



zollner

solutions for your ideas

more than just an EMS provider



Together, ideas become future

With more than 55 years of experience in electronics manufacturing services, we develop cross-sector and cross-technology solutions for the future in a fast, flexible, and reliable manner – all delivered with top-rate, one-on-one support.

We rely on a local-for-local strategy within our international network of competence and select the best individual solution based on our customers' requirements.

The company was founded in 1965 as a one-person operation in Zandt, Germany. Through continuous organic growth, the family-owned company is now among the top 15 EMS providers worldwide with around 13,000 employees at 26 locations in Germany, Hungary, Romania, China, Tunisia,

the U.S., Switzerland, Costa Rica, Thailand and Singapore.

Our Executive Board Team, which includes CFO Thomas Schreiner, Christian Zollner, Chairman of the Supervisory Board Manfred Zollner, Spokesman Ludwig Zollner, Markus Aschenbrenner and Manfred Zollner Jr., is leading the group towards a stable, successful future.

Our global network put us in a position to leverage synergies from our sector-specific divisions worldwide in the name of Zollner as a whole. This allows us to provide expertise in a number of areas throughout the product life cycle. As an EMS and Mechatronics Service Provider, we are the ideal partner to help turn your ideas into success.

„As a team, we are charting a course to make the group stronger today and in the future.“

The Executive Board Team





Our **key** competencies

Our key competencies are what set us apart, how we work together and how we develop new ideas.

- Innovation expertise
- State-of-the-art technology
- Consulting expertise
- Customer proximity
- Diversity
- Stability
- Next-level partnership
- Expert knowledge
- Quality
- Flexibility
- Team spirit



Sector variety that is successful

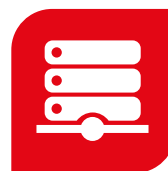
We serve a host of sectors, allowing us to globally leverage synergies in different areas and exploit previously untapped potential – with maximum innovation and the top-level sector-specific expertise. Thanks to the many sectors we support, we are able to offer stability in times of crisis and remain fit for the future.



Automotive
Technology



Rail
Technology



Data
Technology



Healthcare &
Life Sciences



Industrial
Electronics



Aerospace &
Defense



Test & Mea-
surement



Automotive Technology. The high-end e-mobility solutions we provide are our contribution to the revolution in connected vehicles taking place in the automotive industry.

Rail Technology. The digital transformation is changing the world – and the rail sector is part of this revolution, too. State-of-the-art rail technology is critical to the mobility of the future.

Data Technology. Networking, high computing power, and fast and secure data transfers are critical to the success of today's data systems.

Healthcare & Life Sciences. We offer ideal conditions to be part of the changes and technological advances taking place in the med tech sector.

Industrial Electronics. Our innovations in the Industrial Electronics sector are being applied worldwide – sustainable energy and IIoT solutions are already included in our Success Stories.

Aerospace & Defense. Thanks to our commitment to quality, we are always there for our customers, regardless of what they are looking to achieve in the aerospace field.

Test & Measurement. Quality, precision, and reliability – we offer individual test and measurement solutions for device and system optimization designed specifically for the semiconductor industry.



Services that convince

We offer customized, sustainable services with end-to-end support throughout the product life cycle catered to meet your specific needs – from the idea to development and consulting to production and supply chain management through to after-sales service. We combine our regional strengths with market knowledge in a global organization.

The extensive range of services we offer allows us to focus on our customers' needs, regardless of whether they require individual components or complete devices and systems. We place a special focus on end-to-end, one-on-one support and provide targeted assistance where our expertise is needed.





To do that we operate in diverse areas of expertise in the following Research & Development areas:

- PCB Design
- Electronics
- Control Cabinet Design
- Mechanics
- Quality
- Software
- Project Management

Research & Development

Competence right from the start – we create projects on a secure basis. The fundamentals for a successful and economically viable product are already created in the development phase. Our Research & Development Division already provides global support, from the idea and all along the entire product development process and continues that to serial maturity in the realization of projects. We rely on individual consultation and support. In doing so we take over all development services, from requirements engineering, including standards research, through concept development, detail design, sample creation and product qualification, right up to organization of global product accreditations.

