

#### Suppliers and Service Providers
- **Feinmess Dresden GmbH**
  - **URL**: [www.feinmess.de](http://www.feinmess.de)
- **GFC Antriebssysteme GmbH**
  - **URL**: [www.gfc-drives.com](http://www.gfc-drives.com)
- **SITA Messtechnik GmbH**
  - **URL**: [www.sita-messtechnik.de](http://www.sita-messtechnik.de)
- **Spindel- und Lagerungstechnik Fraureuth GmbH**
  - **URL**: [www.sl-fraureuth.de](http://www.sl-fraureuth.de)

### Education and Research

#### Cetex Institute for Textile and Processing Machines
- **URL**: [www.cetex.de](http://www.cetex.de)

#### Chemnitz University of Technology
- **URL**: [www.tu-chemnitz.de](http://www.tu-chemnitz.de)

#### Cluster «CECEM – European Center for Emerging Materials and Processes Dresden»
- **URL**: [www.cecem.tu-dresden.de](http://www.cecem.tu-dresden.de)

#### Cluster «Energy-efficient Product and Process Innovations in Production Engineering (enprod)»
- **URL**: [www.enprod.tu-chemnitz.de](http://www.enprod.tu-chemnitz.de)

#### Cluster «MERGE – Merge Technologies for Multifunctional Lightweight Structures»
- **URL**: [www.tu-chemnitz.de/merge](http://www.tu-chemnitz.de/merge)

#### Collaborative Research Center 799 «TRIP Matrix Composite», Freiberg University of Mining and Technology
- **URL**: [https://tu-freiberg.de/ze/sfs799](https://tu-freiberg.de/ze/sfs799)

#### Dresden University of Applied Sciences (HTW)
- **URL**: [www.htw-dresden.de/fakultaet-maschinenbauverfahrenstechnik.html](http://www.htw-dresden.de/fakultaet-maschinenbauverfahrenstechnik.html)

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### Networks

- **Carbon Composites e. V., Regional Department East**
  - **URL**: [www.cc-ost.eu](http://www.cc-ost.eu)

- **German Engineering Federation (VDMA)**
  - **URL**: [www.vdma.org](http://www.vdma.org)

- **IMPRO Metal and Precision Technology Association Osterzegirge e. V.**
  - **URL**: [www.impro-praezision.de](http://www.impro-praezision.de)

- **Innovation Network Mechanical Engineering Saxony (VEMAS innovativ)**
  - **URL**: [www.vemas-sachsen.de](http://www.vemas-sachsen.de)

- **INNtex Innovation Network Textile e. V.**
  - **URL**: [www.inntex.de](http://www.inntex.de)

### Additional Contacts

- **Invest in Saxony** – Saxony’s Information Portal for Investors
  - **URL**: [www.invest-in-saxony.com](http://www.invest-in-saxony.com)

- **Saxon State Ministry for Economic Affairs, Labor, and Transport (SMWA)**
  - **URL**: [www.smwa.sachsen.de](http://www.smwa.sachsen.de)

- **Saxony Economic Development Corporation (Wirtschaftsförderung Sachsen GmbH)**
  - **URL**: [www.wfs.sachsen.de](http://www.wfs.sachsen.de)
Saxony is the cradle of German machine construction. For about 200 years now, machine tools as well as textile and printing machines made in the region have been in great demand around the globe. Today, Saxony is still a top location for such globally active enterprises as, for example, Siemens, NILES-SIMMONS, Starrag, TRUMPF, Linde, KUKA, and Koenig & Bauer.

The primarily small and medium sized enterprises of Saxony’s machine and plant construction industry score lots of points in the international competition; particularly, with their great innovative power. They possess extensive competences in the manufacturing, automation, and process technology sectors as well as in laser and electron beam machining and efficient plant construction. This creates state-of-the-art products and technologies which are highly appreciated by customers from the automobile, the energy and environmental technology, the photovoltaics, the medical and communication technology as well as the micro and nano electronics sectors.

With approximately 45,000 employees working in about 1,000 companies, machine construction is one of Saxony’s most important industrial branches. It contributes, for example, about one fifth towards Saxony’s industrial production. The export rate significantly exceeds 50 percent.
1703
Johann Esche builds the first knitting frame in Limbach and is the founder of Germany’s knitting machine industry.

1822
The first domestic worsted knitting machine is built in Chemnitz.

1839
Johann Andreas Schubert builds Germany’s first locomotive in Übigau near Dresden.

1844
Johann von Zimmermann commences with the manufacture of special lathes as well as drilling, milling, and planing machines in Chemnitz; thus, establishing machine tool construction in Germany.

1852
Germany’s first high speed color printing press is manufactured in Leipzig.

1868
Machine tools from Chemnitz are awarded first place at the World Exhibition in London.

1877
The Vogtlandische Maschinenfabrik AG VOMAG, one of the world’s most important producers of embroidery machines, is established in Plauen. Later, the production of looms as well as motor vehicles and buses follows.

