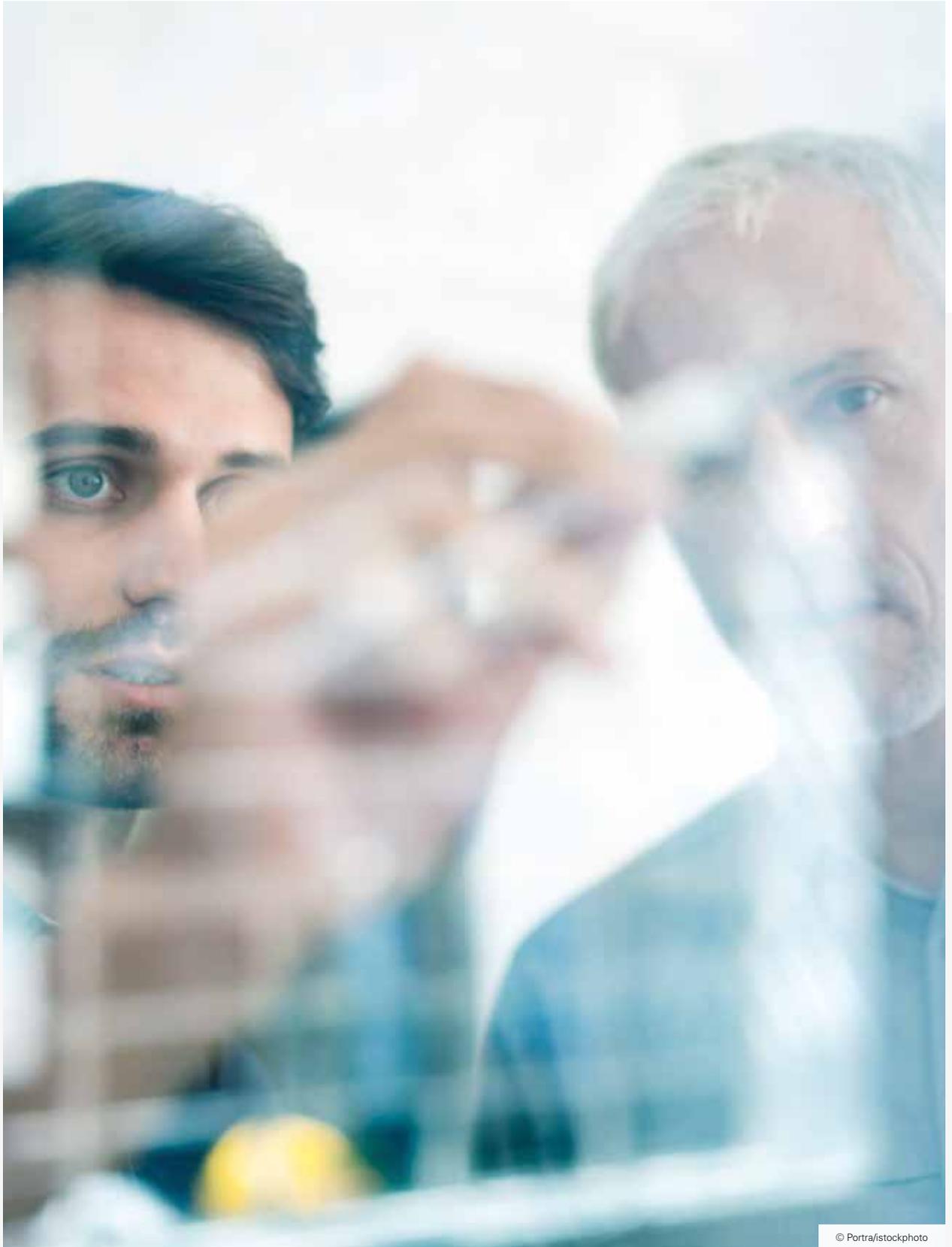


Competence Guide: Experts for new mobility solutions in Baden-Württemberg



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Preface

The future of mobility is electric, connected, and automated. The path to the mobility of the future is characterised by complex, far-reaching change processes which, in view of the multitude of possible development paths, pose major challenges for the stakeholders in politics, business, science and society.

The process of change has several dimensions: In the course of the **technology shift towards alternative drive systems**, increasing electrification of the powertrain, increasing connectivity of vehicles with one another and the infrastructure, and an ever-faster progression of automation all bring about fundamental changes in products, production and application processes. This **changes the entire transport and mobility system**: new technologies offer opportunities for the transformation and optimisation of the entire transport and mobility system which is imperative in view of the pressures resulting from climate change and environmental objectives and policies. A prerequisite for this is a **change in infrastructure**: New drive technologies can only be fully exploited when we rethink energy supply and move towards renewable sources of energy as part of the energy transition. The largest challenges can be found in the field of energy distribution. Connectivity and automation result in new demands on the infrastructure which can likely only be solved by integrated approaches at the municipal and regional levels.

All this also results in profound **structural changes**: The companies in the automotive and supplier industries are facing challenges posed by two structural changes within the entire automotive industry. Companies need to deal with changing mobility products, digitalisation and the rationalisation of manufacturing processes, internationalisation of development and manufacturing locations and the decli-

ne of free trade lurking behind the horizon. These will fundamentally change established value chains and cooperation structures and they will require massive adjustment efforts from the companies regarding their own organisations and also their business models.

One way to counter these diverse and complex challenges is exchange, networking, cooperation, and collaboration. The State Agency for New Mobility Solutions and Automotive, **e-mobil BW GmbH**, which was founded in 2010, has committed itself to bringing together, accompanying, and supporting the relevant players in industry, research, society, and the public sector in Baden-Württemberg with a focus on products and solutions for a sustainable and smart mobility of the future. The key activities of e-mobil BW GmbH are the management of two important regional cluster initiatives, the **Cluster Electric Mobility South-West** founded in 2007, with more than 170 members today, and the **Cluster Fuel Cell BW** founded in 2013, with more than 190 partners.

Generally spoken, clusters are regional concentrations of companies, research, education and knowledge sharing institutions, as well as other public and semi-public institutions in a sector or a field of technology and competence. These cooperate along the value chain in order to jointly achieve higher overall benefits. Their joint efforts aim to strengthen innovative **competitiveness and boost the performance of the business location they share**. Within the cluster initiatives, these innovation-oriented cooperative relationships are strategically and organisationally coordinated and possible gaps in terms of competencies or the value chain are closed through joint targeted activities.

Today, Baden-Württemberg, featuring a fully developed traditional cluster of manufacturers, suppliers, machine and plant builders, equipment suppliers, and an excellent research and university landscape, is one of the most successful locations for the automotive industry. Success in the past and today does not guarantee success in the future. Nevertheless, the companies and research institutions in Baden-Württemberg can rely on their wide spectrum of competencies. These include electric motors, power electronics, batteries, fuel cell technology, charging and energy technology, connected vehicles, automation, information and communication technology, artificial intelligence, or Industry 4.0, to name just a few – in short, they have the necessary knowledge for the electric, automated and connected mobility of the future. And what is even more important: they are willing to utilize their competencies, their knowledge, their innovative strengths, and their understanding of the systems in joint projects and cooperation within the cluster to work together on the technologies, solutions and products of the future.

In cooperation with our members and partners within the Cluster Electric Mobility South-West and the Cluster Fuel Cell BW, it is our goal to **jointly seize our opportunities, bring together our competencies, utilise synergies, and accelerate innovation processes through a culture of trust and cooperation**. This sourcebook provides an overview of the current members and partners of Cluster Electric Mobility South-West and the Cluster Fuel Cell BW as well as their international cooperation partners. It is intended to serve as a guide for finding potential (project) partners and as a medium to present and communicate the "concentrated competence" of the two cluster initiatives to the world of politics, business and science. Together, we share the **vision of a sustainable, emission-free, smart,**

and economically successful mobility of the future. With our joint efforts within the Cluster Electric Mobility South-West and the Cluster Fuel Cell BW, we are shaping the steps and stages along the way



Dr. Wolfgang Fischer
Procurator, Divisional Head of Projects and Cluster Activities

The Baden-Württemberg automotive industry

One out of ten jobs in Baden-Württemberg is linked to automobiles

With its history of more than 130 years, the automotive industry including manufacturers and suppliers has deep roots in Baden-Württemberg. Today, Baden-Württemberg is considered the world's leading centre of the automotive industry: the entire value chain of automotive production, related services and equipment suppliers from the mechanical and plant engineering sector operate in this location. In Baden-Württemberg, the automotive industry is one of the key industries with an annual turnover of just over 109 billion euros (2019); vehicle manufacturing alone accounts for around ten percent of the state's gross value added. At the same time, the automotive sector is considered to be the most research-intensive industrial sector in Germany and in Baden-Württemberg; it accounts for almost half of the expenditures on research and development in the private sector in Baden-Württemberg. Taking into account all direct and indirect jobs, just under 1 % of all employed workers are dependent on the automotive industry: almost 470,000 employees can be attributed to the automotive cluster. Thus, one can speak of a full-blown "automotive cluster" consisting of direct automotive manufacturing, suppliers, equipment suppliers from the manufacturing sector, and also car dealerships and mechanics that extend across the whole of Baden-Württemberg. With its network of well-established innovation and value chains in the automotive, energy, information and communication industries, as well as the mechanical and plant engineering industries and its excellent research and university landscape, Baden-Württemberg is in an outstanding position to play a leading role on a global scale as an innovation and production location in the fields of alternative drive technologies and digital mobility solutions and services.

Paradigm shift in times of transformation processes

The vehicle and mobility industries are currently experiencing the most amount of pressure to change than they have felt in decades. A multitude of new technologies – from fuel cells to synthetic fuels or battery technologies – must be explored and industrialised anew. Digital connections and automation have changed user and mobility behaviours. And production and distribution processes are also challenged by major disruptions: Mobility solutions that can be accessed easily replace large and fast private vehicles. New mobility concepts and related services that reduce fossil fuel consumption and at the same time allow an optimised individual route management with IT support should at best seamlessly blend into all aspects of people's lifestyles.

Innovation through cooperation between private enterprise, science, and public sector

It becomes increasingly clear that innovations arise especially through cooperation between different industries. In the Baden-Württemberg region, the level of innovative power is high thanks to the successful cooperation and integration of services from the automotive, mechanical engineering, IT and energy sector. Efficient cooperation between private enterprise, science and the public sector is key to drive innovation forward. Efficient research and technology clusters are valuable catalysts in this process. With its cluster policy, the state government is therefore helping to sustainably improve the efficiency and performance of cluster initiatives. In recent years, the state government has provided 215 million euros in funding for three state initiatives regarding electromobility in addition to many other projects. 215 million euros for three state initiatives on electromobility and many other projects. Within the framework of the digital@bw digitisation strategy, 1 billion euros are



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being invested. In order to jointly develop new environmentally friendly, economically viable and socially just mobility solutions, the state government launched the **Strategic Dialogue for the Automotive Sector** in Baden-Württemberg in 2017. It provides a platform to discuss the necessary changes in development, production and sales, the energy system, digitalisation and data networks, transport solutions, forward-looking research, and social developments. Private enterprise, science, politics, trade unions, social groups and citizens are very much interested in engaging in the controversial discussions.

Paving the way for mobility transition

The goal for Baden-Württemberg is to continue its mobile success story with sustainable mobility solutions and to take the lead internationally in terms of production and application. Baden-Württemberg is on its way to turning the top land of the automobile into the top land of mobility.

A key element in this context is the State Agency for New Mobility Solutions and Automotive e-mobil BW: It is the central contact point for all matters regarding new mobility solutions and supports this innovation process as a pioneer of the mobility transition within the state. Open to new technologies, e-mobil BW promotes the industrialisation, market launch and application of sustainable, climate-friendly and locally emission-free mobility solutions. In this regard, e-mobil BW sees itself as a knowledge manager, initiator and communicator, connecting companies, universities, research institutions, ministries, and associations. Always keeping the entire automotive value chain in mind, e-mobil BW coordinates the two cluster initiatives Electromobility South-West and Fuel Cell BW, combines valuable competencies, and shapes important innovation processes.

Cluster Electric Mobility South-West – Shaping sustainable and smart mobility

With currently more than 170 members from industry and science, the Cluster Electromobility South-West, founded in 2007, is one of the largest research associations working on the mobility of the future. It covers the entire value chain of the mobility industry through cooperation between efficient automobile manufacturers, globally leading system suppliers, or numerous renowned medium-sized companies and excellent research institutions and universities. The Cluster Electromobility South-West thus provides the basis for new innovation processes.

Our vision

The cluster members share a common vision of working on energy-efficient and environmentally compatible mobility solutions in an era of scarce resources. Innovative technologies and methods are used to lay the foundations for new, sustainable, and economical products and business models that secure and create a new basis for our regional value creation and employment throughout Baden-Württemberg. The symbiotic collaboration of the members of the Cluster Electromobility South-West contributes to their global leadership in the area of sustainable and intelligent mobility solutions. The aim of the network is to advance the industrialisation of new mobility concepts in Germany and to establish Baden-Württemberg as an integrated research, development, and production location with international appeal.

Our strategy

The strategic focus of the Cluster Electromobility South-West's activities is on improving the innovative capacity of its members through cooperation in working and project groups. Among others, the following topics are being tackled: E-motor production, the effects that digitalisation has on vehicles and the entire ecosystem, commercial vehicles as special applications, and the role of batteries in the circular economy,

among other things. Cross-cutting issues in the areas of internationalisation and qualification are also addressed. The cluster succeeds in bringing together companies from different sectors with research institutions in a unique, long-term and extremely stable cooperation network, thus accelerating research and development in the field of new mobility solutions. Therefore, the cluster significantly contributes to the technological change towards low-emission and connected mobility, supported by an efficient market. The Cluster Electromobility South-West also enjoys a high level of recognition beyond the state of Baden-Württemberg. Thus, the cluster networking activities and contacts with relevant players at the national and international level, especially in Europe but also in North America and Asia, play an important role. You can find an overview of our partners on the partners' page in this sourcebook. The expansion of the Cluster's international cooperation network and its members supports the development of relevant sales markets for attractive mobility solutions for the future. The cluster's services make it easier for small and medium-sized enterprises, in particular, to find relevant international target markets and suitable cooperation partners abroad.

Leading-edge cluster funding

In 2012, the Cluster Elektromobilität Süd-West was nominated as one of 15 Leading-Edge Clusters by the Federal Ministry of Education and Research (BMBF), thus receiving funding in the amount of 40 million euros over a period of five years. Within the framework of the Leading-Edge Cluster funding, 18 innovative projects were successfully carried out from within the cluster. In 2014, the Cluster Electromobility South-West was awarded with the Cluster Excellence Baden-Württemberg label and the European Cluster Management Excellence GOLD label for the first time. Since receiving the

The cluster is making a decisive contribution to the technological change towards low-pollution and connected mobility, supported by a powerful, by an efficient market.



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initial awards, the cluster has successfully renewed its certifications in 2016 and 2019. Moreover, the cluster has been a member of Go-Cluster, a cluster excellence instrument of the Federal Ministry for Economic Affairs and Energy, since 2014.

Added value for our members

Membership in the Cluster Electromobility South-West is open to interested and committed stakeholders from the electromobility industry and from research in the field that have research and development locations in Baden-Württemberg. Members of the Cluster Electromobility South-West benefit from the many advantages and opportunities the cluster offers them:

- a network of stakeholders along the entire value chain
- joint projects and activities in the field of research and development
- targeted innovation and use of synergies
- networking and exchange between stakeholders from private enterprise, science, and politics
- targeted integration of small and medium-sized enterprises into innovation processes
- intensification of national and international contacts between members and partners

175 cluster members
(as of August 2021)

Year of foundation **2007**

Awards:

Spitzencluster, Label Cluster-Exzellenz Baden-Württemberg, Cluster Management Excellence Label GOLD



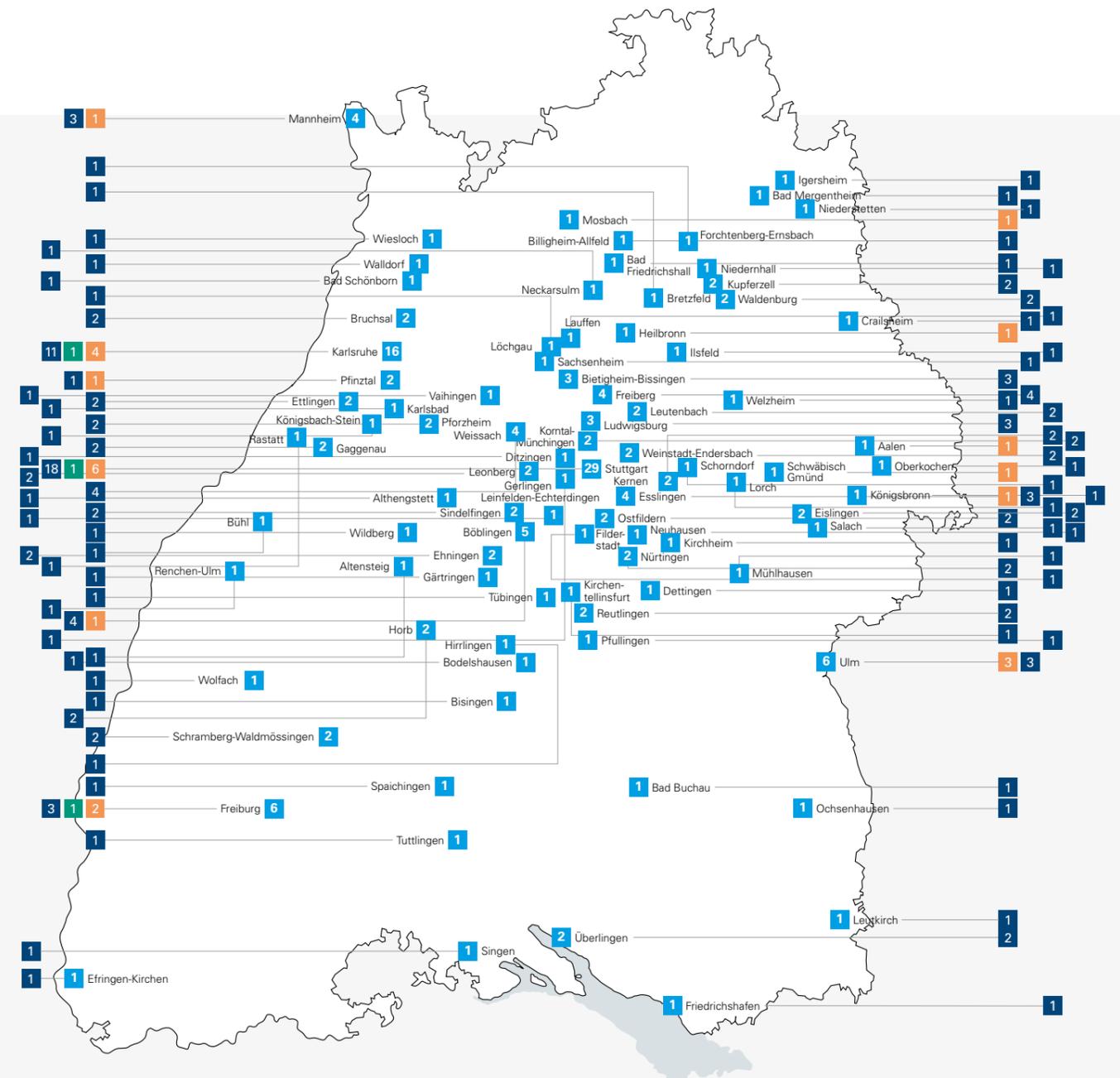
www.emobil-sw.de/en/



Contact

Katja Gicklhorn
Phone: +49 711 892385-21
katja.gicklhorn@e-mobilbw.de

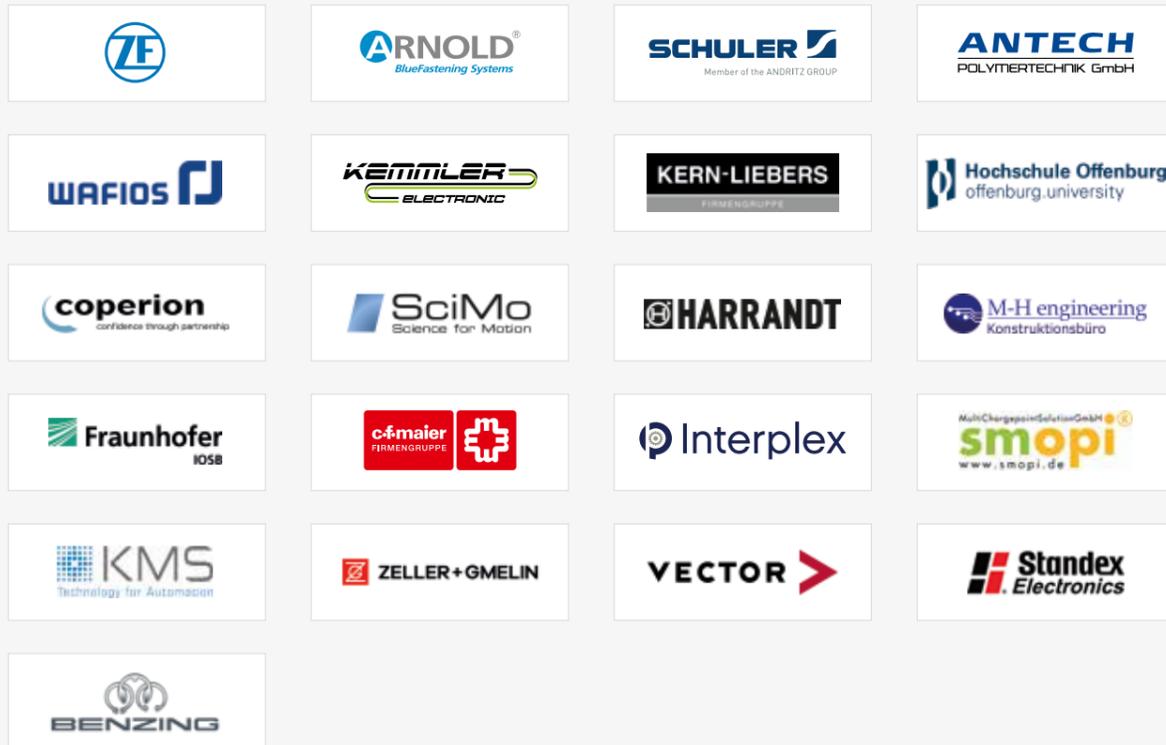
Regional distribution of members of the Cluster Electric Mobility South-West



Legend

- Number of cluster stakeholders
- Company
- Intermediary
- Research institution/higher education institution/university





As of August 2021 (chronologically by admission date). The members of the cluster can be found at www.emobil-sw.de/en/.