Equally important as the fulfillment of technical requirements is the achievement of stated goals for manufacturing costs for the product. We guarantee this through constant tracking and assessment of the applicable influencing factors. Even after completion of the development phase, we take care of the complete life cycle of the product in topics like product maintenance and optimization. One of our strengths is the intertwining of the most differing hardware, software and mechanics into complex mechatronic systems to develop pioneering concepts and foresighted ideas and to act strategically – regardless of whether it is complete system development and support or simply individual service.

We have standardized, stable processes from the idea to serial maturity. With our Simultaneous Engineering approach, we take into consideration what must later be procured, produced and tested and how. Thus we secure a high level of product quality on the one hand and efficient processes all along the supply chain on the other.

Engineering / NPI

As an EMS provider, we supply services throughout the product life cycle. The products range in complexity from individual parts or PCBs to modules and mechatronic systems. We utilize DfX methods from the process development stage to industrialize the product during the development phase.

Thanks to simultaneous engineering, our processes ensure the ideal interplay between product and process development. We examine a number of scenarios based on the customer's specific requirements and use them to create the best possible production concept. We use tools from the digital factory, simulations, as well as methods such as MTM and value stream design, among others, to develop the digital production system and optimize it for the product on a digital model during the planning phase.

The production system is planned and implemented in partnership with our external and internal partners on the basis of the digital product and production system. Our processes help us complete product and process qualification during the individual sample phases in the lead-up to ramp-up in a way that caters to the specific requirements of our customers. When implementing a new product, we keep a constant eye on the Time-to-Market during the industrialization phase.

Design for Excellence (DfX):

- DfA (Design for Assembly)
- DfM (Design for Manufacturing)
- DfT (Design for Testability)
- DtC (Design to Cost)





Production

Our expertise can be leveraged to create individual components and modules as well as devices and complete systems. Depending on your needs, we employ low-volume high-mix (LVHM) or high-volume low-mix (HVLM) manufacturing and also provide additional customized services. We draw on our decades of experience and the wide range of technologies we deploy to turn ideas into reality.

As a driver of innovation and technology, we are guided by environmental as well as economic standards and work according to a local-for-local strategy. We choose the best individual solution for our customers based on their specific requirements. We offer the same high level of quality and flexibility at all locations to ensure consistent processes across the board. All production takes place on cutting-edge machines and high-tech equipment.

We offer a wide range of technologies as well as comprehensive expertise:

- Production of Complex Mechatronic Systems
- Production of Electronic Assemblies
- Production of Inductive Components
- Cable Assembly
- Metalwork
- Surface Technology
- System Integration
- Testing
- 3D Printing



Analysis and Materials Technology

Our goal is to achieve a high level of efficiency and effectiveness throughout the entire product life cycle, which is why analysis and materials technology plays a major role at our company. In-depth knowledge of the materials and processes is essential for the success and reliability of a product. This is particularly true when it comes to the selection and qualification of materials in all phases of development, in production, for product modifications, and in the servicing of parts supplied by third parties as well as those made in-house at Zollner. As early as the development phase, we create an individual qualification concept for each product. Extensive expertise is needed, including in areas like material characteristics, resistance to reagents and environmental influences, as well as the technical parameters and accompanying thresholds.

We offer a full-range service in the area of analysis and materials technology. Being able to draw on our in-house expertise in materials and analytics allows us to perform physical and chemical analyses – in our in-house production processes and as part of random testing throughout the value chain. In analysis and materials technology, this enables us to add significant value and generate unique benefits for our customers.