1882
Oskar Ludwig Kummer founds one of Germany’s first electrical engineering firms in Dresden-Niedersedlitz.

1895
Germany’s first permanent mold casting is produced at Schumann & Co. in Leipzig.

1900
Schubert & Salzer Chemnitz is the world’s largest textile machine manufacturer.

1906
Ernst Hermann designs a universal offset perfecting press for continuous roll paper to improve the printing of images in newspapers.

1912
Heinrich Maurersberger from Limbach-Oberfrohna near Chemnitz invents the MALIMO stitch-bonding technology.

1927
Planeta Radebeul builds the world’s first unit type sheetfed offset printing press. This type of construction has become the standard in modern sheetfed offset printing presses today.

1933
Manfred von Ardenne gets a patent for his new development, the electron beam multi-chamber furnace for high vacuum metallurgy.

1946–49
The development of numerically controlled machine tools commences in Saxony.

1957
Saxony’s researchers and mechanical engineers present Germany’s first machine tool based on parallel kinematics at the EMO.

1965
Saxony’s Metron, the specialist for parallel kinematic machine tools, develops an innovative mobile milling satellite for large workpieces and wins the Innovation Award of Saxony for this development.

1967/68
The development of flexible production systems begins in Saxony.

1997
The largest laser system ever produced by TRUMPF for machining oversized formats is developed and built by TRUMPF Sachsen.

2008
One of the most popular exhibits at the Eurolblech is the world’s most productive laser cutting system – developed by TRUMPF Sachsen GmbH’s engineers.
Machine Tools, Printing and Textile Machines

With more than 175 years of experience in German and US American machine construction, the NILES-SIMMONS-HEGENSCHEIDT Group is one of the most competent manufacturers of the branch. Its product portfolio includes high precision machine tools and systems solutions for the aerospace industry, the automobile and truck industries, general machine construction, the rail and metro industries as well as machine tool and mold construction. The globally active enterprise NILES-SIMMONS Industrieanlagen GmbH has its headquarters in Chemnitz, Saxony.

Saxony’s industrial city of Chemnitz is considered to be the birthplace of German machine tool construction. It is also the location of the Heckert GmbH corporation. The company is a leading global provider of horizontal machining centers and technological production lines for milling, turning, and drilling. Heckert GmbH is part of the globally active Swiss Starrag Group.

40 meter long and 10 meter high workpieces weighing up to 250 tons can be processed on the horizontal drilling and milling systems made by the UNION Werkzeugmaschinen GmbH Chemnitz corporation. The company, which was founded more than 160 years ago, has established itself as a technological leader when it comes to machining in energy technology, shipbuilding, fitting and pump construction as well as machine and steel construction. Boring mills made by UNION Chemnitz augment the product portfolio of the Siegen-based HerkulesGroup which UNION joined in 2011.

Based in Bad Düben, the Profiroll Technologies GmbH corporation stands for innovations in cold forming technology. The product portfolio encompasses machines, tools, and technologies for profile and thread rolling as well as for spline and ring rolling. Customers from the automobile, supply, linear technology, aircraft, roller bearing, energy technology, and connecting elements industries all benefit from the extensive experience and expertise of the machine tool manufacturer.

Prof. Dr. Hans J. Naumann »We’ve selected Chemnitz as our group’s headquarters to send a clear signal. A signal that machines made in Saxony are world class. Competent employees, an excellent research environment as well as intelligent state support for innovations are all essential reasons in this.«

(Managing Partner, NILES-SIMMONS-HEGENSCHEIDT Group)
Precision portals in the XXL format are a specialty of Dresden’s Mikromat GmbH corporation. This productive technology is used, for example, by customers in the aerospace industry and in the energy technology branch for the production of large-scale parts with the greatest precision. Mikromat thread grinding machines also prove their worth wherever precision and productivity are paramount, for example, in machine tool construction, medical technology, or the automobile industry. Another business segment deals with the development of specific technologies and the machining of parts for a wide range of customers.

Pioneering work in the development and construction of parallel kinematic machine tools is carried out by the Metrom GmbH corporation located in Hartmannsdorf near Chemnitz. Its high precision, energy-efficient machines and systems have proven themselves, for example, in the automotive supply industry, in model and mold construction, in the aerospace industry as well as in energy technology. With the development of a mobile machine, Metrom has managed to occupy another niche. This small-scale and lightweight unit travels to significantly larger and heavier workpieces; thus, carrying out all machining steps with great precision.
precision on the customer’s premises. In addition to milling and turning, the company has also readied its machines for friction stir welding.

As the world’s leading hard fine machining provider, the United Grinding Group has pooled the activities of its SCHAUDT and MIKROSA brands within the Schaudt Mikrosa GmbH corporation in Leipzig. MIKROSA stands for the development and production of centerless external grinding machines. The Saxon production site possesses more than 60 years of knowledge and expertise in this sector. The technological and market leader is able to provide grinding applications ranging from the smallest jet needle all the way to large rail axles. SCHAUDT sets global standards in technology, precision, and quality when it comes to cylindrical, non-circular, and cam form grinding. The in-house knowledge and the production site of this grinding machine segment were relocated from Baden-Württemberg to Saxony in 2010 with the objective of creating synergies to benefit those customers who are found primarily in the automobile and automotive supply industries as well as in machine construction and roller bearing production.