Cluster Fuel Cell BW – Bundled competence in Baden-Württemberg

The Fuel Cell BW cluster is an association of many stakeholders in the field of hydrogen and fuel cell technology based in Baden-Württemberg. It is made up of companies, research institutions, universities, the public sector and associations, and it aims to accelerate market launch and market readiness of various hydrogen technologies.

The cluster was founded in 2013 in a shared effort of four state ministries and has been working towards the market launch of the various hydrogen technologies since that time. At the same time, it acts as an important driver for research institutions and ministries in the state of Baden-Württemberg. The cluster now consists of over 190 organisations (as of mid-2021).

Goals and working areas of the cluster

It is the members' common goal to achieve market readiness for hydrogen mobility and stationary fuel cell-based systems with marketable and customer-friendly serial products.

This shows that the cluster is not only pushing the topics of automotive, commercial vehicles and drive trains based on fuel cells, but also stationary applications such as fuel cell heating units, hydrogen-based emergency power generators, the use of hydrogen in the processing industry and the hydrogen infrastructure, e.g. pipelines.

In order to structure the numerous fields of application, from power-to-gas to transport or the security of energy supply, the work of the Fuel Cell BW cluster is divided into the following working groups:

- **Hydrogen production and infrastructure**
Topics around electrolysis, hydrogen distribution and filling stations
- **Mobility**
Mobility-related topics such as commercial vehicles, trucks, ships
- **Stationary energy supply**
Energy supply issues where conventional technologies are not efficient or sustainable enough.
- **Industrial manufacturing**
Topics related to the production of components for all of the above technologies
- **Education, training, and continuous professional development**
Topics related to education, training, and continuous professional development in the field of fuel cells and hydrogen through in-house education programmes and at universities.
- **Aerospace**
Topics related to the application of the above-mentioned technologies in the aerospace sector
- **Manufacturing industry**
Topics related to the use of hydrogen, e.g. in cement production

In addition, the cluster's services include a number of cross-cutting themes that link the individual topics: internationalisation, commercial vehicles, and circular economy.

The cluster management

The management of the Cluster Fuel Cell BW was taken over by e-mobil BW, the state agency for new mobility solutions and automotive, which includes professional networking and project and innovation management, among other things.

Hydrogen allows the coupling of sectors, makes renewable energy capable of carrying the base load, and can be used in a variety of ways as an energy carrier, as fuel, storage medium, and raw material for the industry.



As a cluster partner, you benefit from the following services:

- Organisation of cluster meetings, working group meetings and information events
- Coordination of joint projects
- Assistance regarding funding opportunities
- Support in applying for inclusion in funding programmes at the EU, federal and state level
- Study publications
- Educational and training activities
- Professional PR work

Partner for networking

Partnerships are basically open to all users and players who undertake research and development activities in the field of hydrogen and fuel cell technology in Baden-Württemberg.

190 cluster members
(as of autumn 2021)

Year of foundation **2013**

[www.e-mobilbw.de/en/
network/cluster-fuel-cell-bw](http://www.e-mobilbw.de/en/network/cluster-fuel-cell-bw)



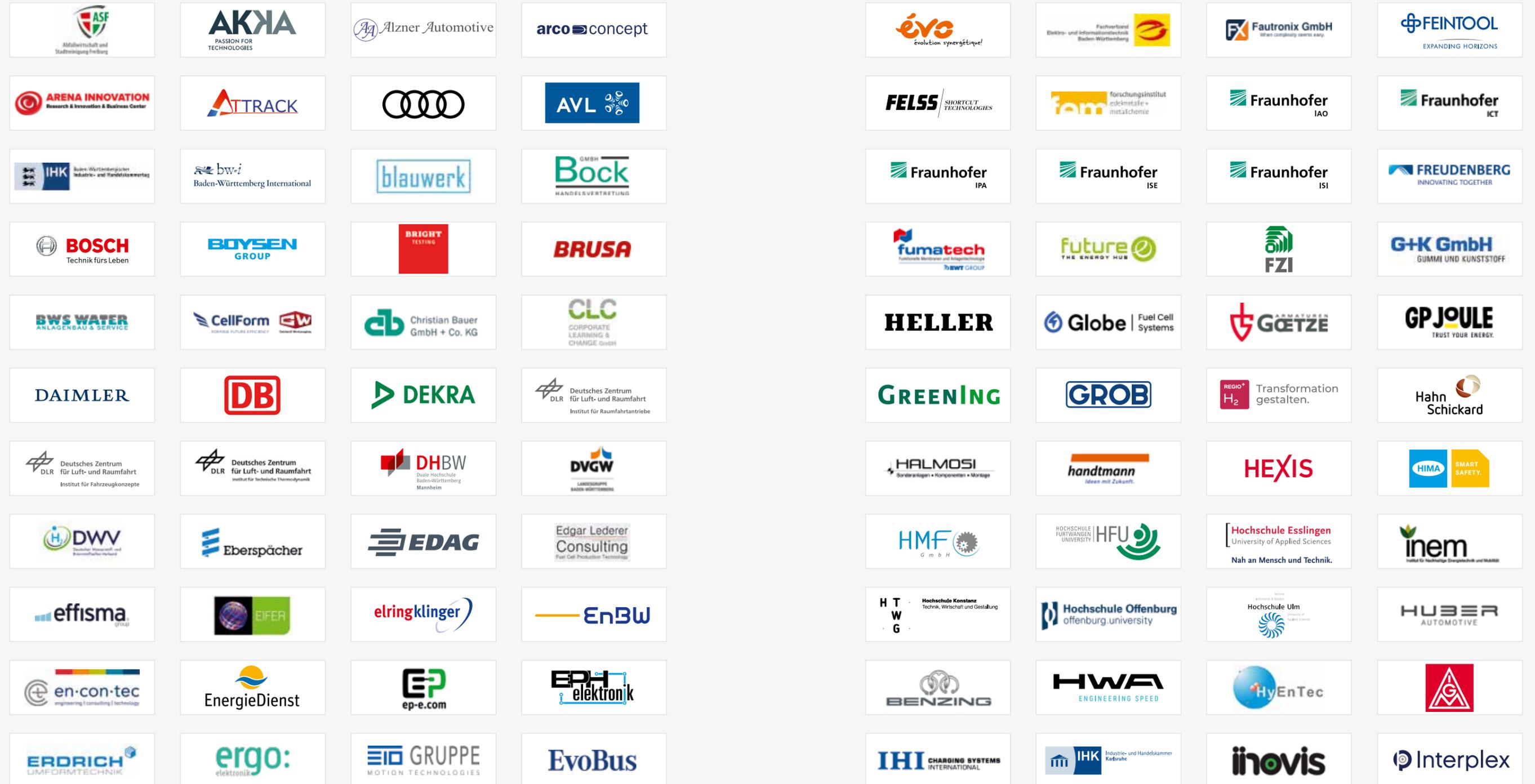
Contact
Cara Schwark-Fiedler
Phone: +49 711 892385-31



Contact
Tobias Luhm
Phone: +49 711 892385-43

bz-cluster@e-mobilbw.de

Cluster Fuel Cell BW: partners







As of August 2021 (alphabetical). The partners of the cluster can be found at www.e-mobilbw.de/netzwerke/cluster-brennstoffzelle/partner

**Profile pages of the partners and members
of both cluster initiatives**



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Partners and members of both cluster initiatives

This sourcebook is to provide an overview of the competences found within the cluster initiatives Cluster Brennstoffzelle BW and Cluster Elektromobilität Süd-West. Especially in times of structural change and new technological challenges, former boundaries drawn based on topic or industry must be overcome to make the best possible use of synergies. The fields of work of the two cluster initiatives are therefore growing together ever closer and various opportunities for cooperation are arising. This also reflects in that companies and research institutions actively participate in both cluster initiatives.

The two cluster initiatives subtly differ in their respective structures.

The **Cluster Fuel Cell BW** describes all its stakeholders as partners. It does not matter whether the respective organisation is a manufacturer of vehicles or components, a research institution, a user, or an association. Nevertheless, to be able to structure the fields of competence in this sourcebook, it is necessary to classify them. For a complete profile page, research and/or manufacturing activities or at least activities in prototype construction in Baden-Württemberg are a prerequisite. Pure users, associations, business development agencies, and non-researching or non-manufacturing companies find their place in the chapter **"Other partners of the Cluster Electromobility South-West and the Cluster Fuel Cell BW"**.

Membership in the Cluster Electromobility South-West is open to interested and committed players from industry and research who engage in research and development activities in Baden-Württemberg. In this sourcebook, cluster members are presented with their own profile page. Furthermore, there is an option to participate as a partner in

joint projects within the Cluster Electric Mobility South-West. Our partners are mainly intermediaries, associations, users as well as international and national clusters and networks with whom we cooperate more closely. The partners are presented in the chapter **"Other partners of the Cluster Electromobility South-West and the Cluster Fuel Cell BW"** and in the chapter **"International partners of the Cluster Electromobility South-West"**.

This sourcebook does not claim to be complete. Inclusion with a profile page is voluntary. Furthermore, the number of members of both cluster initiatives is increasing continuously. This sourcebook reflects the status as of 15 June 2020.

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
chemical storage, Electrical storage, vehicle electrical system, inverter (electrical/electrical), motor/generator, thermal management, gearbox, fuel cell system (chemical/electrical)	Stationary systems	Testing
Interior		Energy
Equipment, electrics/electronics, thermal management		Development
Exterior		
electrics/electronics, chassis, vehicle body		

Due to the heterogeneity of the members/partners of both cluster initiatives, it is difficult to draw a uniform picture of their existing competences. Therefore, this sourcebook takes a higher-level approach (a macro perspective). The fields of competence are to show what all members share in a condensed form. The sourcebook targets a broad audience, so that not only experts but also representatives from politics and society can gain insights into the two cluster initiatives. The specific competences and unique selling points are presented in the respective profiles. The fields of competence were extracted by the cluster management and represent the major focus areas of the members' competences. This list cannot be considered conclusive due to the constantly growing network and evolving thematic focus areas, so that further topics, e. g. from the area of IT and artificial intelligence, will be added in the future. This sourcebook groups the shared competences of the members/partners of the two cluster initiatives in nine different fields of competence under three column headings (cf. Fig. Fields of competence). The competence fields of Automotive and Stationary Systems can be found under the heading "System integration/system manufacturer". The heading

"Components" includes the categories drivetrain, interior and exterior, and these are subdivided into several sub-categories. The heading "Service" includes the four competence fields software, testing, energy, and development. The fields of competence that are shown on the respective profile pages were chosen by the members/partners themselves. The headings are nevertheless shown on each profile page to ensure clarity.

Search within the Competence Atlas

The members/partners of the two cluster initiatives are sorted alphabetically so that you can search for stakeholders by their names in the table of contents. The organisations index can be used to generally search for research institutions/universities/universities of applied sciences, companies, or intermediaries. If you are looking for specific competences within cluster initiatives, you can use the competence field index to find specific stakeholders based on their competence fields.



© Studiengang Augenoptik, Hochschule Aalen (Design: H1QN, Aalen)

Senso-motor. Performance tests under highly standardised conditions in the (night) driving simulator.



The "Vision Research" centre of competence is concerned with the visual system and its dysfunctions as well as the development and validation of examination/therapeutic procedures. The Aalen Mobility Perception & Exploration Lab (AMPEL) includes a driving simulator with a complete vehicle (Audi A4 with steering and pedal unit, fully digital display and remotely controllable head-up display as well as integrated, contactless "Eye & Head Tracking").

Two high-performance projectors (Zeiss) project the driving route onto a 180° screen and show virtual driving scenarios. LED arrays are used for a realistic simulation of glare. Focal points are,

- recording and characterising interrelations between structure/morphology and sensory functions,
- (visual) requirements in everyday life as well as questions concerning performance and quality of life,
- to develop and improve diagnostic, therapeutic and rehabilitative devices, procedures and measures for patients with visual pathway lesions or other impairments. The working group is equally committed to research, teaching and care for affected people.

Aalen University – Competence Center 'Vision Research'

Anton-Huber-Str. 23
73430 Aalen
www.vision-research.de

Employees: 6

Contact

Prof. Dr. med. Ulrich Schiefer
Phone: +49 7361 5764605
Ulrich.Schiefer@hs-aalen.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Software
Equipment		Testing
		Development



© Öffentlichkeitsarbeit der Hochschule

Inter-faculty drive technology Research activities at Aalen University



At Aalen University of Applied Sciences there are many activities in the field of drive technology that have so far taken place decentrally in various study programmes at different faculties. In future, the IAA will bundle these research activities with the aim of exploiting as many interdisciplinary, scientific synergies as possible. The institute works on the following innovative topics: mechanical, electrical and hydraulic drive concepts, heavy-duty transmissions, vehicle transmissions, electrified vehicle drives, small drives and pumps as well as integrated control systems.

The IAA is the central contact point for students interested in research-oriented Bachelor's and Master's theses in the field of drive technology as well as for supervision of scientific theses and doctoral students. Externally, the institute is a contact partner not only for well-known companies in the automotive industry and their suppliers, but also for innovative small and medium-sized enterprises with which several professors and research assistants are already working.

Aalen University – Institute for drive technology (IAA)

Beethovenstr. 1
73430 Aalen
www.hs-aalen.de/de/facilities/151

Employees: approx. 25 (2020)

Contact

Prof. Dr.-Ing. Moritz Gretzschel
Phone: +49 7361 5762516
Moritz.Gretzschel@hs-aalen.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Gearbox, thermal management, motor/generator, inverter (electrical/electrical), electrical storage		Development



ads-tec Energy GmbH – technology for professionals 100% Made in Germany



ads-tec Energy GmbH is a member of the ADS-TEC Group and BOSCH is also holding shares in the company. Based on decades of experience with lithium-ion technologies, ads-tec Energy GmbH develops and produces battery storage solutions and fast charging systems including their energy management systems. For private homes, public facilities and commercial enterprises, their range starts at 19 kilowatt-hours of storage capacity. The scalable battery storage systems allow industrial and infrastructure solutions as well as self-sufficient energy supply units up to the multi-megawatt range. The newly developed ground-breaking fast-charging technology for electric mobility is unique in its compactness on a global scale. The high quality and functionality of the storage technology is based on an exceptionally high level of integration. All components, except for the cells, come from our own company.

Through our participation in numerous projects sponsored by the federal and state governments, ads-tec is in close contact with companies and research institutions along the entire value chain.

ads-tec Energy GmbH

Heinrich-Hertz-Straße 1
72622 Nürtingen
www.ads-tec.de

Employees: 300 (2019)

Contact

Dr. Philipp Fischer
Phone: +49 7022 25221485
p.fischer@ads-tec.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Software
Inverter (electrical/electrical), electrical storage, chemical storage		



**AKKA stands for Passion for Technologies:
Accelerate your innovations with us!**



AKKA is the leading European provider in the fields of engineering, consultancy, and R&D services for the mobility industry. As an innovation accelerator, AKKA supports industrial companies from the automotive, aerospace, rail, and life sciences industries throughout the entire life cycles of their products using state-of-the-art digital technologies (AI, ADAS, Internet of Things, Big Data, robotics, embedded computing, machine learning).

AKKA was founded in 1984 and has a corporate culture that is strongly based on entrepreneurship. With 20,904 employees, who passionately work for tomorrow's industry every single day, the group achieved a turnover of € 1.8 billion in 2019. As an engineering service provider and engineering consultant, we facilitate faster innovations for products and services in a digital world. Our expertise is based on years of experience, from first design to manufacturing and post-commissioning services. In Baden-Württemberg, our focus is on the automotive sector. We combine our electronics expertise with state-of-the-art information technology to create solutions that improve products and systems.

AKKA

Flugfeldallee 12
71063 Sindelfingen
www.akka-technologies.com

Employees: 21,000 (2019)

Contact

Anne Friedrich
Phone: +49 151 74633470
anne-k.friedrich@akka.eu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage	Stationary systems	Testing
Interior		Energy
Electrics/electronics		Development
Exterior		
electrics/electronics		



It is about time for us to succeed – here in the Länd



Alzner Battery is part of the Alzner Automotive Group. Alzner Automotive is a very successful family business in the field of sheet metal processing and one of the established suppliers to large industrial companies. Over the past years, Alzner has also become a renowned supplier in the battery and fuel cell industry and is certified according to ISO 9001, ISO 14001 and IATF 16949. With Alzner Battery, the company has set another milestone on its journey of innovative expansion. Especially with the development and production of high-performance batteries with large-format LTO pouch cells, Alzner is opening up a new, innovative market segment. Storage units at the module or system level are offered especially for stationary and mobile applications with certain limitations, with an emphasis on industrial applications and a focus on a high "functional safety" standard. These special high-performance batteries are particularly suitable for peak load balancing when used with hydrogen fuel cells or electrolyzers due to their high safety and extremely high performance.

Alzner Automotive GmbH

Bertha-Benz-Str. 6
71120 Grafenau
www.alzner-automotive.de

Employees: 246

Contact

Hans-Martin Tekeser
Phone: +49 162 7846655
hans.tekeser@alzner-automotive.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Fuel cell system (chemical/electrical), gearbox, thermal management, motor/generator, inverter (electrical/electrical), vehicle electrical system, chemical storage	Stationary systems	
Interior		
Thermal management, electrics/electronics, equipment		
Exterior		
Chassis, vehicle body		

Injecting new ideas for e-mobility – with silicone and thermoplastics



Moulded silicone and thermoplastic parts ensure the reliable and safe function in many crucial places in electric vehicles. As a development and production partner, Antech Polymertechnik is looking for new ways to further optimise these components for the benefit of its customers. From battery storage systems to fuel cells and connected driving. The focus is on multi-component products, as they free up installation space, reduce product weight, simplify logistics and reduce assembly steps.

Antech Polymertechnik GmbH

Daimlerstraße 12
71691 Freiberg am Neckar
www.antech-polymertechnik.de

Employees: 20 (2020)

Antech Polymertechnik is a medium-sized family business in the mobility region of Stuttgart. For more than 20 years, we have specialised in the customised production of single and multi-component moulded silicone and thermoplastic parts. Through the development of innovative injection moulding technology such as cold runner and dosing systems and the company's in-house toolmaking shop, we can provide you with comprehensive support- from design consulting to prototype construction and later the serial production. Antech brings in new ideas to realise sustainable products together with you – products that help gain the lead and reduce costs. Get to know us.