We employ innovative methods of testing and analysis as well as cutting-edge laboratory equipment:

- Scanning electron microscope (SEM) with EDS
- Optical microscopy
- FTIR microscope
- X-ray fluorescence analysis (XRF)
- Multi-element analysis (ICP-OES)
- Residual contamination analysis (in accordance with VDA 19)
- Microsection preparation
- Chemical testing
- Solderability testing
- Coulometric coating thickness measurement
- Thermal analysis (DSC)
- X-ray analysis with CT
- Compression-tension testing system
- (Chemical) opening of components
- Electrical component testing
- Geometric measurement
- Counterfeit analysis/assessment
- Contact angle
- Hardness test





Supply Chain Management

Your reliable partner – our logistics solutions span the entire supply chain. For us, logistics is much more than transporting products from our facilities to the customer. We take a holistic view of the supply chain and deploy the latest processes and methods to continuously optimize it. We ensure the end-to-end availability of data, from the time the order is placed until delivery. Logistics are fully seamless from the supplier to us and from us to the customer.

We create customized logistics concepts and use our global network of logistics partners to keep a constant eye on availability and optimum efficiency. On request, we carry out the logistics process from start to finish – from customs, transport logistics, and end-to-end documentation through to the design of packaging solutions and delivery to the end customer. Along with that, we also maintain our own fleet of trucks. We employ volume bundling and have framework and global agreements in place which allow us to obtain excellent terms that we are able to pass on to our customers. In addition, our customers can rely on optimized logistics processes in our company, from incoming goods to warehousing and delivery.

We offer individual and fast logistic services – internally as well as with partners. In order to provide the appropriate distribution logistic solution, we either take over the storage, order processing and shipping of the customized products or assign that to one of our external service partners, who take over the entire distribution logistics, always under the aspects of economic viability and efficiency.

Global Procurement

To ensure competitive advantage for our customers, we reduce the total cost of ownership (TCO) and increase efficiency and flexibility of the supply chain in that we offer one-of-a-kind competitive advantages and innovative solutions for supplier management and quality with a globally active purchasing organization. As a globally acting company, we know the various requirements of our markets and our customers. Therefore, we pursue a sustained and holistic supplier strategy and bundle global purchasing volume with regional emphases into an international organization.

With global procurement we create significant prerequisites for an economically viable product – the focus is on our international supplier network. Our Global Procurement concentrates on the establishment and development of supplier relationships. Availability, quality and economic viability are ensured through this. Because we consider our suppliers to be partners, many years of intensive collaboration unites us with many of them. Thus our customers can constantly rely on a sustained high level of quality, fast and simple processing and internationally competitive prices. In order to provide the highest possible level of security in this volatile world, we offer support through risk and catastrophe management and provide second source strategies as needed.

More services:

- Procurement Marketing
- Supplier Management, Qualification and Further Development
- Price Management
- Contract Management
- Purchasing Controlling
- Digital Risk Management





After-Sales Service

Comprehensive service and support – we offer end-to-end support before, during, and after an order has been executed and remain a partner you can rely on even after the products are delivered to you. If necessary, we will perform the complex tasks in and around after-sales support and develop a customized service concept for you.

We make sure that materials are consistently available, ensure a reliable supply of spare parts, offer a fast repair service, and perform comprehensive end-of-life management. Our customers also have access to our Repair-and-Refurbish Service for products made in-house or by third parties, regardless of the manufacturer. Our repair and complaints management focuses on continuous improvement and long-term quality assurance.



Obsolescence Management

Being able to produce electronic assemblies requires that the parts needed to make them are available, especially semiconductors, which often have a much shorter life cycle than the product they go into. Our Obsolescence Management System covers the entire life cycle of a product, making it essential for long-term availability. To minimize the risks that come with this, our Obsolescence Management System is deployed as soon as we start developing a new product.

We use two electronic databases from leading providers to carry out life cycle analyses in order to record data on critical components. These are replaced with other systems where necessary. Even if our customers continue to need their products many years after the end of serial production, we can electronically monitor the availability of critical components and keep them reliably in stock for a long period of time at extremely competitive prices.



Services we offer:

- Long-term Storage with measures to protect components and assemblies
- Customer Information Management
- Guaranteeing a Permanent Supply of discontinued parts is available
- Arranging for Production of Copies of electronic components
- Additional Inspections of Incoming Goods in the case of purchases by brokers
- Verification of Counterfeit Risks via external databases
- Automatic Monitoring of Key Components
- Redesign of Assemblies
- Life Cycle Analyses and Identification of Alternative Parts



Traceability

End-to-end traceability is one of our top priorities. Using a globally standardized traceability process, we are able to guarantee the traceability of everything from individual manufactured parts to modules, devices, and complete systems down to the site level.