The »set-up time world champions« in sheetfed offset printing come from Saxony. With its comprehensive product portfolio ranging from medium-size to super large formats, the Radebeul Facility of the Koenig & Bauer AG Group continuously introduces innovations to the market which provide better productivity, quality, upgrading, and environmental protection. The company’s profound knowledge and expertise make it one of the technological leaders for sheetfed offset printing presses. More than 80 percent of the machines are exported.

The Leipzig-based Heidelberg Postpress Deutschland GmbH, a company of the Heidelberger Druckmaschinen AG Group, develops and manufactures post-press finishing systems for the bookbinding industry with a specific focus on saddle stitchers, adhesive binders, and thread sealing machines.

Multifunctional automatic die cutters and folding/gluing machines for the graphic industry are developed and manufactured by Dresden’s KAMA GmbH corporation. KAMA machines for post-press processing and print finishing are used with great success in more than 60 countries.

Dr. Frank Brinken »in 1998, the opportunity arose for the Swiss Starrag corporation to merge with the Heckert factories in Chemnitz. This decision has proven to be the right one. The considerable experience of the employees in the region, the available technological potential, and the superb vocational training system are an excellent foundation for continued growth in the entire Starrag-Heckert Group. With their outstanding technical colleges and universities, Chemnitz and Saxony are the perfect location for us!«

(CEO, Starrag Group Holding AG)
Warp knitting machines and stitch bonding machines for the production of technical textiles are developed and built by the KARL MAYER MALIMO Textilmaschinen GmbH corporation in Chemnitz. The company continues the tradition of the MALIMO stitch bonding technology which was invented in Saxony. Today, it is the headquarters of the business unit Technical Textiles within the globally active KARL MAYER Group. Textile solutions which are used in vehicle construction, the construction industry, and energy technology can be realized with the machines made in Chemnitz.

Systems and components for filament production and processing are developed and manufactured at the Chemnitz site of Oerlikon Barmag, a Business Unit of the Oerlikon Textile GmbH & Co. KG corporation. Its core competences include spinning and winding systems for mono and multi filaments with specific properties. For example, artificial turf for soccer stadiums around the globe is produced on the company’s monofilament extrusion systems. One of the latest innovations coming from Chemnitz is the WinTrax-A 2cop, an automatic two-thread winder for carbon fibers. Especially when it comes to the constantly increasing energy costs, multi-thread systems provide a considerable competitive edge.
With technical competence and ceaseless innovations, the large-diameter circular knitting machines manufactured by the Chemnitz-based Terrot GmbH corporation prove their worth around the globe. Virtually all products made by the more than 150 year old textile machine manufacturer are exported.

Production Technology

Both the world’s most productive laser cutting system and the largest laser system ever to have been built by TRUMPF for the efficient processing of oversized formats have the same birthplace – the TRUMPF Sachsen GmbH corporation in Neukirch, Lusatia. With these systems, the engineers and specialists aptly demonstrate their competences in the development and production of high performance laser cutting systems with two cutting heads. The service portfolio also includes automation equipment for laser cutting systems, punching and combination machines as well as complex automation systems with storage technology.

Located in Chemnitz, the 3D-Micromac AG corporation has established itself as a leading provider of individual, customized laser micromachining workstations for industrial applications and for research purposes. They are used, for example, in systems for the production of photovoltaic modules and components as well as in semiconductor production, medical technology, and the digital production of printed functionalities.

A competent partner for laser machine construction and contract manufacturing is the LASERVORM GmbH corporation in Altmittweida. The company provides not only customer-specific machines, but also standard machines used in mass production. The former is demonstrated by a globally unique machine solution with which the pharmaceutical industry opens chicken eggs with absolute sterility under clean room conditions. Systems and technologies for laser welding, laser hardening, and laser cladding prove their worth, for example, in drive and propulsion technology, electronics, sensor technology, medical technology, and the automotive supply industry. One of the latest applications is laser cladding as a repair procedure for power plant turbines and aircraft engines. LASERVORM is a certified partner in this sector.
The globally active pro-beam Group is a leading international supplier of electron beam technologies. Machine and plant construction are united at the pro-beam systems GmbH corporation in Neukirchen near Chemnitz. Electron beam systems made in Saxony are used around the globe primarily by customers in vehicle construction, the aerospace industry, and medical technology. They are also in great demand at leading research institutions.