Contact

Kristof Brüggemann
Phone: +49 7141 781722
k.brueggemann@antech-polymer-technik.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Electrical storage, inverter (electrical/electrical), motor/generator, thermal management		
Interior		
Electrics/electronics, thermal management		



State-of-the-art technology that moves – electromobility cleverly implemented!



ARADEX AG has been a reliable and competent supplier, a pioneer in the field of high-performance drive technology for over 30 years. While the roots of the company lie in industrial control and drive technology, its focus has been on mobile drive technology for several years: electrification and hybridisation of commercial vehicles, construction machinery and special boats. ARADEX's drive solutions are characterised by perfect adjustment to the individual requirements, clever technological features, and above-average efficiency.

An important concern for ARADEX is to help drive the energy transition with its technology, to reduce CO₂ emissions and thus to stop dangerous global warming. ARADEX stands for an environmentally friendly technology standard and a healthy future!

ARADEX has been a member of the Chinese WEICHAO Group since the end of 2019 and strengthens the group primarily in the field of new energies and electric drive solutions. Irrespective of this, the corporate culture at the Lorch location, with its now 70 employees, is still very much that of a medium-sized company.

ARADEX AG

Ziegelwaldstr. 3
73547 Lorch
www.aradex.de

Employees: 70 (2021)

Contact

Marcel Nasser
Phone: +49 7172 91 81 0
mnasser@aradex.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Inverter (electrical/electrical), motor/generator		Testing
		Energy
		Development

We are an engineering and consulting company: Cars/E-mobility, Pharma and Medicine



Our focus in development is on our areas of competence of special machine construction and vehicle design. To provide our customers with the best possible support, we focus on quality, efficiency, and speed in conceptual design and planning. Our focus in production plant development is on batteries – fuel cells – e-motors.

Project planning: Within the scope of the development and design of assembly and testing facilities, we provide comprehensive project planning services to our customers. This is based on preliminary analyses and includes individual adjustments to the respective circumstances at the future plants.

Design: The design of assembly and testing systems is one of our main tasks. This includes manual workstations, fixtures, processing machines and assembly cells. To achieve the best possible designs, we always work with the latest CAD software, e. g. Solid Works, Inventor, or Creo.

Process planning: arco-concept GmbH has supported companies in their process and production planning for many years. Benefit from our employee's profound knowledge and expertise for best results.

arco-concept GmbH

Kriegsbergstrasse 11
71336 Waiblingen
www.arco-concept.de

Employees: 20

Contact

Antonio Coiro
Phone: +49 7151 1651610
a.coiro@arco-concept.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Testing
		Development



© Arnold Umformtechnik

Innovative and efficient joining solutions for lightweight construction and electromobility

High-end fasteners and extruded parts - that's what ARNOLD stands for around the globe. The company offers a unique range of products and services: engineering, fasteners, functional parts, feeding systems and processing technology from a single source. ARNOLD is tackling the new challenges of the e-mobility sector with all the expertise of an experienced system supplier and is developing, among other things, innovative joining concepts that cover all components of battery packs or fuel cells. ARNOLD's solutions include flow-hole forming screws that allow sheet-metal connections without pre-drilling; self-tapping screws that generate high extraction forces even at low screw-in depths; piercing nuts and press-fit screws for the cost-optimised production of captive steel and aluminium sheet metal connections; or inserts made of aluminium for use in plastics.

Whether it is individual components or complete assemblies: ARNOLD is there for vehicle manufacturers and suppliers, offering comprehensive know-how and sophisticated technologies - from the initial conception phase, practical tests at ARNOLD's own in-house laboratory to series production.



ARNOLD UMFORMTECHNIK
GmbH & Co. KG

Carl-Arnold-Str. 25
74670 Forchtenberg-Ernsbach
www.arnold-fastening.com

Employees: 1,266 (2020)

Contact

Uwe Wolfarth
Phone: +49 7937 8045-651
Uwe.Wolfarth@arnold-fastening.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Electrical storage, motor/generator, thermal management, gearbox		
Interior		
Equipment		
Exterior		
Chassis, vehicle body		



© ASAP Gruppe

Partner of the automotive industry for Integrated development in e-mobility

As an engineering partner to the automotive industry, ASAP Group offers comprehensive services with a focus on the megatrends of e-mobility, autonomous driving, and connectivity. ASAP's strategic development focus is on the future-oriented technology fields of electronics engineering such as system integration, software engineering, vehicle simulation, testing and the development of test systems. ASAP also supports its customers in the areas of vehicle construction, vehicle electrical system development and CAD engineering (e.g. interior, exterior, equipment). The portfolio is supplemented by cross-sectional topics from project, process, and quality management as well as global technical services.

Besides engineering services, the main focus of the services with regard to e-mobility is on the development, integration, verification and validation of HV components and systems such as e-axles, e-machines, power electronics and chargers, and the commissioning of electrified vehicles. Thanks to the high degree of consistency in its services, ASAP can offer its customers considerable added value as an engineering partner. Today, more than 1,250 employees work for the ASAP Group at ten locations.



ASAP Engineering GmbH

Im Bühl 21
71287 Weissach
www.asap.de

Employees: 1,250 (2021)

Contact

Martin Ott
Phone: +49 7044 94972 10
weissach@asap.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Energy
		Development



© ASG GmbH

Compact, powerful and highly efficient wheel hub transmissions for many applications



Allweier System GmbH has its roots in the mechanical engineering sector. The company is mainly renowned for its transmission technology. The company that emerged from Allweier Präzisionstechnik GmbH started in 2002 with the development and production of industrial transmissions. In 2006, the first wheel hub transmissions were developed. The market for these transmissions developed together with the rise of electromobility as did the multitude of applications for their use. In the meantime, ASG transmissions are being used in agriculture, robots, municipal vehicles, construction machines, industrial trucks, railway applications and more. Precision and German quality workmanship as well as the beneficial cooperation with several universities are paying off now in the development of the market. ASG transmissions are in use all over the world, e.g. for rice harvesting in Japan, tomato farming in the USA, wine harvesting in France, apple harvesting in South Tyrol, laying fibre optic cables in Europe, assembling aeroplanes at Airbus in Bremen or at Boeing in Seattle, and also in construction machinery in Turkey, in Ireland and many other countries.

ASG – Allweier System GmbH

Zum Degenhardt 3
88662 Überlingen
www.radnabengetriebe.com

Employees: approx. 200

Contact

Manfred Zinner
Phone: +49 7551 9207 277
manfred.zinner@allweier.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Gearbox		



© A. Jurčec

Technical competence and ethical values – our foundation for the mobility of the future



AtTrack GmbH | Gesellschaft für Mobilität- an engineering and consulting firm with focus on mobility.

Engineering: Design, calculation and simulation, comparisons with competitors, prototype construction, drive concepts, alternative drives, complete vehicle development.

Realisation and testing: Feasibility studies, prototype/demonstrator assembly, test design and implementation.

Motor sport: Race car development, race support and planning, team management.

Consulting: Interim management, business field and product strategy, coaching. Strategy consulting in the area of technology. Competence analyses. Planning and management, interdisciplinary integration, project documentation. Innovation management, product and process consulting, roadmapping/ life-cycle management. Technology and process consulting, engineering methodology, production-related IT projects, process optimisation.

AtTrack GmbH | Gesellschaft für Mobilität

Holderäckerstr. 23
70499 Stuttgart
www.attrack.de

Employees: 9 (2019)

Contact

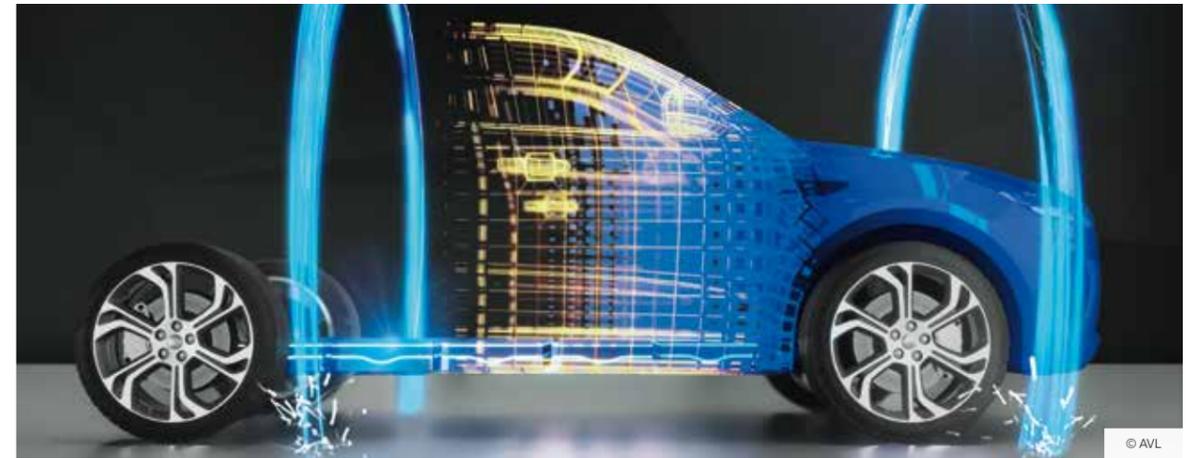
Dr. Ulrich W. Schiefer
Phone: +49 711 91242087
info@attrack.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Fuel cell system (chemical/electrical), gearbox, thermal management, motor/generator, inverter (electrical/electrical), electrical storage, chemical storage		Development
Interior		
Equipment, thermal management, electrics/electronics		
Exterior		
Electrics/electronics, chassis, vehicle body		

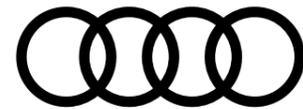


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© AVL

Audi is continuously driving the development of innovative drive technologies



Audi stands for sporty vehicles, high-quality workmanship and progressive design – for "Vorsprung durch Technik" or progress through technology. Founded in 1899 by August Horch as Horch & Cie. Motorwagen-Werke, the company is now one of the world's leading suppliers of premium class automobiles. Our high level of innovation is one of the factors of our success. Audi has always set milestones in the history of automobiles: from the permanent four-wheel drive quattro to the light-weight aluminium frame Audi Space Frame or automated driving today. The first purely electric model in series production, the Audi e-tron, has been in production at Audi Brussels since September 2018. It is the world's first CO₂-neutral premium car produced at a large scale. For Audi, sustainable action begins with procurement and ends with vehicle recycling. The company operates in more than 100 markets worldwide and is growing continuously. In 2019, AUDI AG handed over around 1,845,550 cars to customers worldwide. The company currently employs 90,000 people worldwide, more than 60,000 of them at its German locations in Ingolstadt and Neckarsulm.

Audi AG
Auto-Union-Straße 1
85045 Ingolstadt
www.audi.de

Employees: 90,000

Contact
Dipl.-Ing. Joerg Starr
Phone: +49 151 52817541
joerg.starr@audi.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Fuel cell system (chemical/electrical), gearbox, thermal management, motor/generator, inverter (electrical/electrical), vehicle electrical system, chemical storage, electrical storage		
Interior		
Thermal management, electrics/electronics, equipment		
Exterior		
Vehicle body, chassis, electrics/electronics		

Holistic solutions for electrification and automated driving



As the world's largest independent company for the development, simulation and testing of drive systems (e. g. hybrid drives, electric drives, batteries, and fuel cells) for cars, trucks, mobile machines, and stationary systems, AVL can look back at decades of experience in the development and optimisation of these systems for all industries. As a global technology leader, the company provides agile and integrated development environments, state-of-the-art measurement and testing systems, and efficient simulation methods that cover the entire vehicle development process.

Furthermore, AVL is a pioneer in the field of innovative solutions, e. g. manifold electrification strategies for powertrains, and is increasingly taking on tasks such as researching and the industrial implementation of new testing methods in vehicle development with a focus on electromobility, automated driving and alternative fuels. Based on the company's innovative spirit, AVL participates in numerous publicly funded research projects such as RobustSENSE, ENABLE-S3 (project coordinator), SmartLoad (project coordinator), and VV-Methoden.

AVL Deutschland GmbH
Carl-Zeiss-Straße 26
74321 Bietigheim-Bissingen
www.avl.com/de
Employees:
AVL total: 11,500, AVL-
Deutschland GmbH: 1,100 (2019)

Contact
Dipl.-Ing. Kerstin Mayr
Phone: +49 151 15054446
kerstin.mayr@avl.com

Contact
Jörn Krohn
Phone: +49 151 55144842
joern.krohn@avl.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Development



© DHBW Karlsruhe

With theory and practice to success

The Baden-Wuerttemberg Cooperative State University Karlsruhe and its partners provide training in the dual study programmes of computer sciences and mechanical, electrical, and industrial engineering, among others. Due to the special study model, there is a high degree of knowledge transfer from research to enterprises. This strength of the dual study system shows in all areas and thus adds high value to the future-oriented topic of electromobility.



Baden-Wuerttemberg Cooperative
State University (DHBW) Karlsruhe

Erzbergerstraße 121
76133 Karlsruhe
www.karlsruhe.dhbw.de

Employees: 220 (2020)

Contact

Prof. Dr. Marcus Strand
Phone: +49 721 9735924
marcus.strand@dhbw-karlsruhe.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Development



© DHBW Mannheim

DHBW MA – Electrochemistry Cluster. Leading in theory. Unbeatable in practice.



As early as in 2013, DHBW Mannheim introduced the electromobility study programme and set up laboratories to examine new vehicle components. Its core is the battery and fuel cell laboratory, which allows extensive testing of energy converters. The power spectrum ranges from a few watts to about 10 kW, with an option of 24/7 operation. The laboratories are used in teaching and research and the interdisciplinary Electrochemistry Research Cluster (ELCH) was established especially for this purpose. Of the successful research projects, the EU project MEMPHYS (2017-2020, budget 2 million euros) deserves special mention. Under the leadership of DHBW, this project deals with hydrogen recycling from industrial waste gases. Another example is the ZIM project funded by the Federal Ministry for Economic Affairs (2017-2019, budget of 400,000 euros) working on additive manufacturing of fuel cell parts.

In addition, the Electrochemistry Research Cluster has been offering continuous professional training measures on the topic of fuel cells since 2018. The focus here is on the transformation of the automotive industry. Several teams from various OEMs have already been trained in the development and production of fuel cell drives.

Baden-Wuerttemberg Cooperative
State University (DHBW)
Mannheim Research Cluster for
Electrochemistry

Coblitzallee 1–9
68163 Mannheim
www.mannheim.dhbw.de

Employees: 339

Contact

Prof. Dr.-Ing. Sven Schmitz
Phone: +49 152 318 477 95
sven.schmitz@dhbw-mannheim.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Testing
		Energy
		Development



© Bertrandt

Bertrandt – engineering and testing for electromobility under one roof

bertrandt

Bertrandt is a reliable and professional partner in the field of engineering and safeguarding in the area of electromobility, from start-ups to (system) suppliers and OEMs. With decades of expertise in vehicle development, the company relies on state-of-the-art technologies and the continuous development of processes and know-how. The focus is always on understanding the systems. Bertrandt provides services ranging from the initial concept to the development of functionalities and systems, and in-house prototype construction and testing.

In our ultra-modern testing laboratories, customers can draw on a wide range of safeguarding services in the e-mobility segment. Our competences cover a wide range of testing methods for a multitude of components- from batteries (overall system, module, BMS) to charging stations, wiring harnesses, connectors, auxiliary units, convenience components and onboard chargers, right through to power electronics and electric motors and axles.

Bertrandt draws on its extensive expertise and the group-wide network of around 13,000 employees in more than 50 locations around the world.

Bertrandt AG

Birkensee 1
71139 Ehningen
www.bertrandt.com

Employees: around 13,000 (2020)

Contact

Matthias Medger
Phone: +49 160 4792657
e-MobilityTesting@bertrandt.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Development



© BINDER GmbH

Perfection in detail: Climate chambers for forming, durability and performance tests

BINDER
Best conditions for your success

World market leader in the field of simulation chambers

BINDER is a family-owned company and fully focused on simulation chambers. World-wide, we are the largest specialist for simulation chambers for scientific and industrial laboratories. More than 22,000 units leave our factory in Tuttlingen every year. Sophisticated cutting-edge technologies, forward-looking innovations and absolute precision characterise BINDER's brand image. Our focus is on the perfect simulation of biological, chemical, and physical environments for a wide range of industries. And the three red triangles in our logo stand for superior products, the best service package, and professional advice. For you, this means "Best conditions for your success".

BINDER GmbH

Im Mittleren Ösch 5
78532 Tuttlingen
www.binder-world.com

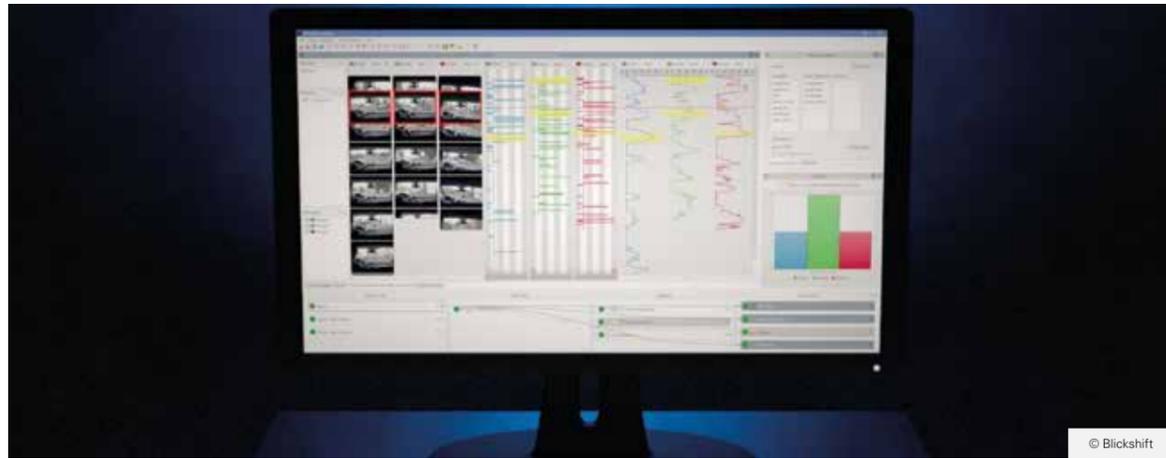
Employees: 400 (2020)

Contact

Harald Schädler
Phone: +49 7462 2005426
harald.schaedler@binder-world.com

Fields of competence

Components	System integration/system manufacturer	Service
		Testing



© Blickshift

Eye tracking analysis and recording taken to a new level



With Blickshift Analytics, the company Blickshift offers one of the world's most advanced software solutions for the analysis of gaze data in combination with biometric data and other data from driving experiments.

The analysis of eye-tracking data plays an important role in human-vehicle interaction and with regard to many questions in the development of algorithms for future assistance systems.

In addition, we have software tools for recording driver behaviour data in the simulator and in real-world situations. Based on our products, we also offer the development of customised solutions for efficient insights into the behaviours of people in experimental driving situations.

Blickshift GmbH

Wankelstraße 12
70563 Stuttgart
www.blickshift.de

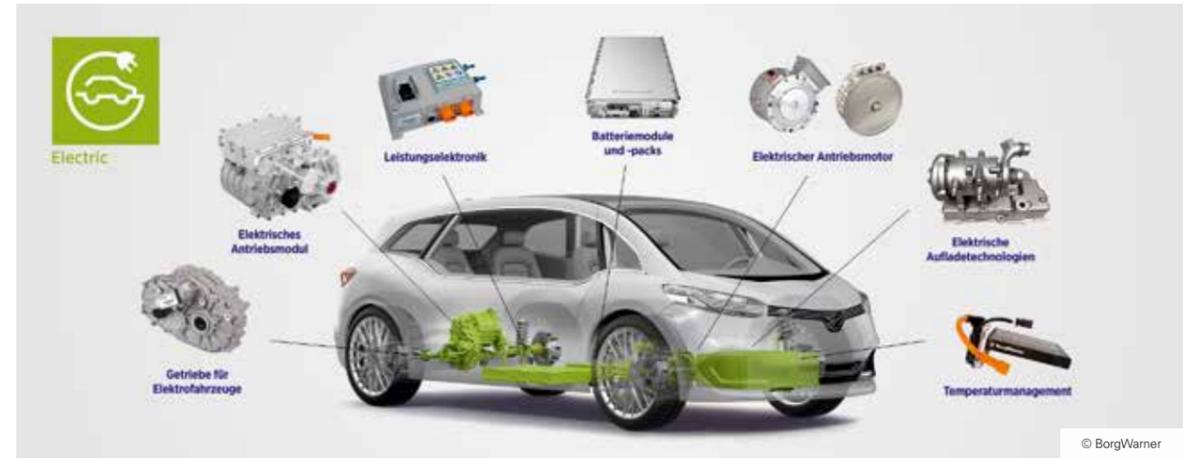
Employees: 3

Contact

Dr. Michael Raschke
Phone: +49 711 18424526
michael.raschke@blickshift.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Development



© BorgWarner

We are paving the way for a clean and energy efficient world



Whether it's an efficient combustion engine, smart hybrid, or state-of-the-art electric drive- BorgWarner is driving the mobility of today and tomorrow. Our vision is a clean energy-efficient world. That's why we develop solutions for mobility systems that deliver more power while featuring lower energy consumption and fewer emissions. BorgWarner is a leading manufacturer with over 130 years of experience in building powertrain systems, helping the automotive industry to realise environmentally friendly engines and efficient technologies for passenger cars, light and heavy commercial vehicles, and construction and agricultural machinery.