This includes the fully transparent recording of material, process, inspection, and shipping data down to the individual item level. To achieve end-to-end traceability along the value chain, our production facilities are connected to the manufacturing execution system (MES).

This makes it possible to control complex production lines and interlock processes, ensuring an audit-proof manufacturing process. If there is an error or defect, we are also able to identify any batches of material that may be affected. The interconnected manufacturing process we employ is based on seamless traceability achieved by means of our MES. That means that we have already established the conditions necessary to meet future Industry 4.0 requirements today.



Material Compliance

Material Compliance basically encompasses the statutory and customer-specific regulation of all materials and products. All relevant provisions are summarized in our "Guideline for the Ban and Declaration of Ingredients."

This guideline supports our company and our suppliers in the responsible and environmentally sound handling of substances and materials in development, production, use, and waste disposal. This guideline contributes to a high level of protection for human health and the environment with the goal of ensuring sustainable development. This applies especially to all suppliers of Zollner Elektronik AG, regardless of their supplying country.



The regulations that apply to us and our customers or suppliers can be found here:



Key facts



No. 1
EMS provider in Europe



7
sectors



>55
years of expert knowledge



4
continents



26
locations worldwide

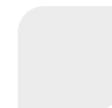


~ 13,000
employees

Technologies & Processes

Our technological leadership and the wide range of technologies we offer are two key areas where we excel. We take a holistic view of our processes and optimize them as well. Along with that, we make use of a wide array of state-of-the-art technologies. This allows us to produce complete systems for you as your one-stop provider.

Along with the cutting-edge technologies we use at all our locations, our state-of-the-art systems and machines ensure that our solutions keep pace with global trends at all times from both a technical and cost perspective. We are therefore able to guarantee the same standards in terms of quality, safety, and flexibility at all plants, and we are always on top of the latest trends.





Mechatronics

Mechatronics Technicians interconnect conventional mechanics, modern electronics and IT. You are in good hands with us in this complex field. Thanks to the broad array of sectors we serve and the technical expertise we provide, we are able to deliver customized mechatronic solutions for a wide range of applications.

As an EMS and Mechatronics Service Provider, we offer an all-round service for various sectors. In addition to our in-house manufacturing expertise, we also work with top-rate suppliers.

Through integration into professional networks, like the Eastern Bavarian Mechatronics Competence Network, we are able to develop our strengths via internal and external interfaces and create a global competitive edge for everyone involved in a consistent, sustainable, and cost-efficient manner.



Electronics

We cover the entire spectrum of EMS services for you in the area of electronics – from PCBA production all the way to complete devices and systems. We stand at our customers side throughout the complete process chain.

Completely regardless of the location at which we produce for our customers, we invariably guarantee the highest level of quality due to standardized machining facilities and equipment, uniform workflows and monitored processes. This applies to niche technologies or special processes.

Production in a controlled environment or cleanroom, as well as under customer-specific conditions, is also possible due to the modern building infrastructure.



Our Electronics expertise:

- Digital Twin
(design analysis/virtual planning)
- Electronics Production
 - PCBA Production
 - Assembly Protection
 - Module and System Assembly
 - Additive Manufacturing





Inductive Components

Inductive components are essential for power conversion in electronics and protect equipment and systems from interference or overloads. Our services in and around high-value coils and windings include high-precision single part production, automatic production of smaller piece quantities, as well as highly automated large-scale production. This encompasses coils built to the customer's exact specifications as well as fully new designs developed and industrialized specifically for the client. The service begins in the initial design stages and continues through to serial production all the way to the end of product life.