**Automation Technology**

A very active participant in Saxony’s machine and plant construction industry is the Siemens AG Group. Customer-specific flat components, equipment, and systems solutions in automation technology are developed and produced at the Solution Factory for Automation and Drives (WKc) in Chemnitz. The Siemens transformer factory in Dresden is the competence center for medium voltage and industrial transformers within the Siemens transformer production network. Low voltage switchgear combinations and system cabinets are produced for the global market at the Leipzig factory for low voltage switchboards and systems. This is also the place where the Siemens Turbomachinery Equipment GmbH corporation manufactures compressors/turbo compressors for the process industry. Engineering for high temperature coal gasification is carried out at the Siemens Fuel Gasification Technology GmbH corporation in Freiberg. The turbine plant in Görlitz is the global headquarters for industrial steam turbine construction within the Siemens Sector Energy. Branch specific solutions for industrial drives and transmissions as well as for rail technology are developed and produced by the Siemens Industriegetriebe GmbH corporation in Penig. The Siemens Gusstechnik GmbH corporation in Chemnitz/Wittgensdorf produces high quality castings for the drive and propulsion technology used in many industrial branches such as, for example, energy production, transportation as well as raw materials extraction and processing.

Complex automation projects for the automotive, non-automotive, and photovoltaic sectors are implemented by the USK Karl Utz Sondermaschinen GmbH corporation from Limbach-Oberfrohna. The company is active around the globe as a full service provider of special purpose machinery and industrial plants in the assembly, handling, and testing technology sectors. The portfolio ranges from mechanical and electrical design
and construction to program development and mechanical and electrical assembly/installation all the way to commissioning.

Since 1990, the Dresden-based XENON Automatisierungstechnik GmbH corporation has delivered more than 1,000 systems to its customers around the globe. XENON’s fully automated mounting and testing systems permit the large-batch, mass production of sensors, electromechanical components, solar cells, connectors, microtechnical components, and other products for the automotive, electronics, photovoltaics, and medical engineering branches with high quality and productivity. The company possesses specific competences in the automated production of molded interconnected devices – the 3D-MID technology.

The Chemnitz-based SITEC Industrietechnologie GmbH corporation excels with customer-specific developments of flexible assembly systems, laser systems, and systems for electrochemical metal machining. The list of references includes companies of global repute and renown from the automobile industry and their suppliers as well as from the electrical engineering/electronics and other branches. The systems supplier covers the
The Chemieanlagenbau Chemnitz GmbH (CAC) corporation is well established on the global market for plant construction and process engineering and an experienced partner for comprehensive engineering services and solutions. For more than 45 years, the company has been an expert in the sectors refinery and gas technology, petrochemistry, inorganic chemistry as well as fine and specialty chemistry. In close cooperation with its customers, CAC realizes all projects ranging from initial planning to construction all the way to commissioning complex plants and plant units.

The Hohenstein-Ernstthal location of the ThyssenKrupp System Engineering GmbH corporation has gained its reputation primarily with the planning and implementation of complete car body systems for the international automobile industry. To this is now added another core competence: The development and manufacture of lithium-ion storage production systems. On a pilot line in Pleiße near Chemnitz, the company researches the entire process chain ranging from electrode production all the way to battery assembly so as to create solutions for manufacturing technologies which can be used in mass production.

Plant Construction / Process Engineering

Linde Engineering Dresden GmbH, a subsidiary of the Linde Group, is one of the leading companies worldwide when it comes to the design, delivery, and construction of chemical, gas, biotechnology, and pharmaceutical plants. The company realizes Linde process technologies as well as third party processes. Linde Engineering Dresden not only carries out projects in traditional fields such as petrochemical and chemical plants, refineries, gas plants, and air separation plants, but also applies its knowledge in new and highly innovative technological fields. In particular, the Dresden-based company specializes in industrial (‘white’) and pharmaceutical (‘red’) biotechnology plants as well as in CCU (carbon capture and utilization) and CO₂ plants.

entire product life cycle ranging from engineering to manufacturing and production all the way to after sales service. In addition, SITEC develops and manufactures its own systems with which it carries out mass production orders on behalf of its customers.

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Precision and flexibility are united in a new dimension by the H&T ProduktionsTechnologie GmbH corporation from Crippschiou in its latest product segment servo spindle presses. This innovation combines the advantages of mechanical and hydraulic presses in such a way that both maximum precision and the adaptability of the ram movement to the actual forming process can be obtained at the same time. The forming process can be combined with such other technologies as joining, side piercing, welding, laser labeling, plastic injection molding, and thermal treatments. In addition to this new segment, the company portfolio also includes mechanical presses, metal bellows machines, CNC transfer systems, swivel cutting tools as well as complex automation solutions.

Intelligent thin film technologies come from Dresden: The VON ARDENNE GmbH corporation is a leading global manufacturer of equipment for industrial, nanometer to micrometer thin coatings on glass, metal strip, and foil. These materials are, thus, given entirely new functional properties. VON ARDENNE holds more than 300 patent families worldwide, and its systems are used in over 50 countries.