With our expertise in a wide range of electric drive technologies, we assist manufacturers to harness the next generation of electric mobility easily and efficiently. Whether it's power electronics, electric motors, thermal management, or battery charging, we provide the technology that is needed for the future.

BorgWarner

Mörikestraße 155
71636 Ludwigsburg
www.borgwarner.com

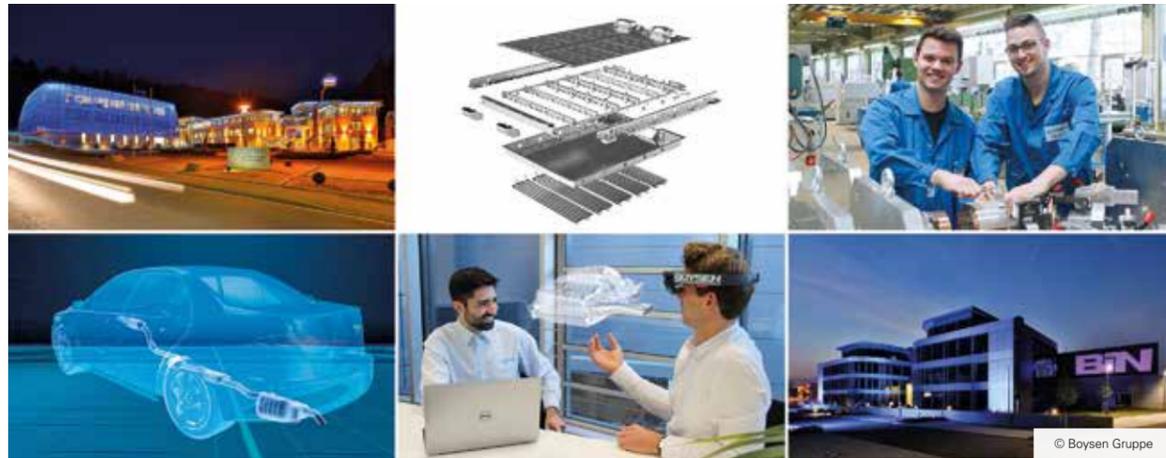
Employees: approx. 29,000 worldwide

Contact

Dr. Steffen Meyer
Phone: +49 7141 132700
smeyer@borgwarner.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Vehicle electrical system, gearbox, thermal management, motor/generator, inverter (electrical/electrical)		



"Protect, preserve and shape the environment" – our declared corporate goal!



The Boysen Group is a specialist in exhaust technology and, with currently 23 locations worldwide, one of the fastest-growing suppliers to the international automotive and commercial vehicle industry.

The main uses of our products are exhaust gas purification, noise reduction and the conversion of exhaust heat into usable energy. With this, we decisively contribute to the efficient reduction of pollutants and noise emissions and boost the efficiency of combustion engines. We also engage in product transfers- from exhaust technology to alternative drives – and in new developments in the fields of energy and environmental technology: from battery housings and unit frames for electric motors to stainless steel fuel tanks for hybrid vehicles and the production of redox flow batteries and fuel cells. We also focus on the energy-saving production and storage of hydrogen and hydrogen combustion engines. Besides innovative development methods, our core competences lie primarily in metal processing and automated production. The degree of automation in our plants exceeds 90%.

Boysen Gruppe
BIN Boysen Innovationszentrum
Nagold GmbH & Co. KG

Carl-Friedrich-Gauss-Straße 4
72202 Nagold
www.boysen-online.de

Employees: 4,600 (2019)

Contact

Dr. Andreas Dreizler
Phone: +49 7452 8408260
Andreas.Dreizler@bin.boysen-online.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Electrical storage, thermal management, fuel cell system	Stationary systems	Development

People – Methods – Solutions



More than 10 years of experience in IT-related consulting are our basis for discussing digitalisation and transformation at the highest level.

The bridgingIT group is a manufacturer and product-independent technology and management consultancy. As an innovative "end-to-end" service provider, we connect and bridge the gap between the requirements of business and IT. BridgingIT is an owner-managed company and the group employs more than 600 consultants at ten locations throughout Germany. The services of the bridgingIT group supports our customers' digital growth and range from the development of new approaches to their actual realisation, including support through CraftingIT GmbH. The quality of our consulting services reflects in the Fastahead GmbH – a synonym for innovative business models and strategic consulting approaches. We design concepts and quickly put them into practice using agile methods. BridgingIT GmbH is the strongest link in our end-to-end service portfolio for the realisation of these concepts. Complexity in project management, agility in implementation and state-of-the-art methods as well as leading technologies are the key elements of successful projects.

BridgingIT GmbH
N7, 5–6
68161 Mannheim
www.bridging-it.de

Employees: 600

Contact

Detlef Schumann
Phone: +49 152 5669 4008
detlef.schumann@bridging-it.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Energy
		Development



We are the experts for individual solutions in measurement and testing technology



We have made it our business to ensure meaningful connections between products and testing requirements in individual working environments. We develop electro- mechanical testing solutions, provide smart adaptations to accommodate newly specified components and prototypes in existing testing systems and supply complete test benches. Our portfolio also includes workshop and assembly services, such as the assembly of test vehicles or our diagnostic centre for drive components. Another area is electrical/electronic development. In addition to vehicle wiring harnesses, our workshop also manufactures measurement solutions and high-voltage technology. We will also serve you as a competent contact for the design and development of additively manufactured components.

TESTING TECHNOLOGY. Integration, operation, test benches
ASSEMBLY TECHNOLOGY. Assembly service, mechanical production, equipment
ELECTRICS/ELECTRONICS. Wiring harnesses, manufacture, measurement technology, HV
ADDITIVE MANUFACTURING. Development of bionic structures, lightweight construction

Together with our customers, we shape future mobility.

BRIGHT Testing GmbH

Mercedesstraße 19
71063 Sindelfingen
www.bright-testing.de

Employees: 30 (2021)

Contact

Sebastian Dressel
Phone: +49 172 8123652
sebastian.dressel@bright-testing.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Vehicle electrical system, motor/generator, gearbox	Stationary systems	Testing
Interior		Development
Electrics/electronics		
Exterior		
Electrics/electronics, chassis, vehicle body		



BRUSA Elektronik AG develops and produces highly efficient components in the field of HV power electronics for mobile on and off-highway applications.



BRUSA Elektronik AG is a leading supplier of electronic components in the areas of e-drives and innovative charging technologies. Since the company's foundation in 1985, BRUSA has significantly contributed to the worldwide breakthrough of electromobility. Our goal is to create a net-zero society and, with smart electric mobility solutions, act as a pioneer in the decarbonisation of the energy and transport sector. BRUSA HyPower AG was founded in 2021 as a spin-off of BRUSA Elektronik AG. The company focuses on the development and production of power electronic components such as fuel cell DC/DC converters, on-board chargers, and on-board DC/DC converters with various power levels. DC/DC converters are key to fuel cell-based electric propulsion. The high energy conversion efficiency and dynamic power electronics of BRUSA converters optimise hydrogen consumption and extend the lifetime of fuel cell systems. BRUSA products are critical in a wide range of mobility and stationary fuel cell applications.

BRUSA Elektronik AG

Alemannenstrasse 23
71296 Heimsheim
www.brusa.biz

Employees: 240 (2021)

Contact

Hartmut Wirth
Phone: +41 763522916
hartmut.wirth@brusa.biz

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Vehicle electrical system, inverter (electrical/electrical), motor/generator		Development



© BWS Anlagenbau & Service GmbH

BWS: Solutions for your water, process water and wastewater treatment from a single source



Industrial water treatment is more than just a technical task to be solved. Clean water is our passion! Consulting based on expertise and economic concepts and optimal plant engineering and realisation are among the services that we committedly provide for our customers every day.

Our team has more than 400 man-years of practical experience in water technology in all industries.

Your advantage in the field of e-mobility/hydrogen: We know and understand your processes and can take care of your problems in a straightforward targeted manner.

Because we understand that technologies for industrial water treatment alone are not sufficient to improve the competitiveness of our customers. Potentials can only be identified and exploited when there is in-depth knowledge of your production processes too.

BWS Anlagenbau & Service GmbH

Teckstraße 11
78727 Oberndorf a. N.
www.bws-water.com

Employees: 18 (2021)

Contact

Dipl.-Ing. (FH) Yahko Aslan
Phone: +49 7423 86880 50
yahko.aslan@bws-water.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	
	Stationary systems	



© C.F. Maier Europlast GmbH & Co KG

Competence in lightweight components made of plastic



C.F. Maier is a long-standing supplier of moulded plastic parts in a wide range of industries, such as commercial vehicles, recreational vehicles, and equipment manufacturing. Components made of fibre-reinforced plastic have the advantage of saving weight while featuring high mechanical qualities.

The materials used can be adapted to the requirements of different applications (e.g. density, flame retardancy, etc.).

Our manufacturing portfolio includes the following processes:

- SMC pressing
- PUR foaming
- Wet pressing
- VA-RTM
- Hand lamination
- Surface coating

C.F. Maier Europlast GmbH & Co. KG

Wiesenstraße 43
89551 Königsbrunn
www.c-f-maier.de

Employees: 950 (2021)

Contact

Martin Zimmermann
Phone: +49 732881382
martin.zimmermann@c-f-maier.de

Fields of competence

Components	System integration/system manufacturer	Service
Exterior		
Chassis, vehicle body		



© iStock.com/Tero Vesalainen

Full-service provider for shared mobility & more



For over 20 years, the Hanover-based IT and mobility company cantamen has stood for passion and competence in the shared economy. Today, cantamen offers complete IT solutions for every car sharing model, for all fleets and all drive technologies, stationary or free floating, with or without e-bike and public transport integration. As a full-service provider, we not only provide powerful and reliable software (app, web interface and backend) but also access systems, professional consulting, 24/7 emergency support, and a 24/7 service centre to care for our more than 60 customers in the vehicle sharing and mobility business. Moreover, cantamen is strongly involved in various research projects in order to contribute to highly innovative developments in the area of shared mobility and to make them available to our customers. Among others, cantamen participates in:

- econnect Germany
- BiE- Evaluation of Integrated Electromobility
- ReKoMo- regional cooperation and mobility platform
- 3connect
- OPTIMOS 2.0
- "SDIKA- Secure Digital Identities Karlsruhe" research project

cantamen GmbH

Am Hohen Ufer 3A
30159 Hannover
www.cantamen.de

Employees: 51 (2021)

Contact

Harald Zielstorff
Phone: +49 511 9999900
info@cantamen.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Software
Electrics/electronics		Testing
		Development



© Carl Zeiss Industrial Quality Solutions

ZEISS eMobility Solutions – from energy to eMotion



The Industrial Metrology business unit is a leading manufacturer of multidimensional measurement solutions. These include coordinate measuring machines, optical and multi-sensor systems as well as metrology software for the automotive, aircraft, mechanical engineering, plastics and medical engineering industries. Innovative technologies such as 3D X-ray solutions for quality inspection complement the product portfolio.

ZEISS eMobility Solutions brings together selected products from the ZEISS portfolio and thus offers unique comprehensive measurement and inspection solutions for all components of e-mobility: from the battery to power electronics to e-motor and gearbox- from energy to eMotion.

Carl Zeiss Industrielle
Messtechnik GmbH

Carl-Zeiss-Straße 22
73447 Oberkochen
www.zeiss.de

Employees: 7,417 (2020)

Contact

Patrick Stempfle
Phone: +49 7364 205454
patrick.stempfle@zeiss.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Testing
		Development



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Pioneers of smart charging



CarMedialab is a telematics company. Today, the services offered include telediagnosis and smart charging for applications in automotive engineering and mobility. The product portfolio ranges from embedded systems for use in vehicles or charging infrastructure to the operation of telematics solutions and systems.

The key difference between CarMedialab and its competitors is that CarMedialab not only supplies embedded systems but is also accustomed to acting as a telematics service provider in its market. For many years, CarMedialab has not only developed systems for the automotive industry and the energy sector, but also operated them responsibly throughout their entire life cycle.

CarMedialab works exclusively with qualified and TS16949-certified manufacturing companies to produce control units for you. These partners are selected from our manufacturing network depending on volume, complexity and required flexibility. In this way, the company can live up to its own standards in terms of quality and performance.

CarMedialab GmbH
Werner-von-Siemens-Str. 2-6
76646 Bruchsal
www.carmedialab.com

Employees: 30

Contact
Heiko Bauer
Phone: +49 7251 72400
heiko.bauer@carmedialab.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Testing
		Energy
		Development

We power sustainable living by creating superior hydrogen fuel cell solutions.



cellcentric develops, produces, and markets fuel cell systems for use in heavy-duty commercial vehicles, which is its main focus area, and also for other non-vehicle applications. cellcentric is a joint venture of Daimler Truck AG and the Volvo Group founded in 2021. The company leverages the know-how and extensive experience from several decades of development work on fuel cells by its predecessor companies. cellcentric's goal is to become a leading global manufacturer of fuel cells and thus contribute to achieving climate-neutral and sustainable transport by 2050. More than 300 highly qualified employees are driving our state-of-the-art fuel cell technology forward. They work in interdisciplinary teams at locations in Nabern, Untertürkheim, Esslingen (Germany), and Burnaby (Canada). Around 700 individual patents have been granted, underlining the company's leading role in the technological development.

cellcentric GmbH & Co. KG
Neue Straße 95
73230 Kirchheim/Teck-Nabern
www.cellcentric.net

Employees: 350 (2020)

Contact
Kim Jana Eisfeld
Phone: +49 176 30963783
kim.eisfeld@cellcentric.net

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical)		



© Simon Brugger

CellForm: Highly efficient production of bipolar plates with the highest demands on the design of the flow field



As a toolmaker with over 50 years of experience in the field of highly complex forming challenges, we have committed to realising the forming of metallic bipolar plates with the most filigree channel structures (flow field) and very thin steel foils, mostly made of stainless steel, in an extremely efficient large-scale production process. With this, we have addressed two critical areas that support the breakthrough of fuel cells as part of complex systems: efficient cost structures and, at the same time, reliable realisation of the technical and efficiency-critical requirements in the large-scale production of metallic bipolar plates. Our technology allows the reliable production of the required flow-field structures with an accuracy and surface quality that is unprecedented in the market. We currently work with sheet thicknesses ranging from 0.05mm to 0.1mm and develop the optimal flow field design together with our customers. Our manufacturing process is future-oriented in its design and can accommodate the largest quantities.

CellForm

Löwenstraße 4–8
88255 Baienfurt
www.cellform.eu

Employees: 103 (2020)

Contact

Simon Brugger M.A.
Phone: +49 151 65914343
simon.brugger@cellform.eu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Fuel cell system (chemical/electrical), gearbox, motor/generator		
Interior		
Equipment		
Exterior		
Vehicle body		



© ZSW/Martin Duckek

Energy with a future



For over 30 years, the ZSW has been researching batteries, fuel cells, electrolysis, and the power-to-x process. With the eLaB, we have a research platform for the production of large lithium-ion cells. We serve the entire value chain: from active material to cell prototypes to industrial processes and production research, complemented by a battery test centre.

The fuel cell competences include design, simulation and construction of stack and system prototypes as well as the development of manufacturing and testing technologies. In addition, we operate a large, independent test field for fuel cell stacks and systems. With the HyFaB Baden-Württemberg, ZSW is building a research factory for fuel cells. It is intended to strengthen the supplier industry and create an open, flexible service to develop and test automated production and quality assurance processes. The competences in hydrogen production by means of electrolysis range from electrodes, electrolysis block and plant development (focus on alkaline electrolysis) to the design, construction and operation of research and demonstration plants on the megawatt scale.

Centre for Solar Energy and Hydrogen Research Baden-Wuerttemberg (ZSW)
Helmholtzstr. 8
89081 Ulm
www.zsw-bw.de
Employees: 275 (2020)

Contact

Dr. Margret Wohlfahrt-Mehrens
Phone: +49 731 9530612
margret.wohlfahrt-mehrens@zsw-bw.de

Contact

Dr. Ludwig Jörissen
Phone: +49 731 9530605
ludwig.joerissen@zsw-bw.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Testing
Electrical storage, chemical storage, fuel cell system (chemical/electrical)		Energy Development



The simple handling of the charging infrastructure for access and billing management.



Software for the operation of charging infrastructure

chargeIQ GmbH
Untertorstraße 19
70771 Leinfelden-Echterdingen
www.chargeiq.de

Employees: 10 (2020)

Contact
Stephan Dengler
Phone: +49 176 47023980
stephan@chargeiq.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Software



With innovation, quality, flexibility, and sustainability to success.



cb develops and manufactures disc springs, disc spring columns and slotted disc springs. Special springs, corrugated springs, ball-bearing disc springs and tension discs are also part of our portfolio. With precision parts around vanes, rotors, and complete assemblies for vane pumps from us, you have made the right decision. Disc springs basically stand for high spring forces with small spring deflections and for long service life. Compared to other spring types, they offer a much better utilisation of space. Their force-displacement characteristics can be widely varied. Classic linear curves, degressive curves or even characteristic curves in which the spring force decreases with increasing spring travel are possible. With the experience of over 75 years, cb develops and manufactures disc springs in accordance with DIN EN 16983 (formerly DIN 2093) or customer specifications. A wide variety of dimensions, designs and applications are possible, entirely in accordance with your wishes. As a specialist in all aspects regarding disc springs, cb is the ideal partner for you if applications deviate from the standard. cb disc springs are already used in fuel cells and electrolyzers by various manufacturers. We will be happy to examine your application together with you. Please contact us directly!

Christian Bauer GmbH + Co. KG
Schorndorfer Str. 49
73642 Welzheim
www.christianbauer.com
Employees: approx. 300 (2020)

Contact
Dr.-Ing. Gunter Bürkle
Phone: +49 7182 12-330
g.buerkle@christianbauer.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Gearbox, fuel cell system (chemical/electrical)		



© comemso EV Charging Analyzer/Simulator (EVCA) Produktfamilie

Your partner for testing battery management systems and the charging interface of e-vehicles

comemso
your partner for complex embedded solutions

With its products for battery cell simulations and charging system analyses, comemso has supplied stationary and mobile testing solutions to manufacturers of battery management systems, electric vehicles and charging stations and their operators since 2009. With in-house production (laser cutting, laser engraving, automatic assembly machines, wiring, testing, etc.) and our own development and testing departments, we meet the dynamic and high demands by the electromobility industry and guarantee short delivery times and highest quality. Renowned e-mobility customers worldwide rely on comemso products.

comemso GmbH

Karlsbader Str. 13
73760 Ostfildern
www.comemso.com

Employees: 100 (2021)

Contact

Anita Athanasas
Phone: +49 711 982 98-200
sales@comemso.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Testing
		Development



© TEAMOBILITY GmbH

Sustainable system solutions for individual mobility

**COMPETENCE & DESIGN CENTER
FOR MOBILITY INNOVATIONS**

The Competence & Design Center for Mobility Innovations, founded in 2009 by electromobility pioneer and former head of the Smart development, Prof. Johann Tomforde, stands for systematic solutions in all areas of electromobility.