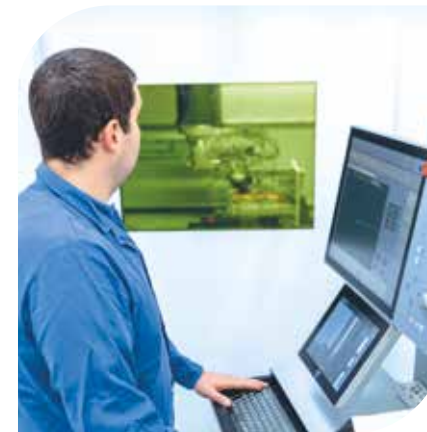
Our wide range of products includes everything from compact SMT coils

and power transformers to toroidal and planar coils. To ensure we are able to find the solution that optimally meets the needs of every customer, we rely on comprehensive customer-specific consulting covering all aspects related to inductive components as well as high flexibility and quality in design.

Mechanics

Our services range from product development to series production and after-sales service. We offer our customers support in the development of new products and in sample or serial production. When it comes to sheet metal, turned, or milled parts, we deliver just what our customers need.

In our Electroplating, we offer a wide variety of cleaning applications and surface finishes. In addition, an in-house unit at our company designs and builds special machines and systems. We also provide expert support for special and in testing and inspection applications to meet both our needs and those of our customers.



Cable Assembly

Our strength lies in our ability to make customized cable assemblies at a high level of quality. We also offer services for standard ISO/IEC, EN VDE, and UL products.

Our cables are individually designed and assembled to meet the requirements of our customers, and they are available in small and large batches. We make individual parts, complex cable harnesses and system cables, as well as complete modules and ready-to-connect cables for electro-mechanic applications made to top quality standards.



Values we live by

Our work at Zollner combines an international outlook with strong ties to the local community. Thanks to the efforts of our extraordinary team that shares and embodies a fascination for innovative, forward-looking solutions, responsible, trend-setting, and future-oriented action as well as long-term thinking have characterized how we have seen ourselves as our company since day one.

We therefore have a clearly defined system of values to demonstrate our responsibility to people and the environment. Trust, respect, honesty, and mutual support are the values that describe what primarily determines our work at Zollner each day. We provide a workplace where we stick together, are open with each other, and act like a tight-knit team.

As a corporate group, it is our duty to assume responsibility for every action we take. To this end, we work at all times in a professional and goal-ori-

ented manner, utilizing our strengths and skills. We focus on the essentials and act in a sustainably, strategic, and efficient manner. To ensure we can continue to grow and develop, we promote innovative skills, performance, and commitment as well as the courage to try new things.

High quality standards, the ability to execute, professional expertise, continuous training, and targeted communication help ensure our satisfaction and long-term success. Compliance with special standards and norms, as well as effective quality management, ensure a high level of quality that we are proud of. The certifications and awards we have received are proof that our strategy for success is working. The environment is also a major factor, since it is very close to our hearts and plays a role in everything we do as we look to contribute to sustainable development for our generation and for future generations to come.



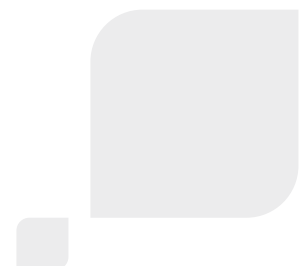


The Zollner team

Our focus is on people. This applies to both our customers and our colleagues alike, because we need a team effort to successfully complete great projects. Working as a team allows us to focus on our goals, continue to develop and grow as an individual and as a company, and improve the team overall. Our company combines expert knowledge with a strong sense of team.

Our approximately 13,000 employees around the world contribute to our success as a company. However, our team is more than the sum of its parts. It is made up of 13,000 individuals with a range of different personalities as well as skills and talents who support and complement each other. We make use of every employee's individual strengths, because we need to act as a team to get a lot done and make a difference.

Our passionate, motivated team at Zollner contributes expertise and ideas to help achieve common goals, break new ground, and turn our customers' ideas into success in line with our motto: solutions for your ideas.



Our Locations

▪ Germany ▪ Switzerland ▪ Hungary ▪ Romania ▪ Tunisia ▪ China ▪ Thailand ▪ Singapore ▪ Costa Rica ▪ USA ▪ USA EIT