One of the market leaders for metallization systems is the VTD Vakuum-technik Dresden GmbH corporation. Its developments include highly productive, short-cycle sputtering systems for the metallization of 3D plastic parts which can be integrated with great precision into fully automated production lines. VTD also develops and produces technology and customer-specific plant systems for hard material coatings, optical precision coatings, and specific tasks in vacuum technology.

Headquartered in Hohenstein-Ernstthal, the Roth & Rau AG Group was one of the first companies on the entire globe to address the development of equipment solutions for the coating of solar cells. Thanks to its innovative systems concept and its early entry into the photovoltaics market along with the requisite manufacturing experience, the company, which is part of the Swiss Meyer Burger Group, has become a market leader for solar cell coating systems. Due to its in-house development activities and the acquisition of diverse technology firms, Roth & Rau is able to provide a wide range of production equipment, software, and services to the photovoltaics industry.

Robin Schild »Saxony has been and continues to be the place of creative minds. We see ourselves in the tradition of our founder and patron Manfred von Ardenne. The values which he represents, namely, scientific curiosity and the systematic quest for innovative, technical solutions which are economically feasible determine all of our actions. With intelligent coating systems, we’re assisting our customers around the globe in quickly making alternative energy production competitive. We’re also helping save energy. For example, with insulating glass coating systems: In this sector, we’re the market leader.«

(President & CEO, VON ARDENNE GmbH)
Headquartered in Leipzig, the **Kranunion GmbH & Co. KG** corporation is the association of the crane manufacturers Kirow, Kocks, and Ardelt. It has production sites in Leipzig, Bremen, and Eberswalde which specialize in hoisting and transporting heavy loads in the sectors railroads, ports, shipyards, and steelworks. Kirow is the global market leader for rail cranes and slag port carriers, Kocks for Goliath cranes, and Ardelt for double jib level luffing cranes.

**Toolmaking and Mold Construction**

The tool and die construction division of the **Kuka Systems GmbH** corporation in Schwarzenberg is one of the leading manufacturers of industrial tools for car body construction. The company’s engineers and specialists successfully cover the entire process chain for the development and production of complex systems solutions in the most diverse material qualities. In addition to forming dies for various steels, the portfolio also includes such lightweight construction materials as aluminum and composites.

The **Aweba Werkzeugbau GmbH Aue** corporation possesses comprehensive expertise in forming, blanking, precision blanking, and die casting tools. Europe’s largest independent tool manufacturer is primarily committed to precision tools and technologies for powertrains. Its powertrain and magnetic steel sheet competences are successfully applied, for example, in state-of-the-art gearboxes and transmissions. By combining forming and precision blanking in a single toolkit, the company has made the production of synchronizer rings much more efficient.

Located in Chemnitz, the **Anchor Lamina GmbH** corporation has firmly ensconced itself on the European market as a special manufacturer for the automobile, machine, and tool construction industries. The company develops and produces special plates, steel and welding constructions as well as column-guide frames. The product range also includes standards and components for tool and device making such as, for example, rotary benders and in-die tapping units as well as cam slides. Anchor Lamina possesses comprehensive competences in blank cutting tools in the coil cut style as well as in special purpose plants and press periphery.
Suppliers and Service Providers

In Saxony, hundreds of companies, ranging from industrial firms all the way to crafts enterprises, are firmly integrated into the supply chain for machine and plant construction. Likewise, numerous service providers support the branch with superb state-of-the-art engineering solutions which help maintain and enhance the quality, precision, and productivity.

The GFC AntriebsSysteme GmbH and the Spindel- und Lagerungstechnik Fraureuth GmbH corporations are among the leading providers in the drive technology sector. Printing machines, container cranes, solar power systems, stage engineering, and escalators are only some of the applications for which the products made by the Coswig-based GFC AntriebsSysteme GmbH corporation provide the right movement and power transmission. The company has established itself as a special supplier of worm gear units and drive systems. GFC develops and produces individual drive solutions and customized products for its clients throughout the world. All safety-relevant parts are machined on precision machine tools in GFC’s own
Bottom left
Grinding worm shafts at GFC Antriebssysteme.

Bottom center
Feinmess Dresden’s 4-axis positioning system used in high vacuums.

Bottom right
Contactless, contamination-free surface cleanliness inspection of parts with the SITA CleanoSpector.

production department. Prior to their delivery, the products are tested on the in-house test bench in application-oriented simulations.

More than 1,000 customers in more than 40 countries are on the reference list of the Spindel- und Lagerungstechnik Fraureuth GmbH corporation. The company has become a renowned manufacturer of roller bearings having outer diameters of up to 1,600 millimeters and of machine tool spindles. The products are used in machine tool and textile machine construction, rail technology, the automotive supply industry, in wind turbines as well as in many other branches.

The Feinmess Dresden GmbH corporation has established itself on the global market as an engineering firm for high precision positioning solutions. In close cooperation with its customers, the corporate staff develops and produces, for example, ultra-precision linear and rotary tables, nano-positioning systems with innovative PiezoLeg drives, compact XY stages for scanning applications, innovative systems for extreme environmental conditions (this includes, for example, applications in strong magnetic fields and in ultra-high vacuums), innovative air-bearing systems as well as suitable controllers. Its customers include, for example, enterprises in the semiconductor, laser, and optical industries, the biotechnology and measurement instrument technology branches, the aviation industry as well as research institutes in more than 25 countries around the globe.