An internal team of experts consisting of strategy developers, designers, engineers and economists works closely with external experts and system partners on sustainable energy-efficient concepts, innovations and system solutions for

- the automotive and supplier industry
- the transport and logistics industries
- the electricity suppliers and infrastructure companies
- Mobility start-ups and new business fields

Competence & Design Center for
Mobility Innovations

Graf-Zeppelin-Platz 1
71034 Böblingen
www.mobility-innovations.de

Employees: 2 (2020)

Contact

Prof. Johann Tomforde
Phone: +49 7031 3069595
tomforde@mobility-innovations.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development



© Coperion GmbH

Coperion is your partner for the continuous production of battery materials.



Coperion is your partner for the conversion from batch to continuous production of cathode and anode materials as well as the production of battery separator films and solid electrolytes for solid-state batteries. The Coperion ZSK twin screw extruders, together with the high-precision Coperion K-Tron feeders, offer a high degree of reliability, long operating times, and numerous features to ensure a high and constant quality of the end products. Containment-safe conveying of all materials enables safe production. Continuous extrusion helps achieve greater material efficiency and optimised, more cost-efficient, and climate-friendly battery material production.

At the Coperion Technical Center in Stuttgart, we can carry out customer-specific tests, tailored to the relevant question or problem. Since CMR substances are used in the production of cathode materials, all tests take place in compliance with the local guidelines for handling CMR substances. This ensures safe handling of toxic active materials.

Coperion GmbH

Theodorstraße 10
70469 Stuttgart
www.coperion.com/de/industrien/chemie/batteriemassen

Employees: 2,500 (2021)

Contact

Dr.-Ing. Anselm Lorenzoni
Phone: +49 176 18 97 26 21
Anselm.Lorenzoni@coperion.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	
Chemical storage, electrical storage		



© csi

We are your competent partner for automotive electronics – we are more than engineers



We, csi Entwicklungstechnik GmbH, have been innovative engineering partners to the automotive industry for more than 25 years. With representations in ten locations in Germany, we deliver engineering solutions tailored to individual needs. We specialise in the development, simulation and design of components and component groups as well as in project management.

Our core competences lie in the development of lightweight and safe multi-material body structures, exterior components for vehicle safety, high-quality interior modules, and in the area of Strak and the development of Class A surfaces.

Further, we complemented our core competences with new fields of technology such as software development, additive manufacturing, simulation, VR/AR, electrics/electronics, battery and innovative mobility solutions of the future.

In the field of electrics and electronics, we focus on the areas of battery and charging as well as telematics and vehicle electrical systems.

csi Entwicklungstechnik GmbH

Im Bühl 21
71287 Weissach
www.csi-online.de

Employees: 550

Contact

Florian Dennerlein
Phone: +49 174 2430474
florian.dennerlein@csi-online.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Energy
		Development



© CSM GmbH – www.csm.de

Measurement technology for electromobility



As a leading international manufacturer of decentralised measurement technology, CSM is an innovative and reliable partner of renowned vehicle manufacturers, suppliers and service providers in the automotive industry. Our customers have been relying on our CAN- and EtherCAT®-based measurement technology for the development of their vehicles and components for over 30 years. Our technology is used worldwide in test vehicles and on test benches. One of our core competences is measurement technology for the development of electromobility. CSM has a complete portfolio of HV-safe measurement modules and associated sensors for recording all physical parameters in the field of electromobility. HV Breakout Modules 3.3 facilitate measurements in HV-systems in vehicles and 3-phase power measurement, e. g. on electric motors, through internally applied measuring circuits for currents and voltages. The Vector CSM E-Mobility measuring system is designed for fast multi-channel measurements in the high-voltage lines and HV components of vehicles. It calculates all relevant parameters online: charging system efficiency, vehicle energy consumption, drive train efficiency, axle power, motor power, vehicle electrical system ripple or shield currents.

CSM Computer-Systeme-
Messtechnik GmbH

Raiffeisenstraße 36
70794 Filderstadt
www.csm.de

Employees: over 100 (2021)

Contact

Johann Mathä
Phone: +49 711 779640
info@csm.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Development



© CuroCon GmbH

Your E-mobility system integrator



CuroCon GmbH specializes in engineering services in the areas of testing and process technology, electrical engineering, automation and drive technology for industrial applications and applications in electromobility. The company's speciality lies in the provision of holistic consulting, support, and implementation services in the area of high-tech automation of industrial plants and applications in the stationary and mobile sectors.

CuroCon GmbH

Gernsheimer Str. 3
64673 Zwingenberg
www.CuroCon.de

Employees: 16 (2021)

Areas: Electrification of commercial vehicles, e-mobility system integrator, controller programming for battery-electric commercial vehicles and mobile machinery, standard-compliant charging with DC and AC and development of location-oriented charging infrastructure, test bench technology for electromobility.

Competences: conceptual design, project planning, programming, and testing of drive technology, power electronics, control technology, regulation technology, measurement technology, visualisation, and operating systems.

Products: CuroControl automation system in hardware and software, measurement, control, and virtualisation in stationary and mobile applications.

Contact

Dipl.-Ing. Michael Wissbach
Phone: +49 6251 7047082
michael.wissbach@curocon.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Software
Electrics/electronics	Stationary systems	Testing
Exterior		
Electrics/electronics		



© Daimler AG, Pressemappe

Innovative technologies for emission-free driving. Getting ready for tomorrow.

Daimler at a glance – electric offensive in full swing.

Daimler AG is one of the most successful automotive companies in the world. With its divisions Mercedes-Benz Cars & Vans, Daimler Trucks & Buses and Daimler Mobility, the vehicle manufacturer is one of the largest suppliers of premium passenger cars and one of the world's largest manufacturers of commercial vehicles. As a pioneer in automotive engineering, Daimler has the motivation and feels the commitment to shape the future of mobility in a safe and sustainable way. The company has committed to innovative and green technologies as well as safe and high-quality vehicles that fascinate and inspire. Daimler is constantly investing into the development of efficient drive systems – from high-tech combustion engines to hybrid vehicles and purely electric drives with batteries or fuel cells – to enable locally emission-free driving in the long term. Furthermore, the company is pushing smart connections between vehicles, autonomous driving, and new mobility concepts. Because Daimler considers it both a duty and an obligation to live up to its responsibility for society and the environment.

DAIMLER

Daimler AG

Mercedesstraße 120
70372 Stuttgart
www.daimler.com

Employees: 298,700 (2019)

Contact

Holger Kunz
Phone: +49 176 30903109
holger.kunz@daimler.com

Contact

Dr. Jörg Wind
Phone: +49 160 8626743
joerg.wind@daimler.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Fuel cell system (chemical/electrical), gearbox, motor/generator, electrical storage		
Exterior		
Vehicle body, chassis		



© Dana

Metallic bipolar plates drive global breakthrough of fuel cell propulsion

REINZ-Dichtungs-GmbH, a subsidiary of US automotive supplier Dana Incorporated, has been manufacturing sealing systems as well as heat and sound absorbing shielding parts for combustion engines for over 100 years.

The successful transformation at the Neu-Ulm production site is in full swing: REINZ uses unique technological features and develops innovations for the electrification of mobility- from fuel cell to battery technology. The focus is on metallic bipolar plates and on sealing solutions and thermal shielding plates for high-voltage batteries. Solutions that improve the efficiency of battery cells and thus increase the range of electric cars. Dana's metallic bipolar plate allows the realisation of high power densities. The high level of integration, e.g. the integrated sealing solution using the metal beading technology, makes the metallic bipolar plate and the overall system highly competitive. This technology from Neu-Ulm has the potential to change mobility in the long term. The annual production volume will soon break the mark of one million.



Dana/Victor Reinz

Reinzstraße 3-7
89233 Neu-Ulm
www.reinz.com

Employees: 38,000 (2020)

Contact

Albert Kremmeter
Phone: +49 731 7046452
albert.kremmeter@dana.com

Contact

Robert Blersch
Phone: +49 731 7046668
robert.blersch@dana.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Electrical storage, inverter (electrical/electrical), motor/generator, thermal management, fuel cell system (chemical/electrical)		Development



© DEKRA SE

DEKRA electromobility: Services along the entire entire automotive value chain



Our experts support you with testing services throughout the entire automotive value chain: from homologation and type testing to product and material testing and training. The portfolio is complemented by damage assessments and analyses as well as vehicle valuations.

We offer these services for all vehicle classes. From heavy commercial vehicles and passenger cars to pedelecs and e-scooters.

We also take a close look at the infrastructure of electromobility. Whether charging station, wall box, charging cable or charging plug: we test, certify and assess these components in our laboratories.

DEKRA SE

Handwerkstraße 15
70565 Stuttgart
www.dekra.de

Employees: 44,000 (2020)

Contact

Dipl.-Ing. Andreas Richter
Phone: +49 711 78610
e-mobility@dekra.com

Fields of competence

Components	System integration/system manufacturer	Service
		Testing



© DODUCO Solutions GmbH, Pforzheim

Linking ideas. Creating solutions.



Metal. Power. DODUCO! Almost 100 years of experience in precious metal processing as well as comprehensive know-how in the field of current-conducting connections make DODUCO a reliable partner of renowned companies world-wide in the electrical engineering and automotive industries.

Strategic development partnership. We live up to our value proposition "Connecting Ideas. Creating Solutions." in our daily work. We take up customer ideas, develop them further and create cost and quality-oriented solutions in close cooperation with them.

Unique technology network. Our services range from the recycling of precious metals, stamping technology and plastic-moulded assemblies. True to the motto "One face to the customer", we reduce supplier contact points and create high-quality and economically optimal solutions for our customers.

Outstanding materials know-how. Where metal and electricity come together, we offer our customers unique expertise regarding materials, surfaces, and their further processing. This is how reliable contact solutions from the DODUCO company have been created for more than 95 years.

DODUCO Solutions GmbH

Im Altgefäll 12
75181 Pforzheim
www.doduco.net

Employees: 1,100 (2019)

Contact

Daniel Schindler
Phone: +49 7231 602256
dschindler@doduco.net

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Thermal management, vehicle electrical system, electrical storage, chemical storage		Development
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



© Dr. Ing. h.c. F. Porsche AG

Shaping the future of mobility – all electric and CO₂-neutral

PORSCHE

Dr. Ing. h.c. F. Porsche AG, based in Stuttgart-Zuffenhausen, is the world's leading manufacturer of exclusive sports cars. In 2020, the company delivered more than 270,000 new cars to customers all over the world and generated sales of 28.7 billion euros. Porsche founded the sports car segment over 50 years ago with the iconic 911 sports car. With the Taycan, Porsche launched its first purely electrically powered sports car in 2019 – the first series-production vehicle to be equipped with a system voltage of 800 volts, allowing fast and convenient charging of the batteries. It is produced in a CO₂-neutral manner at the main plant in Zuffenhausen. The Porsche AG Group employs a total of around 36,000 people in 70 subsidiaries worldwide. Production locations are Zuffenhausen (911, 718 Boxster, 718 Cayman, Taycan), Leipzig (Panamera, Macan) and Bratislava (Cayenne). Development and Design as well as Motorsport are located in the Weissach Development Centre.

Dr. Ing. h.c. F. Porsche AG

Porscheplatz 1
70435 Stuttgart
www.porsche.de

Employees: 36,000 (2021)

Contact

Daniela Rathe
Phone: +49 711 911 28094
daniela.rathe@porsche.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development



© Dr.-Ing. S. Haußmann Industrieelektronik

High-quality power electronics and components for the mobility industry

**Dr.-Ing. S. Haußmann
Industrieelektronik**

The company Dr.-Ing. S. Haußmann Industrieelektronik develops and manufactures high-quality components for test benches in the automotive and supplier industry. The product portfolio includes linear actuators, gearbox control units with innovative actuator technology for development tasks on stationary test benches and for EOL tests in gearbox production, as well as complete solutions for endurance and functional testing of gearboxes and drive components.

Hardware and software concepts for residual bus simulations in engine development and production and new, powerful battery simulators for electric vehicle systems are also part of our product range.

Our product range also includes universal inverters for the characterisation of dynamic e-drives and special power electronics developments.

Dr.-Ing. S. Haußmann
Industrieelektronik

Beutwang 4
72622 Nürtingen
www.sh-el.de

Employees: 45 (2019)

Contact

Dr. Klaus Schorer
Phone: +49 7022 95650
info@sh-el.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Gearbox, motor/generator, inverter (electrical/electrical), vehicle electrical system		Development
Exterior		
Electrics/electronics		



Dürr – the right partner for building your production base in the field of eMobility



The Dürr Group is one of the world's leading machinery and plant manufacturers with strong expertise in the fields of automation and digitalisation. Its products enable highly efficient manufacturing processes in sectors such as the automotive industry, mechanical engineering, and the chemical, pharmaceutical and wood-working industries.

In the field of battery manufacturing, Dürr is particularly involved with robot technologies for the automated application of paints, sealants, and adhesives. Adhesive bonding technology and the application of thermally conductive pastes play a central role in the joining of battery cells to form battery systems. Only if individual battery cells are successfully connected, the manifold requirements on battery systems in e-cars in terms of safety, thermal management, corrosion protection and rigidity can be fulfilled. Dürr Megtec has been part of Dürr's Clean Technology Systems business unit since 2018. Dürr Megtec offers specialized coating systems for lithium-ion electrodes including solvent recovery and distillation and drying technologies for a wide range of roll-to-roll processes.

Dürr Systems AG

Carl-Benz-Str. 34
74321 Bietigheim-Bissingen
www.durr.com

Employees: 16,500 (2020)

Contact

Dr.- Ing. Ralf Schurer
Phone: +49 7142 781900
ralf.schurer@durr.com

Fields of competence

Components	System integration/system manufacturer	Service
Exterior	Automobile	
Vehicle body	Stationary systems	



Oil-free compressors of the highest quality made in Germany



Dürr Technik stands for oil-free compressors of the highest quality.

At Dürr Technik, we have been working with oil-free compressors for over 40 years. An innovative development and project planning department and a certified quality management system are the optimal conditions to develop customer-specific applications.

High-quality materials and our years of expertise (made in Germany) in oil-free technology ensure low-maintenance operation, an extremely long service life, and satisfied operators.

Since 2017, Dürr Technik has been an innovative network partner of e-mobil BW and has supported joint research and development projects regarding electromobility.

Make a conscious decision for sustainability, energy efficiency and reduction of CO₂ emissions with our oil-free compressors.

Dürr Technik GmbH & Co. KG

Pleidelsheimer Straße 30
74321 Bietigheim-Bissingen
www.duerr-technik.com

Employees: 120 (2019)

Contact

Can Bora
Phone: +49 7142 9022-824
bora.c@duerr-technik.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	
	Stationary systems	



© Eberspächer



© EDAG Group

With Smart Solutions, Eberspächer is shaping modern mobility – today and in the future.



With around 10,000 employees at 80 locations worldwide, the Eberspächer Group is one of the leading system developers and suppliers to the automotive industry. The family-owned company, based in Esslingen am Neckar, stands for innovative solutions in exhaust technology, vehicle electronics and air conditioning for different types of vehicles. Eberspächer components and systems ensure more comfort, greater safety and a cleaner environment in everyday mobile life.

The hydrogen business – which was initiated by the acquisition of VAIREX Air Systems – bundles the latest activities within the context of our vision: "Driving the mobility of tomorrow".

Eberspächer Vairex develops and produces air compressors for the cathode gas supply of the fuel cell as well as the associated components.

Eberspächer Climate Control Systems GmbH & Co. KG

Eberspächerstraße 24
73730 Esslingen
www.eberspaecher.com

Employees: 9,900

Contact

Cornelius Bubenzer
Phone: +49 152 24076815
cornelius.bubenzer@eberspaecher.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Thermal management, fuel cell system (chemical/electrical)	Stationary systems	Development

Full speed (power) to electromobility – new energy system solutions powered by EDAG



Our expertise covers the entire set-up of electromobility. EDAG has launched its own programme for the entire area of vehicle electrification and integration of innovative e-drive solutions for complex electric drives, including the new and continued development of related components and systems.

In the past, our focus was on the development of new battery technologies and systems. In the future, we also want to look at alternative or complementary systems and refocus on the fuel cell!

Energy storage and converters, fuel cells, control modules, electric motors including power electronics, the vehicle electrical system and even the charging infrastructure. In this regard, we assume responsibility for our customers, controlling the functional, component and subsystem integration into their systems. This means that we support our development partners and customers in the implementation and specification of the corresponding components and, in the course of this, create a new understanding of the processes.

EDAG Engineering GmbH

Kolumbusstraße 29
71063 Sindelfingen
www.edag.com

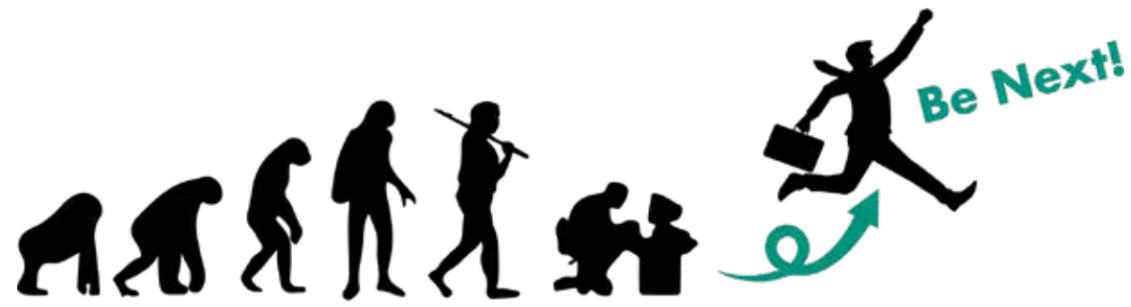
Employees: 8,488 (2019)

Contact

Aron Deutschländer
Phone: +49 172 6459489
aron.deutschlaender@edag.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage, chemical storage		Testing
		Development



Accelerate your Digitalization

© EDI GmbH

Accelerate your digitalisation with our all-round carefree package



EDI offers AI-based applications with which processes and machines can be optimised, controlled, and monitored. The EDI hive IoT Framework with patented technology is a powerful private cloud with many integrated standard modules which ensures fast implementation of the respective desired applications and the digitalisation concept that often exists in the companies. The EDI hive IoT Framework can be run on/off-premises. This means that existing data can be semantically connected with EDI hive almost overnight. AI-based applications can be provided on this basis. Furthermore, EDI GmbH supports the development of new digital business models. In this context, the simple adjustment of the EDI hive IoT Framework to the corporate design of a company is a key to success. A fast return of investment (ROI) of the developed digital services is therefore guaranteed. Our customers and partners include regional and international companies as well as Dax companies such as Daimler AG and Siemens AG.

For more on our projects and clients, see www.edi.gmbh.

EDI GmbH –
Engineering Data Intelligence

Wöschbacher Str. 73
76327 Pfinztal
www.edi.gmbh

Employees: 20 (2020)

Contact

Dr.-Ing. Dipl.-Wi.-Ing. Thomas
Freudenmann
Phone: +49 176 24129720
freudenmann@edi.gmbh

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Development



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Doers. Strategists. Innovators. effisma – agile consulting specialist in the automotive environment



As an agile consulting specialist, we have been supporting companies in innovation processes and the development of business models in the digital transformation for over 15 years.

We accompany our clients from the initial idea through prototype development to market entry. A key component of our business is the training and continued education of employees with the help of our proven and tested blended learning approach. By combining traditional classroom training and workshops with digital learning units and tools, we design and moderate interactive learning paths for sustainable learning successes. Fuel cell technology, a key element of the energy transition, offers great potential for Baden-Württemberg as an industrial and technology location. To allow our customers to actively shape the economic transformation process, we develop professional training and certification courses for employees in manufacturing, development, and administration. This is our strategy for making significant contributions to the development of new fields of business and facilitating the entry into hydrogen and fuel cell technology for enterprises.

effisma.group GmbH & Co. KG

Forststr. 7
70174 Stuttgart
www.effisma.de

Employees: 20 (2021)

Contact

Ingo Frank
Phone: +49 172 710 71 31
i.frank@effisma.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing



© ELABO GmbH

ELABO – Your competent partner for semi and fully automated testing and inspection systems



ELABO GmbH specialises in customising workplaces, assembly and testing systems and has become an established and competent partner in the digital transformation process. In addition to functionally and ergonomically optimised workstation systems, assembly, inspection, and test systems, ELABO's portfolio includes the proprietary factory software Elution®, one of the leading Industry 4.0 solutions for medium-sized manufacturing.

In the automotive industry, many well-known customers rely on ELABO's individual solutions. The semi and fully automated assembly, inspection, and test systems, combined with the Elution® factory software, make a complete package for your series production. ELABO offers solutions that are tailored precisely to your products, from assembly and service stations including worker assistance systems to semi-automated safety, function and quality testing, or fully automated test cells with robot integration, e. g. for vision, touch, and rotary selector checks. ELABO always meets the highest quality standards and ensures consistent documentation of your processes worldwide with our Elution® factory software.