In its business area SITA Process Solutions, the Dresden-based SITA Messtechnik GmbH corporation provides process measuring and control technology for monitoring and controlling the cleaning agent concentration, parts cleanliness, and bath contamination to ensure optimal quality and efficiency. SITA’s customers use the company’s application-oriented solutions to optimize their process management in industrial parts cleaning and manufacturing processes.
A top address for instruction and research in mechanical engineering is Chemnitz University of Technology. The focal points of research »Human Factors in Technologies,« »Intelligent Systems and Materials« as well as »Energy Efficient Production Processes« shape and characterize the profile of the academic institution. The scientists in the German Federal Cluster of Excellence »Merge Technologies for Multifunctional Lightweight Structures (MERGE)« focus on consolidating the separate manufacturing processes, which still exist for the processing of different material groups, into integrated technologies. In the Cluster of Excellence »Energy-efficient Product and Process Innovations in Production Engineering (enipROD),« the researchers are geared towards implementing the vision of a virtually emission-free production.

Students at the Department of Mechanical Engineering acquire professional qualifications in the fields of mechanical engineering, microtechnology/mechatronics, lightweight construction, industrial engineering, systems engineering, automotive manufacturing, sports engineering, print and media technology, medical engineering, sustainable energy supply technologies, and production systems.

Dresden University of Technology (Technische Universität Dresden) is one of Germany’s eleven Universities of Excellence. With more than 4,000 students, mechanical engineering is the largest program of study. It is the only academic program in Germany which can be taken either as a traditional German university Diplom program or as distance learning. Students can specialize in such fields as general and constructional mechanical engineering, power engineering, automotive and rail vehicle engineering, lightweight engineering, aerospace engineering, production engineering, simulation methods in mechanical engineering as well as processing machine and textile machine construction. Technology and knowledge transfer between the university and the business community come alive in such competence centers as the Center for Energy Technology, the Lightweight Structures Innovation Center, the Center for Virtual Mechanical Engineering, and the Center for Production Technology and Organization as well as in the Cluster of Excellence »ECEMP – European Center for Emerging Materials and Processes Dresden.«

Freiberg University of Mining and Technology provides a combination of materials science and materials technology in its education that is
unique in all of Germany. In close contact with industry, the next generation of materials engineers is educated and trained to become experts in metals, ceramic materials, electronic and sensor materials as well as composite materials. Mechanical engineering, environmental engineering, process engineering as well as materials technology/foundry technology are additional fields of studies.

A focal point of research is the development of new, high performance composite materials made from steel and ceramics. That is why the German Research Foundation’s Collaborative Research Center 799 »TRIP Matrix Composite« was established in Freiberg.

Automotive production, mechanical engineering, industrial management and engineering as well as textile and leather technology are essential, applied educational programs at the West Saxon University of Applied Sciences of Zwickau (WHZ)’s Department of Mechanical and Automotive Engineering. At the Institute for Production Technology, scientists implement research tasks for factories and production organization, production technology as well as materials and quality management. The research unit machine construction focuses, for example, on the sectors hydraulic and pneumatic drive and control systems, machine elements and threaded connections, assembly technology, control technology for machine tools, tribology/fuels and lubricants as well as machine tools.

The Faculty of Mechanical Engineering and Process Engineering at Dresden University of Applied Sciences (HTW) educates and trains engineers in the modularized mechanical engineering programs in general mechanical engineering, vehicle engineering, and production technology which award the traditional German Diplomingenieur degree. The faculty’s key research areas include, for example, mechanical and plant engineering, motor vehicles and drive and propulsion systems, production engineering and manufacturing processes as well as chemical product syntheses and physical chemistry. The faculty is equipped with extensive lab spaces that encompass all areas of specialization as well as a mechanical engineering test hall, a new technical lab for vehicles, an electron beam system, and a lab complex for engineering and natural sciences.
In addition to instruction and research in the programs of studies for mechanical engineering and mechatronics, laser technology is another special field of research at the University of Applied Sciences Mittweida (HSMW). The associated Laser Institute, for which a new research building is to be constructed soon, focuses on applied research and development in a wide range of topics revolving around laser micro and macro machining. Specific strong points of the institution’s laser research are found in the sectors laser deposition of superhard coatings, laser joining of ceramics, selective laser micro sintering, and micro structuring of the most diverse materials, for example, via ultra-short pulses. Another focus is on the development of high rate laser processes in order to increase the efficiency of laser processes and procedures. Starting in the winter semester 2013/2014, the Hochschule Mittweida will offer a new program of study for laser technology for which there is a great demand in the industry.