ELABO GmbH

Roßfelder Str. 56
74564 Crailsheim
www.elabo.de

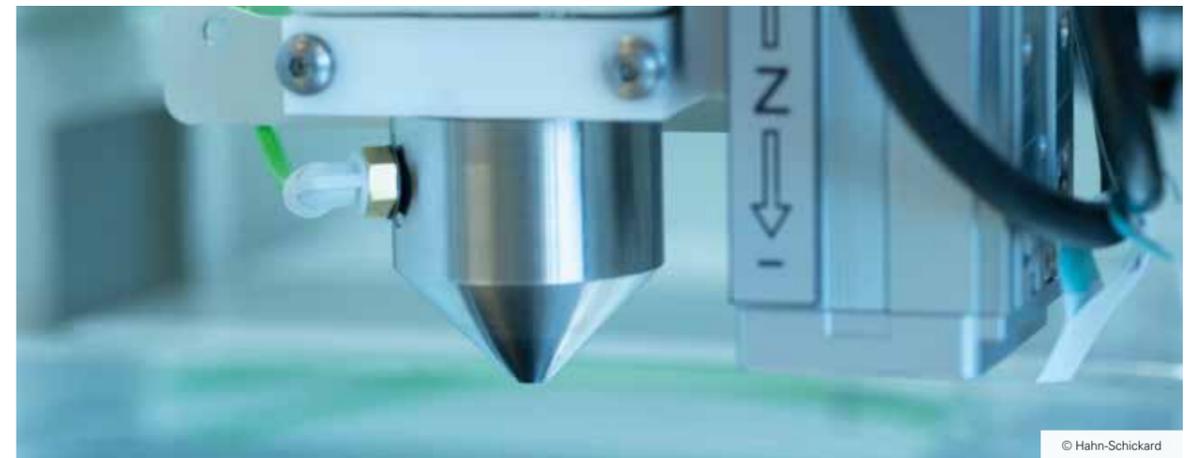
Employees: 185 (2020)

Contact

Klaas Lehmann
Phone: +49 7951 307 234
Klaas.lehmann@elabo.de

Fields of competence

Components	System integration/system manufacturer	Service
Automobile		Software
Stationary systems		Testing



© Hahn-Schickard

Hahn-Schickard develops central components for the hydrogen society of tomorrow



Hydrogen electrolyzers and fuel cells together form the basis of the future hydrogen economy, in which large amounts of energy from renewable sources can be stored and accessed flexibly. The fuel cell also allows zero-emission mobility without range limitations or long charging times. Redox flow batteries complement hydrogen technologies as a means of storing large amounts of energy.

In order to increase the performance and service life of fuel cells, electrolyzers and redox flow batteries, we focus on the development of innovative membrane electrode units. Together with you, we develop concepts for composite membranes and electrodes exactly according to your requirements. Through our cooperation with the University of Freiburg, we have access to the latest characterisation methods and develop them further ourselves: from measuring stands to material analysis and nano-tomography. We are always interested in partnering with you in joint, publicly funded research and development projects and are also open for direct development and characterisation assignments.

Electrochemical energy systems at Hahn-Schickard Freiburg

Georges-Köhler-Allee 103
79110 Freiburg im Breisgau
www.hahn-schickard.de/
anwendungen/Energy-umwelt/
elektrolyse-und-brennstoffzellen

Employees: 20 (2020)

Contact

Dr. Severin Vierrath
Phone: +49 761 20354060
Severin.Vierrath@Hahn-Schickard.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Fuel cell system (chemical/electrical)		Development



© Own representation

We make charging simple – for all manufacturers, cost-optimised and billable!



eliso GmbH offers complete solutions for the charging infrastructure for electric vehicles. Our range of services includes all activities that need to be taken into account when planning, setting up, and operating charging infrastructure.

This includes preparatory activities such as advising customers, analysing the specifications and influencing factors, the subsequent creation of a detailed concept including profitability calculation, and the specific planning of the project processes. In the implementation phase, we organised funding applications and tenders, have installations carried out by highly qualified partners, and provide for comprehensive project management. In the process, eliso GmbH takes a manufacturer-independent approach. After setting up the charging infrastructure eliso offers connection to the IT backend and operation of the charging stations, including access, billing, and load management. Maintenance of the charging stations and technical support in case of malfunctions complement our services.

eliso GmbH

Wagnerstr. 38A
70182 Stuttgart
www.eliso.io

Employees: 23 (2019)

Contact

Johannes Brodführer
Phone: +49 711 50448641
johannes@eliso.io

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Software
		Energy



© EtringKlinger AG

Many have visions. We have already implemented them.



As a global, independent supplier, the EtringKlinger Group is a strong and reliable partner to the automotive industry. Whether passenger cars or commercial vehicles, combustion engines, hybrid technology or electric motors – we offer innovative product solutions for all drive types, thus contributing to sustainable mobility.

EtringKlinger has been conducting research into alternative drive technologies for around 20 years. At our electromobility development centre, we pool research and development work on battery modules and fuel cell stacks. And we are working on further innovations for the mobility of tomorrow. Small series of modules, stacks and systems are already being manufactured there and fully tested with the appropriate testing and safeguarding equipment, such as cell tests, module tests or component safeguarding. Our battery and fuel cell systems are used in both the automotive and non-automotive sectors.

Within the EtringKlinger Group, a total of over 10,000 employees at 45 locations worldwide.

EtringKlinger AG

Max-Eyth-Straße 2
72581 Dettingen/Erms
www.elringklinger.de

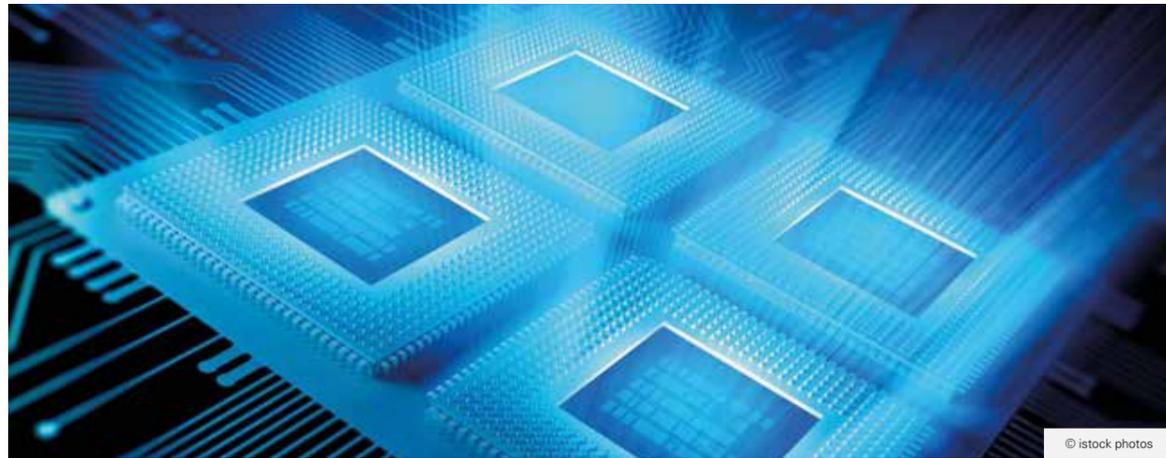
Employees: >10,000 (2020)

Contact

Dr. Stefan Hornauer
Phone: +49 7123 7249009
stefan.hornauer@elringklinger.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Chemical storage, electrical storage, motor/generator, gearbox, fuel cell system (chemical/electrical)	Stationary systems	Development



© istock photos

**Multi-core architectures need parallel software.
We take care of that.**



emmtrix Technologies is your provider of software development tools for embedded systems. We offer:

- Early performance assessment of runnables down to the system level using static code analysis, simulation or profiling. Our solution can be integrated into your automated continuous integration workflow.
- Efficient and automated software parallelisation and acceleration, complete with automated dependency analysis, to exploit the potential of parallel hardware systems (SoCs, multicores with accelerators, such as the Infineon AURIX™ TC4xx). The central element of our solution is a verifiable functional safety methodology with which we ensure qualified parallelisation.
- comprehensible code conversion from MATLAB®, Simulink® or C++ to readable C-code optimised for later parallelisation or vectorisation.

In addition, we can support you with our consulting and training services, from the choice of hardware platform to the integration of our tools into your workflows, as well as with your project and technology requirements.

emmtrix Technologies GmbH

Haid-und-Neu-Straße 7
76131 Karlsruhe
www.emmtrix.com

Employees: 15 (2020)

Contact

Rainer Heim
Phone: +49 170 4472986
rainer.heim@emmtrix.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Development



© EnBW

Make. Sure. Energy transition.



EnBW is one of the largest energy companies in Germany and Europe and supplies around 5.5 million customers with electricity, gas and water and other energy-related products. The transition towards renewable energies and smart infrastructure solutions is a core element of the corporate strategy.

This also includes e-mobility.

EnBW is making e-mobility simple and suitable for everyday use.

As a leading charging infrastructure operator, it has set up Germany's largest fast-charging network and is consistently expanding it. With the EnBW mobility+ app, e-car drivers have access to the largest charging network in the DACH region. In addition, drivers can charge their vehicles in six other countries at a total of more than 200,000 charging stations at the same price.

Fuel cells and hydrogen have been research priorities at EnBW for several years. Today, the EnBW subsidiary Erdgas Südwest offers fuel cell heating systems.

EnBW investigated the production and use of hydrogen at its own filling stations in Karlsruhe and Stuttgart with government funding. Its subsidiaries ZEAG and Energiedienst conduct research on how to produce hydrogen without CO₂ emissions at competitive costs.

EnBW
Energie Baden-Württemberg AG

Durlacher Allee 93
76131 Karlsruhe
www.enbw.com
Employees: 23,293 (2019)

Contact

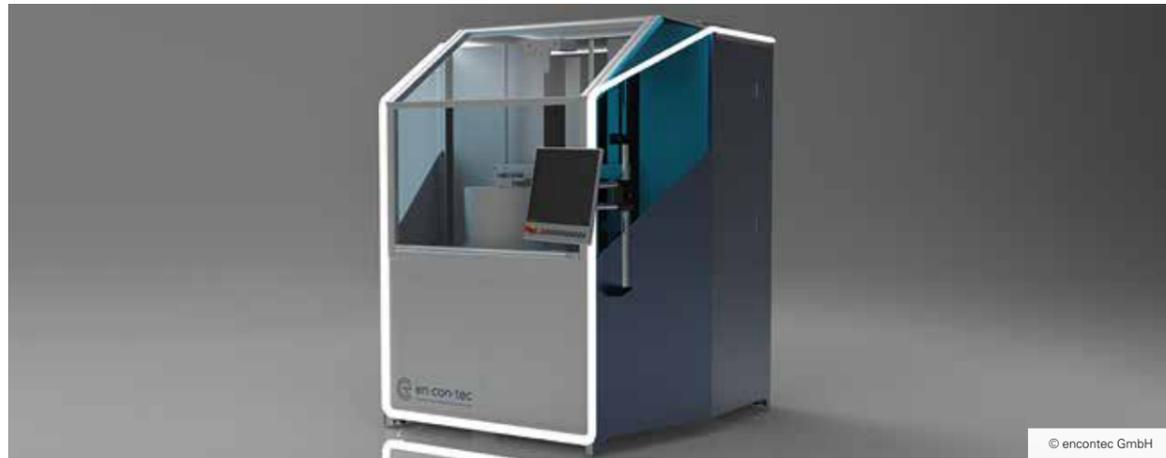
Michael Spurr
Phone: +49 711 28981609
m.spurr@enbw.com

Contact

Markus Edel
Phone: +49 721 6324529
m.edel@enbw.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Energy
		Development



© encontec GmbH



© Energydienst Holding AG

Safely into the future – test benches for functional and leak testing



encontec is an owner-managed second-generation family business operating in the areas of testing laboratories, coating technology and mechanical engineering. With 20 years of experience in the automotive industry, we advise and accompany you in every product phase.

Our core competence is functional and leak testing.

We build test benches and ensure full documentation of the proven leak tightness of your products. We have a suitable solution for every test requirement with our pressure change procedures or trace gas testing methods. Our modular design also allows automated processes with increasing quantities.

encontec offers a comprehensive portfolio for testing components such as e. g. bipolar plates, valves or complete assemblies (stack).

encontec GmbH

Leobener Straße 104
70469 Stuttgart
www.encontec.de

Employees: 250 (2020)

Contact

Sebastian Zimmermann
Phone: +49 172 271 6893
sebastian.zimmermann@encontec.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Testing
		Development

Shaping the transformation of the energy world with climate-neutral and holistic energy solutions



The Energydienst Group is a regionally and ecologically oriented German-Swiss public limited company. As one of the first energy companies, it has been climate-neutral since 2020. The group generates green electricity from hydropower and sells electricity and gas. Its own grid companies supply customers with electricity. Through climate-neutral and holistic energy solutions, it is shaping the change in the world of energy. This includes products and services in the areas of photovoltaics, heat and electromobility, including e-car sharing.

The Energydienst Group supplies over 270,000 customers with electricity. It employs about 1,000 people, including about 50 trainees. Members of the group are Energydienst Holding AG, Energydienst AG, ED Netze GmbH, Messerschmid Energysysteme GmbH, EnAlpin AG, TRITEC AG, winsun AG and my-e-car GmbH. Energydienst Holding AG is an affiliated company of EnBW Energy Baden-Württemberg AG (Karlsruhe).

Energydienst Holding AG

Baslerstrasse 44
CH-5080 Laufenburg
www.Energydienst.de

Employees: 1,000 (2019)

Contact

Dipl.-Ing. Peter Trawitzki
Phone: +41 62 8692509
peter.trawitzki@Energydienst.ch

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy



© EP Ehrler Prüftechnik Engineering GmbH

Perfection in fluids: measurement & calibration. The right flow through German engineering.



Air. Hydrogen. Natural gas. We develop processes and components for measuring and testing gaseous media with inventiveness and care.

Our core competence lies in high-precision flow measurement technology. In addition, we design and build systems for simulating the ambience conditions (T, rh, p) of components in various industries. We have the know-how for the best uniformity and dynamic temperature and humidity control with an optimised safety concept (ATEX Zone 2). We develop and programme customised plant software. This includes measurement recordings, evaluation of the recorded data, and the control of complete plants. Modern IT and IIoT structures, remote maintenance and technical support are included and a matter of course. Our in-house calibration laboratory is DAkkS* accredited (according to DIN EN ISO/IEC 17025 for volume and mass flow of flowing gases). We also offer factory calibrations of the measurands of temperature, humidity, absolute pressure, differential pressure, and relative pressure. From the very beginning, you will have a contact at your side who is responsible for the project.

EP Ehrler Prüftechnik
Engineering GmbH

Wilhelm-Hachtel-Str. 8
97996 Niederstetten
www.ep-e.com

Employees: 70 (2021)

Contact

Oliver Hammel
Phone: +49 7932 606660
info@ep-e.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Development

*Calibration laboratory accredited by DAkkS according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation listed in the certificate annex D-K-21444-01-00.



© ERDRICH Umformtechnik GmbH

Development and realisation of intelligent forming and assembly processes



ERDRICH Umformtechnik is a medium-sized, family-owned company. For over 55 years, we have been developing and producing innovative components and assemblies in the areas of chassis, brakes, electrics, and drivetrain for our customers in the automotive industry. We have our own locations in Germany, the Czech Republic, the USA, and China. One of our outstanding strengths is our ability to apply our experience and know-how right from the development phase and to provide our customers with close support from the initial enquiry right through to the production-ready product. Based on our core competences of deep drawing, fine blanking and stamping, we develop complex formed parts, substitute cast and turned parts or realise the production of assemblies.

For this, we integrate modern assembly methods such as laser welding and control methods such as leak testing into our flexible manufacturing processes. Our own tool shop covers the entire life cycle of our tools including method planning, series production, and maintenance. And our internal prototype construction shop allows us to produce the first components or small series for our customers within a very short time.

ERDRICH Umformtechnik GmbH

Reiersbacher Straße 34
77871 Renchen-Ulm
www.erdrich.de

Employees: 1,700 (2019)

Contact

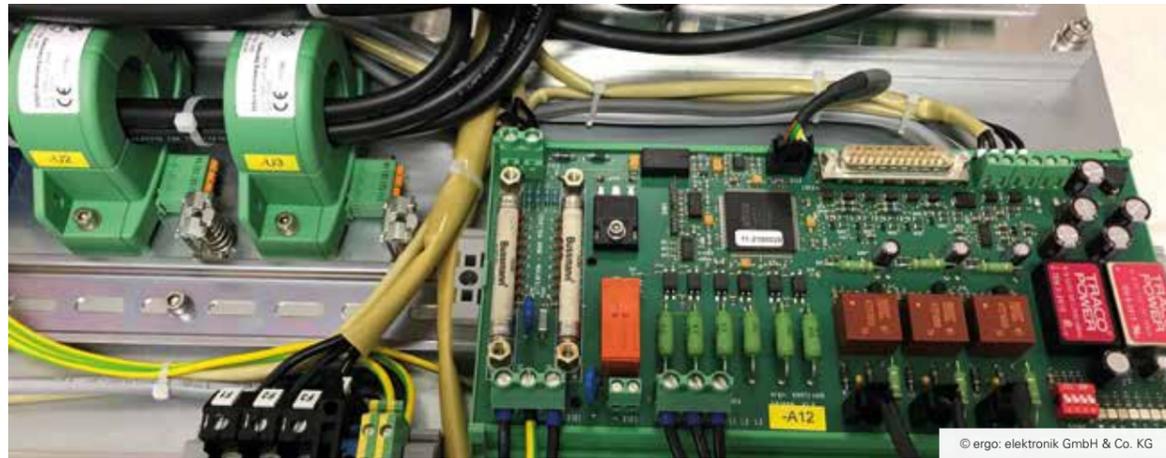
Dipl.-Ing. Harald Vollmer
Phone: +49 7843 7051155
harald.vollmer@erdrich.de

Contact

Dipl.-Ing. Michael Welle
Phone: +49 7843 7051167
michael.welle@erdrich.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Gearbox, thermal management, motor/generator, fuel cell system (chemical/electrical)		
Interior		
Thermal management, electrics/electronics		
Exterior		
Chassis		



© ergo: elektronik GmbH & Co. KG

We extend your know-how in power electronics incl. manufacturing



The company ergo: elektronik GmbH & Co. KG was founded in 1996 by the graduate engineers Ralph Leier and Michael Maurer. We are partners to the military, aerospace, special machinery, and plant engineering industries. With over 25 years of experience in the field of electronics engineering and manufacturing, we support you with our expert knowledge. Together with you, we develop reliable, robust, and innovative solutions to transform your wishes and ideas into economical products. We contribute our knowledge and experience to create successful products together with you. Our customers appreciate our cooperative working style, flexible project management and adherence to deadlines.

Our speciality is power electronics:

- Switching power supplies for special applications, e.g. power supply units for DC fast charging stations 200 kW/400 kW
- Pulse current sources with current rises of over 1,000 A/ μ s
- electronic ballasts for UV applications up to 35 kW
- complex power supplies for TWT test systems up to 50 kV

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Software
Vehicle electrical system		Testing
Interior		Development
Electrics/electronics		

ergo: elektronik GmbH & Co. KG

Söflinger Straße 100
89077 Ulm
www.ergo-elektronik.de

Employees: 23

Contact

Dipl. Ing. (FH) Ralph Leier
Phone: +49 731 1690880
info@ergo-elektronik.de



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Last mile as one of the key challenges in freight transport



We are manufacturers of commercial vehicle bodies for last-mile inner-city delivery vehicles. Lightweight construction in conjunction with sustainable materials is our focus in development and we are currently realising a small trucks project with electric drive. Research and development for hybrid material use in commercial vehicles and commercial vehicle bodies are part of our company strategy for the future.

The redesign of last-mile inner-city delivery with transport units that meet the future requirements in logistics and material use is the goal of our research and development activities.

Erhardt GmbH Fahrzeug + Teile

Nellinger Str. 17A
70619 Stuttgart
www.erhardt-fahrzeugbau.de

Employees: 40

Contact

Jürgen Erhardt
Phone: +49 170 7897799
j.erhardt@erhardt-fahrzeugbau.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Thermal management		
Interior		
Thermal management, electrics/electronics		
Exterior		
Vehicle body, electrics/electronics		



We control motion



The ETO GROUP is a fast-growing, medium-sized group of companies and is one of the leading manufacturers of innovative electromagnetic drive components and sensors for automotive technology and mechanical engineering. Our products can be found wherever highly dynamic processes take place. They are the heart of a machine and improve safety, efficiency, and environmental compatibility. The quality, reliability, stability, precision, and safety of ETO products set standards internationally. ETO regularly invests more than 7 % of its annual turnover in fundamental research and preliminary development and consistently manages to present new approaches to solutions that attract a lot of attention in the market.

With over 2,500 employees, we develop and produce customer-specific solutions for leading vehicle manufacturers, suppliers, and plant constructors worldwide. From our locations in Germany, Poland, the USA, China, India, and Mexico, we inspire customers all over the world with quality and innovation. Qualified and committed employees are a key factor in our success.

ETO MAGNETIC GmbH

Hardtring 8
78333 Stockach
www.etogruppe.com

Employees: 2,500 (2021)

Contact

Dipl.-Ing. (FH) Oliver Thode
Phone: +49 7771 8091470
o.thode@etogruppe.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical), thermal management, motor/generator		
Interior		
Thermal management		
Exterior		
Chassis		

High-voltage systems for electric vehicles



Forschner Group is a successful, expanding group of companies operating in the areas of wiring systems, precision turned parts, electromechanical systems, SCR systems (exhaust gas aftertreatment) and high-voltage systems. For more than 50 years, we have been supplying well-known vehicle manufacturers and their suppliers worldwide. We are certified according to IATF 16949. With 3,000 employees worldwide, the Forschner Group develops and produces develops and produces innovative technical solutions that serve progress and people. Our innovation focus is on environmentally friendly mobility and electromobility. In this area we set ourselves apart through:

- High-voltage systems for passenger cars, vans, trucks and buses developed in-house and produced in series
- High innovative strength and competence for customised system solutions (mechanics, hardware, software) and their implementation in series production
- Extensive experience in thermal and mechanical simulation for system validation and shortening of development times
- Willingness to break new ground and open up new fields of technology

Eugen Forschner GmbH

Max-Planck-Straße 14
78549 Spaichingen
www.forschner.com

Employees: 3,000 (2020)

Contact

Dr.-Ing. Wilhelm Eckert
Phone: +49 7424 943243
eckert@forschner.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Vehicle electrical system		Testing
Interior		Development
Electrics/electronics		
Exterior		
Electrics/electronics		



Emission-free mobility for vehicle fleets through robust, TCO-optimised technologies



Évolution Synergétique (ÉVO) is an engineering and product development company for zero-emission mobility, i.e. battery electric and fuel cell based e-drive systems. ÉVO is currently present in Germany, France and Spain and organised as a holding company with about 70 employees who have many years of professional experience in the field of e-mobility. A drive control unit that we developed in-house controls the modules (battery, E-axle, fuel cell, H₂ tank system and auxiliaries) and the interface of the vehicle control unit (VCU). It is upgradeable for future safety, automated driving, and fleet management functions.

ÉVO carries out bus conversions on the basis of glider vehicles from bus manufacturers with experience in serial production. ÉVO has the engineering know-how and the human resources for this. Framework agreements with important module suppliers ensure a closed supply chain for the entire e-drive system. On this basis, we have also derived solutions for construction and agricultural machinery, commercial vehicles, stationary generators as well as railway and marine applications by integrating the hydrogen supply chain.

Évolution Synergétique

Austraße 34
74076 Heilbronn
www.evo-syn.com

Employees: 70 (2020)

Contact

Jochen Ludescher
Phone: +49 1590 6276 580
j.ludescher@evo-syn.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage, vehicle electrical system, inverter (electrical/electrical), motor/generator, thermal management, gearbox, fuel cell system (chemical/electrical)	Stationary systems	Testing
		Energy
		Development
Interior		
Electrics/electronics, thermal management		
Exterior		
Electrics/electronics		

We like to go extraordinary ways and enjoy complexity



Fautronix GmbH is an engineering company specialised in electronics and software development, especially FPGA design.

We develop customised emulators for the automotive industry, measuring devices and test bench components.

We often work at the limits of feasibility and like to convince with far-sighted and balanced concepts.

Fautronix GmbH

Hegelstraße 16
72762 Reutlingen
www.fautronix.com

Employees: 1 (2020)

Contact

Dipl.-Ing. (FH) Christoph Fauck
Phone: +49 7121 7555851
christoph.fauck@fautronix.com

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Software
		Testing
		Development



Assembly, testing, and measurement. Automated.



The HARRANDT brand stands for 60 years of highest precision and accuracy. No matter what your goal is: With our in-house manufacturing and development competence, we implement your ideas precisely and future-proof by means of customised, smart, and automated measuring and testing systems. Together with fully automated non-contact assembly and joining processes, they contribute to ensuring the highest quality and maximum productivity.

As a competent partner in the field of e-mobility, we are by your side and offer quality-optimising in-line and SPC solutions. By measuring the wire before bending it to form a hairpin, it is possible to precisely determine the quality of the insulation. Reducing commissioning times by months is just one of the many benefits that come with this. Remaining residual material is detected with high accuracy and repeatability. With the HARRANDT machine, you receive results within seconds. This allows you to check and optimise your processes. Also in hairpin measurement, which serves to control bending parameters, 3D evaluations will be available within seconds.

Feinwerktechnik Otto Harrandt
GmbH

Robert-Bosch-Str. 25
71397 Leutenbach
www.harrandt.com

Employees: 88 (2021)

Contact

Lena Bürkle
Phone: +49 7195 90680203
lena.buerkle@harrandt.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator	Stationary systems	Testing
		Development

The aim of our research: forward-looking solutions for SMEs and industry. Since 1922.



At the fem Research Institute for Precious Metals and Metal Chemistry, we deal with all questions of materials and surface technology relating to metals. Special areas are precious metals and their alloys, as well as galvanic surface treatment. Other priorities are additive manufacturing, corrosion, light metals and paint coatings, physical coating processes and material physics. The fem has extensive technical facilities for material and layer characterisation as well as material analysis. Around 200 procedures and test methods are accredited according to DIN EN ISO/IEC 17025.

fem Forschungsinstitut
Edelmetalle + Metallchemie

Katharinenstraße 17
73525 Schwäbisch Gmünd
www.fem-online.de
Employees: 87 (2020)

Contact

Dr. Martin Opitz
Phone: +49 7171 1006318
opitz@fem-online.de

Contact

Dr. Manfred Baumgärtner
Phone: +49 7171 1006301
manfred.baumgaertner@fem-online.de

In the field of energy technology, competences include material development for lithium-sulphur batteries and fuel cells. Efficient coating technologies for fuel cell electrodes, electrolysis electrodes and battery electrodes have been developed in various projects. Important in this context are the development of efficient lithium metal electrodes through galvanic deposition, the development of catalysts for fuel cells with long-term stability, and the microstructuring of current conductors for battery electrodes.

Fields of competence

Components	System integration/system manufacturer	Service
		Development



© Festo

Festo is both a global player and an independent family enterprise from Esslingen, Germany



Innovations for the highest possible productivity, a global presence and close system partnerships with customers are Festo's hallmarks. In the 1950s, Festo was the first company in Europe to use compressed air as a drive medium in automation. Today, the company offers more than 30,000 products and system solutions for pneumatic and electric automation technology, based on which customer-specific applications for a wide range of factory and process automation projects can be derived using modular systems and their many variants.

These include pneumatic and electric automation technology, servo controllers, motion control, valves, valve terminals, installation-saving connection technology, handling and assembly technology, compressed air conditioning, connection technology, vacuum technology, position and quality testing, sensor technology and control technology. The core range comprises components at all levels of the pneumatic and electrical control chain, with which approx. 80% of all applications can be implemented quickly and effortlessly. Festo also offers a wide range of modular system solutions and standard handling systems.

Festo SE & Co. KG

Ruiter Straße 82
73734 Esslingen am Neckar
www.festo.com

Employees: 21,000 (2019)

Contact

Martin Mayr
Phone: +49 711 3470
martin.mayr@festo.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Chemical storage, electrical storage, inverter (electrical/electrical), motor/generator, gearbox		
Interior		
Electrics/electronics		
Exterior		
Chassis, vehicle body		



© MAG IAS GmbH

Turnkey and system supplier for the planning and delivery of production plants



MAG IAS GmbH is a company of the FFG Group and, in addition to stand-alone machines (turning, milling, drilling, honing, grinding and gear cutting), mainly supplies complete production plants. For the machining of housing components, MAG manufactures single and multi-spindle machining centres (MAG brand), special machines and, for shaft components, CNC machines (BOEHRINGER brand), and cleaning cells, measuring stations and plant automation components. MAG integrates the necessary third-party equipment into the overall layout of a production plant. Digital twins for plants, products or processes are part of the service portfolio. With subsidiaries in Europe, the USA, China and India, MAG offers global customer service.

Fields of competence:

- Machining of housings, shafts, other internal structural components
- Systems for series production with product and volume flexibility
- Integrator, project management and turnkey plant supplier

FFG Europe & Americas
MAG IAS GmbH

Salacher Straße 93
73054 Eisligen/Fils
www.ffg-ea.com

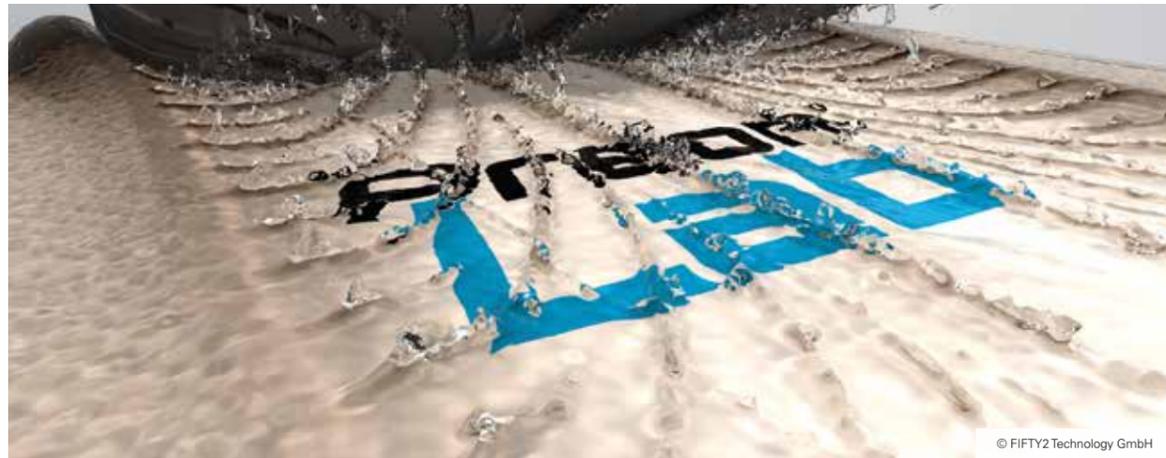
Employees: 600 (2021)

Contact

Dr. Sebastian Schöning
Phone: +49 71 61 805-4046
Sebastian.Schoening@mag-ias.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Software
Gearbox, motor/generator		Testing
		Development



© FIFTY2 Technology GmbH

Virtual fluids. Real insights.



Physics and simulations are our passion. The fascination of mathematics, computers and their interaction with nature gives us new insights and developments every day. This has resulted in our successful particle-based CFD simulation software for fluids and viscous materials, the PreonLab. PreonLab allows engineers to solve hydrodynamic problems and provide accurate answers in a short time and at low cost. This has made engineering more creative, innovative, and efficient than ever before. In addition to simulating Newtonian fluids such as water or many oils, it is also possible to simulate non-Newtonian fluids and even snow. PreonLab convinces our customers with its unique computation performance and the extraordinary efficiency in realisation. Today, PreonLab is successfully used globally by leading well-known companies in the automotive and household industries. With our software, we want to help engineers, designers and managers to develop innovative and better products and to push the limits of simulation possibilities.

FIFTY2 Technology GmbH

Tullastr. 80
79108 Freiburg
www.fifty2.eu

Employees: 19 (2020)

Contact

Dr. Markus Ihmsen
Phone: +49 761 45892380
info@fifty2.eu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Gearbox, thermal management, motor/generator		



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fischer automotive is a specialist for kinematics and multifunctional components



fischer automotive stands for the highest product quality and modern manufacturing technologies at its headquarters in Germany (Horb) as well as at its locations in the Czech Republic (Ivanovice), Serbia (Jagodina), China (Taicang) and in the USA (Auburn Hills). The international project teams work hand in hand to implement customer orders.

The product range includes air vents, cup holders, storage compartments and multifunctional components that ensure tidy and comfortable vehicles. Furthermore, there are products for electromobility such as charging flaps for electric vehicles. Design and feel of the components emphasise the respective vehicle type and its characteristics.

At the development centre in Horb am Neckar, interior components are created that meet all the requirements of future-oriented product solutions.

fischer automotive systems
GmbH & Co. KG

Industriestraße 103
72160 Horb am Neckar
www.fischer-automotive-systems.de

Employees: 1,000

Contact

Ralf Rogowski
Phone: +49 151 57158667
ralf.rogowski@fischer.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior		
Thermal management, electrics/electronics, equipment		



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From development to series production – we are at your side



Development of drive systems with and for our partners

We are driven by the passion for individual electric motors. Your innovation is our impetus to drive technological progress with high-performance drives. We accompany your projects from first idea to realisation.

- Specialised staff for development and feasibility studies
- Experienced teams in project planning, design and production
- Calculation of motor geometry and motor parameters
- FEM calculation of the magnet system and power utilisation
- 3D plastic simulations
- Design of the performance parameters
- Design of the control and sensor systems
- Large modern machine park with in-house prototype and tool construction
- Performance measurement on our own test bench
- Training and support at your plant
- Spacious warehouses and production halls at five locations

Fischer Elektromotoren GmbH

Schützenstr. 19
74842 Billigheim-Allfeld
www.fischer-elektromotoren.de

Employees: 120

Contact

Jürgen Held
Phone: +49 151 56337756
jh@held-automation.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Motor/generator	Stationary systems	
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



© Fraunhofer EMI

Sustainable with safety – sustainably safe



Weight, safety, and reliability of vehicles play key roles in the success of electromobility. The Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI, is working on making the electric cars of the future lighter and yet safer and more reliable even under extreme loads. For this, we use the Fraunhofer crash centre, the tomography laboratory, and the battery test bench for destructive dynamic testing of electrical energy storage systems. In addition to the experimental competences, Fraunhofer EMI has excellent expertise in the numerical simulation of dynamic loading processes for materials of all kinds – from steel to CFRP or textile materials. The combination of competences allows the development of innovative vehicle designs, protection concepts for occupants, and energy storage systems for electric vehicles.

In addition, the scientists carry out safety and reliability analyses, e.g. for the functional safety of battery management systems or in the field of autonomous driving, using lean method chains for determining requirements, system design, and verification.

Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)

Ernst-Zermelo-Straße 4
79104 Freiburg im Breisgau
www.emi.fraunhofer.de

Employees: 370 (2021)

Contact

Marzena Wilczynski
Phone: +49 761 2714-569
marzena.wilczynski@emi.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage		Testing
Exterior		Energy
Chassis, vehicle body		Development



Applied research for sustainable mobility and innovation systems of the future

The Fraunhofer-Gesellschaft is the leading organisation for applied research in Europe. Under its umbrella, 75 institutes and research facilities work all over Germany. Around 29,000 employees generate the annual research volume of 2.8 billion euros.

Within the framework of its research work, Fraunhofer IAO develops solutions and methods for generating, designing, and evaluating new product, process, and service innovations within the framework of the mobility transition. Thematic focal points are, for example, mobility trends and innovative technologies, electromobility and local energy systems, the digitalisation of the mobility and energy industry, and data-driven innovations.



Fraunhofer Institute for Industrial Engineering (IAO)

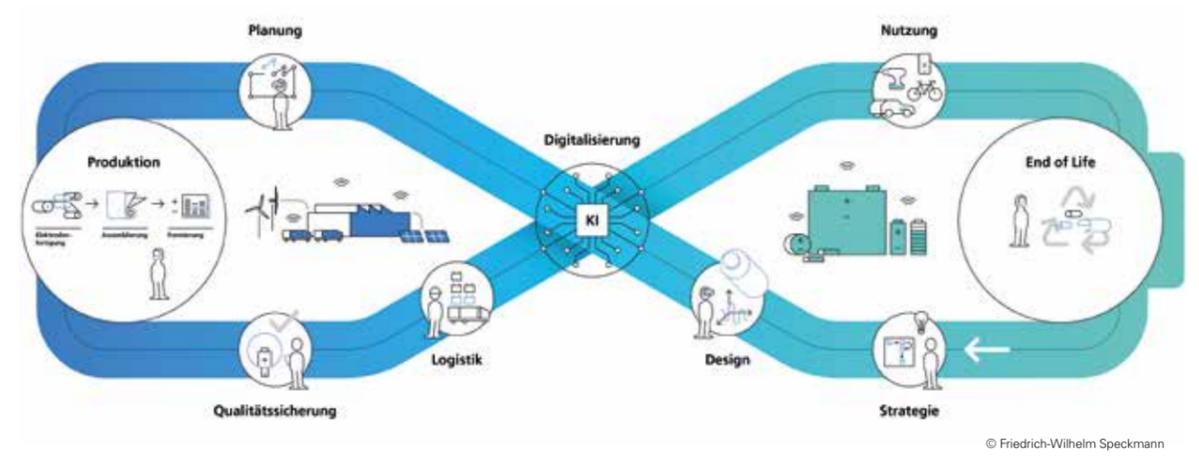
Nobelstraße 12
70569 Stuttgart
www.muse.iao.fraunhofer.de
Employees: 650 (2020)

Contact
Dr. Florian Herrmann
Phone: +49 711 9702142
florian.herrmann@iao.fraunhofer.de

Contact
Dr. Anna-Lena Klingler
Phone: +49 711 9702398
anna-lena.klingler@iao.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Energy
		Development



Produce technologies for climate neutrality – digitalised and sustainable

The Centre for Digitised Battery Cell Production (ZDB) at Fraunhofer IPA develops solutions for the production of the key technologies for climate neutrality. The focus is on battery cells, fuel cells and electrolyzers. The main focus of ZDB's work is the complete digitalisation of production technology solutions with the aim of increasing product quality and reducing rejects.

The ZDB has a laboratory infrastructure available for this, with individual but connected processes in the areas of coating, contacting, winding, assembly, electrolyte filling and forming. The existing manufacturing environment is to be qualified and expanded for the production of the next generation of battery cells and the stacking of fuel cells. As a core competence, digital twins for products and manufacturing processes are being developed at the ZDB. These are intended to help shorten development times, accelerate the scaling of production, and increase efficiency in use. In addition, the ZDB is concerned with recycling strategies for the key technologies of climate neutrality and is developing automated disassembly- and reassembly solutions for this.



Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)

Nobelstr. 12
70569 Stuttgart
www.ipa.fraunhofer.de

Employees: 1,000 (2019)

Contact
Prof. Dr.-Ing. Kai Peter Birke
Phone: +49 711 970-3621
kai.peter.birke@ipa.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Chemical storage, electrical storage	Stationary systems	Testing
		Energy
		Development



Research for the mobility transition

The Fraunhofer Institute for Solar Energy Systems ISE creates the technological foundations for supplying energy efficiently and on an environmentally sound basis in industrialized, threshold and developing countries. With its research focusing on energy generation, energy efficiency, energy distribution and energy storage, it contributes to the broad application of new technologies for the transformation of our energy system towards sustainable and renewable sources. Our sustainable mobility portfolio includes research and development on PV vehicle integration and yield prediction, power electronics and grid integration, battery cells and systems, PEM fuel cells, hydrogen production and infrastructure, synthetic fuels, thermal management, cooling and heating, intelligent vehicle bodies and life cycle analyses, techno-economic analyses and monitoring.



Fraunhofer Institute for Solar Energy Systems (ISE)

Heidenhofstr. 2
79110 Freiburg
www.ise.fraunhofer.de
Employees: 1,300

Contact

Dipl.-Ing. Stefan Reichert
Phone: +49 761 45885476
stefan.reichert@ise.fraunhofer.de

Contact

Dipl.-Ing. Ulf Groos
Phone: +49 761 45885202
ulf.groos@ise.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Fuel cell system (chemical/electrical), thermal management, inverter (electrical/electrical), electrical storage		Energy
		Development



Fraunhofer ISI analyses the creation and impacts of innovation

Fraunhofer ISI is one of the leading innovation research institutes in Europe. It conducts research in seven competence centres for practical applications and sees itself as an independent thought leader for society, politics, and industry. Our competence in the field of innovation research is based on the synergies from our staff's technical, economic, and social sciences knowledge. For our clients, we investigate the scientific, economic, ecological, social, organisational, legal, and political conditions for the development of innovations and their effects. For this, we use well-founded analysing, evaluation, and forecasting methods.