Materials and energy research are two focal points of the researchers at the Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR). In the materials sector, the scientists focus on thin films, nanostructures,
magnetic and semiconducting materials for micro and opto electronics, material analyses, ion and plasma technologies as well as metal and material films for biomedical and tribological applications. When it comes to the energy efficiency of material flows in industry, the topics crystal growth, innovative foundry technologies, energy-intense processes in chemical and process engineering as well as the safety of power plants are in the foreground. Thanks to its unique facilities like the ELBE accelerator, the Dresden High Magnetic Field Laboratory, the Ion Beam Center, or the LIMMCAST steel casting facility, the HZDR is able to provide a wide variety of services ranging from contract research, consultation, continued education and training, licensing, and analysis all the way to pilot production.

The Fraunhofer Institute for Machine Tools and Forming Technology (IWU) is one of the world’s most renowned research and development centers in the field of production technology. As the leading institute for resource-efficient production, the Fraunhofer IWU is a development partner in the future-oriented branches automobile and machine construction. The scientists in Chemnitz, Dresden, Augsburg, and Zittau develop intelligent production systems and technologies for the manufacture of car body and powertrain components and optimize the associated forming and cutting manufacturing processes. Lightweight structures and the use of new materials are key success factors in this. In addition to resource-efficient production, the IWU staff members also work on innovations for the sectors machine tools and production systems, mechatronics and functional lightweight design, tool and mold making, car bodies/cell structures, powertrain as well as medical engineering.

Application-oriented research and development in the sectors laser, surface, and nano technology is conducted by the Dresden-based Fraunhofer Institute for Material and Beam Technology (IWS). The institute has gained renown, for example, in the machine and automobile construction industries with the development of procedures for highly efficient joining processes in the powertrain sector as well as with the development of high speed laser machining technologies. Another focus of the R&D activities is on energy and resource efficiency with a large number of current projects addressing the topics friction reduction and lightweight construction. Over the next few
years, the institute’s work will also be characterized by numerous projects revolving around the production of electrical energy storage devices.

The development and use of efficient vacuum coating methods and electron beam technologies for materials processing are the core competences of the applied research conducted at the Fraunhofer Institute for Electron Beam and Plasma Technology (FEP) in Dresden. The coatings and surface modifications are not only used in machine construction, but also in many other branches such as, for example, photovoltaics, packaging, biomedical engineering, and agriculture. They help create, for example, special layers for displays, forgery-proof labels, and mirrors for the newly restored Green Vault in Dresden.

As a private and industry-related research institution, the ICM – Institute of Mechanical and Plant Engineering Chemnitz e.V. plays a vital role in developing numerous innovations for the machine and plant construction industry. The energy-efficient lightweight press, the pipe end machining center, the tool changer, and products in the electromobility sector...
are just a few examples of the developments made by the institute. In cooperation with the ICM, it is possible for small and medium sized enterprises to address existing problems and find viable solutions.

»With the industry – for the industry« is the mission statement of the KuZ Center for Plastics in Leipzig. The research, technology, test, and continued education and training facility, which is acknowledged and recognized throughout Europe, possesses extensive knowledge in thermoplastics and polyurethane processing. The center’s fields of activity include not only constructional design and tool engineering, but also materials development, joining technology, and plastics testing in its own accredited test lab. Current developments deal with, for example, the process combination of injection molding and polyurethane reaction technology for the production of molded parts with high grade surfaces, ultrasonic welding and ultrasonic riveting of technical plastics with tempered sonotrodes, and micro injection molding.

Chemnitz University of Technology’s Cetex Institute for Textile and Processing Machines is the research institution in Germany for new technologies and machines used in the manufacture of textile-based semifinished products, functional components, and high performance structures. The development of processes and materials for continuous fiber reinforced semifinished products and complex preforms as well as the requisite machines for their production are center stage here. The conceptual design and testing of technologies which are eligible for the mass production of multifunctional lightweight structures play a central role in this.

A leading international textile research, service, and test facility is Chemnitz University of Technology’s Saxon Textile Research Institute (STFI). It assumes a leading position in European nonwoven textile research. The institute is also active in the sectors technical textiles for fiber reinforced lightweight construction; building, geo, and agro textiles; smart textiles; and the development of nets and strands. As an important link between textile manufacturers and textile machinery construction, the focus is on optimizing manufacturing processes with respect to materials, energy, and time. The STFI develops, for example, textile semifinished products out of fiber reinforced plastics for machine components.

Within the Cluster of Excellence »Energy-efficient Product and Process Innovations in Production Engineering (eniPROD),« scientists from Chemnitz University of Technology and the Fraunhofer Institute for Machine Tools and Forming Technology (IWF) are researching the virtually emission-free factory of the future. In the sectors »Virtual Product Development,« »Process Chain Powertrain,« »Process Chain Cell Structures,« »Production Systems,« »Materials and Structures,« as well as »Logistics and Factory Planning,« they are developing innovations for the creation of new methods, technologies, and products which encompass resource efficiency and sustainability across the entire product life cycle.
Saxon machine and plant construction enterprises, production-related service providers as well as research institutions augment their individual strengths through cooperation in the Innovation Network Mechanical Engineering Saxony (VEMASinnovativ). The network’s focus is on technology transfer for the creation of innovative products and technologies, the development of new markets and business segments as well as the recruitment of highly qualified employees.

The IMPRO Metal and Precision Technology Association Osterzgebirge e. V. represents the Saxon competences in precision mechanics and fine mechanics. IMPRO is an association in which the mostly small, but highly innovative enterprises of these branches pool their interests. IMPRO is committed to safeguarding and assuring a pool of specialists and executives for the future and addresses such other topics as production cooperation and service exchange, the development of innovation potentials, and the joint presentation and promotion of services to customers and markets.

The Carbon Composites e. V., Regional Department East association strengthens and pools the fiber composite competences of highly efficient companies and research institutions in Saxony and the other East German states at its Dresden location. The alliance pursues the objective of establishing the relatively new high performance fiber composite technology as a cutting edge technology.

Machine parts, hoisting and lifting devices, grinding technology, roller covers, damping elements, filter systems as well as seals and gaskets are essential fields of application for technical textiles. Virtually no industrial plant or system can do without state-of-the-art fiber structures today. The INNtex Innovation Network Textile e. V. helps enterprises of the textile branch and related sectors develop innovative growth fields.

The German Engineering Federation (VDMA) represents the largest branch network of the investment goods industry in Europe. Its regional office in East Germany, VDMA East, provides its members, which are primarily small and medium sized enterprises, with a multifaceted range of services, attracts a lot of attention in representing their interests among governmental authorities, and successfully promotes important topics. Supported in this manner, the association’s approximately 140 members from Saxony are optimally prepared to meet the challenges posed by their national and international competitors.
A SELECTION OF MECHANICAL ENGINEERING AND PLANT CONSTRUCTION COMPANIES IN SAXONY

Leipzig
Chemnitz

REGISTER OF COMPANIES AND INSTITUTIONS MENTIONED IN THIS BROCHURE

Company / Institution URL

Suppliers and Service Providers

Plant Construction / Process Engineering

Automation Technology

Production Technology

SITA Messtechnik GmbH www.sita-messtechnik.de
Feinmess Dresden GmbH www.feinmess.de
AWEBA Werkzeugbau GmbH Aue www.aweba.de
Anchor Lamina GmbH www.anchorlamina.de
Roth & Rau AG www.roth-rau.de
KRANUNION GmbH & Co. KG www.kranunion.de
H&T ProduktionsTechnologie GmbH www.ht-pt.com
Chemieanlagenbau Chemnitz GmbH (CAC) www.cac-chem.de
USK Karl Utz Sondermaschinen GmbH www.usk-utz.de
TRUMPF Sachsen GmbH www.trumpf.com
pro-beam systems GmbH www.pro-beam.com
3D-Micromac AG http://3d-micromac.de
Terrot GmbH www.terrot.de
Schaudt Mikrosa GmbH www.schaudtmikrosa.com
Profiroll Technologies GmbH www.profiroll.de
Oerlikon Barmag, a Business Unit of the Oerlikon Textile GmbH & Co. KG www.oerlikon.com
Metrom GmbH; Profinoll Technologies GmbH; UNION Werkzeugmaschinen GmbH Chemnitz

Additional Contacts

Networks

Innovation Network Mechanical Engineering Saxony (VEMAS
German Engineering Federation (VDMA) www.vdma.org
West Saxon University of Applied Sciences of Zwickau (WHZ) www.fh-zwickau.de
University of Applied Sciences Mittweida (HSMW) www.hs-mittweida.de
Saxon Textile Research Institute (STFI) www.stfi.de
Laser Institute at the University of Applied Sciences Mittweida (HSMW) www.laser.hs-mittweida.de
KuZ Center for Plastics in Leipzig www.kuz-leipzig.de
Institute of Textile Machinery and High Performance Material Technology
Fraunhofer Institute for Electron Beam and Plasma Technology (FEP) www.fep.fraunhofer.de
Dresden University of Technology www.tu-dresden.de
Dresden University of Applied Sciences (HTW) www.htw-dresden.de/fakultaet-
Freiberg University of Mining and Technology https://tu-freiberg.de/ze/sfb799
Collaborative Research Center 799 »TRIP Matrix Composite «, for Multifunctional Lightweight Structures www.tu-chemnitz.de/MERGE
Cluster »MERGE – Merge Technologies in Production Engineering (eniPROD) « www.eniprod.tu-chemnitz.de
Institute of Textile Machinery and High Performance Material Technology

WE OFFER

• the latest data on Saxony’s economy and business environment,
• customized service packages for business site selection,
• procurement of contacts with regional decision makers,
• information on opportunities for financial support and subsidy programs,
• access to branch networks in Saxony,
• assistance in opening up new markets, and
• in initiating cooperative partnerships.

WHAT CAN WE DO FOR YOU?

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