In the field of electromobility for cars and trucks, the Institute deals with the questions of market ramp-up, charging infrastructure, the development of business models, F&F issues, the development of roadmaps, the development of roadmaps, balancing of climate and environmental issues, acceptance, and their economic impact. In this context, other alternative drives and fuels, modal shifts and strategies for the further development of batteries are also intensively dealt with.



Fraunhofer Institute for Systems and Innovation Research (ISI)

Breslauer Str. 48
76139 Karlsruhe
www.isi.fraunhofer.de

Employees: 225 (2019)

Contact

Prof. Dr. Martin Wietschel
Phone: +49 721 6809254
wietschel@isi.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Energy
	Stationary systems	



Integrative development, testing and validation

Future mobility systems are becoming more and more complex: they concern urban and interurban environments, vehicle interior and exterior, powertrain, E/E systems and AI- whether on the road, on rail or in the air. Safety, security, and acceptance requirements are increasing. In order to meet these aspects in research and development of new technologies, Fraunhofer IOSB is taking a broad approach:

- Development of classical and AI-based methods for vehicle and infrastructure perception, occupant activity recognition and motion planning.
- Explainability and validation of AI
- Operation of a driving simulator for MMK and test person studies
- Operation of two test vehicles for testing hardware and software for for automated driving in public transport
- Collection, anonymisation, annotation of sensor data

In order to facilitate the development and testing of smart mobility systems, we cooperate with our partners on the open simulation platform OCTANE (www.octane.org), partner with the Autonomous Driving Test Field Baden-Württemberg, and manage the data collection regarding safety-relevant traffic situations.



Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB)

Fraunhoferstr. 1
76131 Karlsruhe
www.iosb.fraunhofer.de

Employees: 590 (2020)

Contact

Jens Ziehn
Phone: +49 721 6091 633
jens.ziehn@iosb.fraunhofer.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior		Software
Electrics/electronics		Testing
Exterior		Energy
Electrics/electronics		Development



© Freudenberg Performance Materials Holding SE & Co. KG

Powerful and durable gas diffusion layers

As the world's leading manufacturer of technical textiles, Freudenberg develops and produces nonwoven-based gas diffusion layers (GDL) for all polymer electrolyte membrane fuel cell (PEMFC) and direct methanol fuel cell (DMFC) applications. With our 20 years of fuel cell expertise and our global presence, we are close to our partners and customers. GDL from Freudenberg feature convincing properties. Our unique production technology for their fibre structure allows safe and productive further processing, e.g. in MEA production. The GDL also feature high electrical and thermal conductivities. Our excellence in material development and coating technology with microporous layers results in the effective protection of membranes. Optimised mass transport allows high performance in all operating conditions. This allows the catalysts to achieve maximum performance and prevents the membrane from drying out. We develop and manufacture the GDL entirely in-house in an industrial ISO 9001 certified process. In this way, we ensure complete control and continuous improvement of all processes.



Freudenberg Performance Materials

Höhnerweg 2-4
69469 Weinheim
www.fuelcellcomponents.com
freudenberg-pm.com/en

Employees: 5,500

Contact

Dr. Volker Banhardt
Phone: +49 6201 803382
volker.banhardt@freudenberg-pm.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical)		



© Werbefoto Robold



© FutureE GmbH

Industrialising hydrogen technology with small and medium-sized enterprises



In July 2018, the Innovation and Research Centre (IFC) at Furtwangen University started its operations. The IFC provides scientists, companies, and start-ups access to research and development facilities at HFU. In addition to medical technology, mechanical engineering and production technology, energy storage systems and hydrogen technology are in the focus as well. In cooperation with the Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) and the competence network H₂-Region Schwarzwald-Baar-Heuberg e.V. (SBH), the project "Modular fuel cell system test bench for the SBH H₂-Region", which is funded by the state of Baden-Württemberg, was won for Furtwangen University in spring 2020. This project is intended to enable companies to test and develop pre-competitive development samples in a fully functional system environment under realistic operating conditions. A unique selling proposition of the project is the use of the competences of the companies for the industrialisation of components such as valves, compressors, and control units for the periphery of the fuel cell system, and thus catalysing the transformation towards sustainable drives.

Furtwangen University – Innovation and Research Centre Tuttlingen

Kronenstraße 16
78532 Tuttlingen
www.hs-furtwangen.de/
einrichtungen/innovations-und-
forschungszentrum-ifc/

Employees: 20 (2019)

Contact

Prof. Dr. Frank Allmendinger
Phone: +49 7461 15026622
frank.allmendinger@hs-furtwangen.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Fuel cell system (chemical/electrical), electrical storage, chemical storage	Stationary systems	Energy
		Development

Development and project planning partner for fuel cell systems



As a partner in the field of hydrogen technology, we help our customers to develop new fuel cell systems, system components and assemblies tailored to their specific applications. For this purpose, we use a modular system of components that are operated safely and durably via our Fuel Cell Management Unit and the associated software. FutureE supports its customers in the areas of process engineering, mechanical and electrical design, electronics and software development and testing/validation as well as the production of systems. We support our customers from the conception stage to the production of pilot series. After ramping up the numbers of units, the manufacturing of the systems can be transferred to the customer at a low risk. FutureE's goal is to develop and design energy systems that are as sustainable as possible.

Regardless of the stage of our customers' projects, we can flexibly join in as required or manage the project on their behalf. We operate in the mobile sector and also in stationary environments and assist you in the successful realisation of your projects.

FutureE GmbH

Hohes Gestade
72622 Nürtingen
www.future-e.com

Employees: 8

Contact

Dipl.-Ing. Siegfried Limmer
Phone: +49 7022 789602-10
Siegfried.Limmer@future-e.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Software
Chemical storage, fuel cell system (chemical/electrical)		Testing
		Development



© FZI



© Gehring

We bring novel mobility solutions to the road through ICT applications research



The FZI Research Centre for Information Technology is a non-profit institution for application research and technology transfer in information technology. Supporting the mobility industry- a traditionally strong industry in Baden-Württemberg and Germany- on its way to the mobility of tomorrow with practical ICT solutions has been a goal of FZI's application research and competence transfer to SMEs, industry, the research community, and politics since its foundation. The current focus is on novel mobility concepts and applications with an emphasis on public transport. From idea to system design, algorithms and testing, scientists at the FZI are developing novel mobility solutions for people and goods transport, taking into account the legal aspects, and working on the design and construction of the supporting infrastructure systems. The safety and robustness of the developed solutions is ensured through virtual, semi-virtual and real-life testing. The goal is always to make mobility safe, sustainable and comfortable.

FZI Forschungszentrum Informatik

Haid-und-Neu-Straße 10-14
76131 Karlsruhe
www.fzi.de

Employees: 239

Contact

Dr. Alexander Viehl
Phone: +49 721 9654-0
viehl@fzi.de

Contact

Dr.-Ing. Stefan Schwab
Phone: +49 721 9654-757
stefan.schwab@fzi.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Software
Electrics/electronics	Stationary systems	Testing
		Development

Excellence in Motion. Future in Mind.



For many decades, the Gehring Group, with its e-motive division, has stood for innovation and know-how in production technology for the electric drivetrain as a system supplier to the automotive industry.

The integrated portfolio includes production technology for the manufacturing of traction drives for electrified vehicles based on the hairpin technology. The range of products and services extends from stand-alone, customised solutions for stator prototype development, taking into account a high degree of production capability and small series production, to fully automated, new system solutions for e-motor production lines. From pin production, pin setting, twisting, and welding of the pin ends to the impregnation of the stators with drip and powder coating – we offer all steps under one roof. Automated processes ensure a continuous flow of stators through the line. With modern simulation methods and many years of experience in project management, we are a competent partner in the design of new production lines with high productivity.

Gehring Gruppe
(Gehring Technologies GmbH)

Gehringstraße 28
73760 Ostfildern
www.gehring-group.com

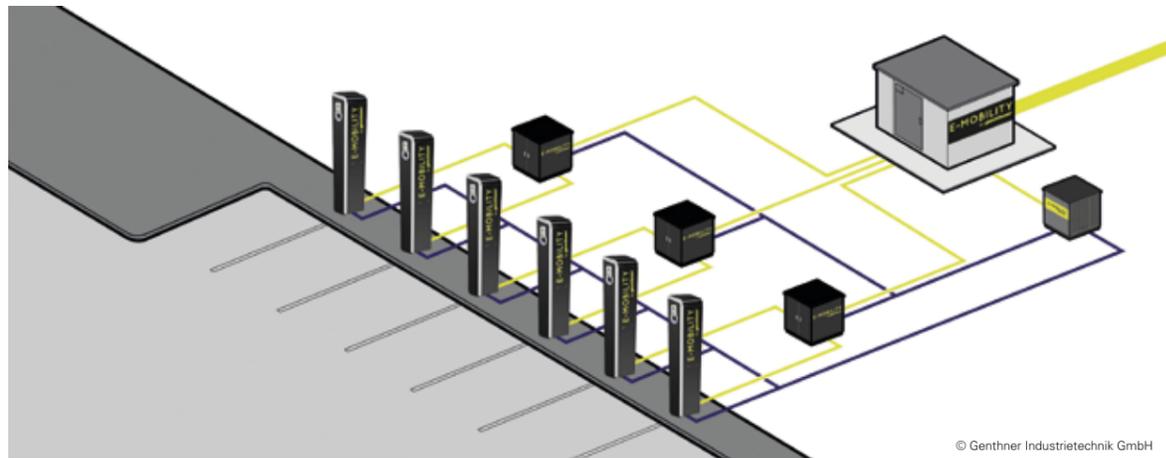
Employees: 800 (2019)

Contact

Dr. Wolfram Lohse
Phone: +49 711 3405367
Wolfram.Lohse@gehring-group.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator		Testing
		Development



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© DLR

Into the future of mobility with us



From high-voltage laboratory to project planning and installation of a controlled charging infrastructure as well as preventive maintenance and testing to first-level support in the event of a fault- we offer everything under one roof. We plan and design automated systems for all industries and have extensive expertise and experience in all aspects of "high-voltage" for laboratory equipment and its safety.

Our especially trained specialists will work out the optimal solution for you, so that you can carry out inspections and tests cost-efficiently and safely and manage your production processes efficiently. In addition, we service over 4,000 e-mobility charging points throughout Germany. Our services range from preventive maintenance and testing to first-level support in the event of a fault.

Genthner Industrietechnik GmbH

Gottlieb-Daimler Str. 3
75382 Althengstett
www.genthner-gmbh.com

Employees: 100

Contact

Andreas Stutzki
Phone: +49 7051 93390
andreas.stutzki@genthner-gmbh.com

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Software
		Testing
		Energy
		Development

Scientific pioneer for the energy storage industry



DLR is the research centre of the Federal Republic of Germany for aerospace and space travel. We conduct research and development in aeronautics, space, energy and transport, security, and digitalisation.

The DLR Institute of Engineering Thermodynamics in Stuttgart, with more research facilities in Cologne-Porz, Ulm, Oldenburg and Hamburg, has more than 180 employees and conducts research, among other things, in the field of efficient and resource-saving energy storage and energy conversion technologies of the next generation. The spectrum of activities ranges from theoretical studies and basic research-oriented laboratory work to the operation of pilot plants. In addition to the core activities in DLR's energy division, the Institute of Engineering Thermodynamics works on selected topics from the fields of aeronautics and transport. We have close connections with the University of Stuttgart, in particular with the with the Institute for Building Energetics, Thermotechnology and Energy Storage, the Helmholtz Institute Ulm (HIU), the University of Ulm, and the Center of Applied Aeronautical Research (ZAL) in Hamburg.

German Aerospace Center (DLR) – Institute of Engineering Thermodynamics

Pfaffenwaldring 38–40
70569 Stuttgart
www.dlr.de/tt/ec

Employees: 9,000/190 (2020)

Contact

Andreas K. Friedrich
Phone: +49 711 6862278
andreas.friedrich@dlr.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Fuel cell system (chemical/electrical)		Energy
		Development



© DLR – Institut für Raumfahrtantriebe

Efficient emission reduction through sector coupling based on green hydrogen



The DLR Institute of Space Propulsion has been using hydrogen in test benches for space propulsion at its Lampoldshausen site for over three decades.

To be able to use this know-how in other areas as well, the institute is working on the use of hydrogen in the energy, transport and industry sectors as part of the technology transfer from space travel. The DLR team is working on the development and implementation of research and demonstration projects in the context of decentralised energy systems, power-to-gas, and sector coupling with hydrogen. In addition, a test bench infrastructure is being set up to enable research and industrial partners to investigate components such as fuel cells in (continuous) operation with hydrogen. The know-how of experts in the technical planning, approval, realisation and operation of hydrogen plants and test stands can be used for this purpose.

Another goal is to expand the production of green hydrogen at the Lampoldshausen site using locally generated CO₂-neutral electricity.

German Aerospace Center (DLR) – Institute of Space Propulsion

Im Langen Grund
74239 Hardthausen am Kocher
www.dlr.de/ra

Employees: 246 (2019)

Contact

Michael Füting M. Sc.
Phone: +49 6298 28734
Michael.Fueiting@dlr.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Development



© DLR-FK

FK researches, develops, and evaluates new vehicle concepts and technologies



At the Institute of Vehicle Concepts (FK), innovative vehicle energy architectures and designs are being investigated to optimise the energy requirements of future vehicle concepts for road and rail.

The work includes the systemic interaction of energy storage systems, energy transmission paths and technologies as well as special components for energy conversion. They range from conceptual considerations to simulation and design, the prototypical construction of selected technologies, and the construction of research vehicles. A test bench infrastructure with battery, fuel cell, and electric motor test benches and a climatized roller test bench and a dynamic crash facility for validating vehicles and components complement the range of competences. This allows the researching of the full functional chain of energy structures in vehicles. The focus is on the use of hydrogen as a future energy carrier and the provision of electrical energy by means of fuel cells at the vehicle level.

German Aerospace Center (DLR) – Institute of Vehicle Concepts

Pfaffenwaldring 38–40
70569 Stuttgart
www.dlr.de/fk
Employees: 100 (2020)

Contact

Prof. Dr. Tjark Siefkes
Phone: +49 30 67055691
tjark.siefkes@dlr.de

Contact

Dr. Michael Schier
Phone: +49 711 6862535
michael.schier@dlr.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Motor/generator, fuel cell system (chemical/electrical), thermal management, vehicle electrical system, electrical storage		Development
Interior		
Thermal management, electrics/electronics		
Exterior		
Chassis, electrics/electronics		



GLOBE Fuel Cell Systems. We build emission-free, intelligent fuel cell systems.



Our fuel cell generators are the ideal and most ecological hybrid system that combines fuel cell with lithium-ion battery technology. Our first product line comprises systems for plug & play use in intralogistics that can replace conventional environmentally harmful lead-acid accumulators. In addition, we are already working on new product lines in the field of stationary and marine applications.

Our products are not only green tech – they are smart connected green tech. Each generator features cloud connectivity that provides real-time access to the system. This unique approach brings entirely new benefits for our customers – but most importantly, it gives them the security of a completely reliable operation because we can always monitor the state of their system – so that our technicians are at your side even before things go wrong.

GLOBE combines more than 40 years of Mercedes-Benz development experience. So, you can be sure that utmost reliability is a matter of course for us.

GLOBE Fuel Cell Systems GmbH

Schelmenwasenstraße 35
70567 Stuttgart
www.globefuelcell.com

Employees: 12 (2021)

Contact

Steffen Bäuerle
Phone: +49 160 8612200
Steffen.baeuerle@globefuelcell.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	
Motor/generator, fuel cell system (chemical/electrical)		



Goetze KG – Safety valves and fittings: We control pressure



The expertise of Goetze KG has been in demand worldwide – for 70 years. As diverse as the areas of application of our high-performance fittings are, as great is our wealth of experience. Our thought-out product families cover all industrial areas of application: liquids of all kinds, gases, technical vapours, and steam. With more than 400,000 valves – "made in Germany" – per year, we are your competent partner when it comes to pressure.

For hydrogen, we offer a comprehensive portfolio of valves for overpressure protection and pressure control. Whether for the production, transport, storage, or use of hydrogen. In the cryogenic temperature range and with high pressures of up to 1500 bar, we protect the pressurised equipment and systems from impermissible overpressure scenarios. So, we contribute to the safe handling of hydrogen and protect the people and the environment.

We do our part to ensure that the hydrogen reaches the consumer safely – in the industry or as fuel in one's own e-car.

Goetze KG Armaturen

Robert-Mayer-Str. 21
71636 Ludwigsburg
www.goetze-armaturen.de

Employees: 120

Contact

Olaf Schulenberg
Phone: +49 7141 4 88 94 60
o.schulenberg@goetze-armaturen.de

Fields of competence

Components	System integration/system manufacturer	Service



GOTECH vehicle development and construction



GOTECH GmbH is an engineering partner of automotive manufacturers and suppliers from the design phase to series production. We have developed a wide variety of automotive components for more than 25 years and contributed to short development times with our engineering expertise and accompanying services. Our highly specialised team also converts ideas into viable concepts for medical devices and consumer goods, provides support in the design and functional layout of products and analyses the drafts with the help of modern methods and software.

In vehicle development, we provide support in the areas of the interior and exterior as well as the vehicle electrical system and high-voltage circuits. We use the results in prototype construction/3D printing or visualize or test them in the virtual reality. Our developments for vehicle interiors, especially control and display components, can be experienced early in the process in our innovative testing environment.

Our motto: We give the movement a direction!

GOTECH Fahrzeugentwicklungs- und Konstruktionsgesellschaft mbH

Im Bühl 25
71287 Weissach
www.gotech-cad.de

Employees: 50 (2019)

Contact

Dr. Henrik Gommel
Phone: +49 7044 90430
h.gommel@gotech-cad.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Vehicle electrical system		Development
Interior		
Equipment, electrics/electronics, thermal management		
Exterior		
Electrics/electronics, vehicle body		



"We develop values: from greenfield sites to hydrogen filling stations".



The GP JOULE Group's THINK H₂ business unit develops hydrogen ecosystems along the entire value chain:

- Integration of electricity from renewable energies
 - Generation of green hydrogen by means of electrolysis at your location
 - Compression, storage, and transport of hydrogen to the respective hydrogen filling stations
 - Sale at hydrogen filling stations for vehicles such as buses, trucks, and cars
 - Advice on hydrogen mobility solutions
- Our strengths are
- Experience in the realisation and operation of hydrogen projects
 - Know-how of technology, legal framework, business models, and hydrogen markets
 - Promotion of decentralised models for regional value creation (cooperation/integration of regional actors)
 - Access to power generation networks in the sector of renewable energy (GP JOULE has a firm base in the implementation of large wind and solar projects)
 - Networking with stakeholders in the field of hydrogen mobility

GP JOULE GmbH

Cecilienkoog 16
25821 Reußenköge
www.gp-joule.de

Employees: 400

Contact

Laura Langenbucher
Phone: +49 160 7866968
l.langenbucher@gp-joule.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy



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© GROB

GreenIng develops efficient technologies!

GREENING

The EfficientWay of Engineering® - GreenIng is a development partner for efficient technologies and operates in the area between the 3 pillars of Engineering – ResearchIng – Consulting. GreenIng has ten years of experience in engineering and in the development of customer-specific solutions in the field of electromobility. Special focus areas are:

Electric drive systems for vehicles: design, packaging, construction and constructive integration, development of cable harnesses and power distribution units.

Battery systems: vehicle-specific design and configuration of drive and supply batteries (HV and NV), battery safety, battery treatment and recycling

Fuel cell systems: system layout, packaging, vehicle integration

Thermal management for electric vehicles: low-temperature systems for e-machines, inverters and batteries, component design, integration of components into the vehicle

GreenIng Technologies is a manufacturer of customised energy storage and conversion systems. The focus is on prototypes and small series of batteries and fuel cells.

GreenIng GmbH & Co. KG and
GreenIng Technologies
GmbH & Co. KG

Bahnhofstraße 109
71397 Leutenbach
www.greening.de

Employees: 23 (2019)

Contact

Dr.-Ing. Uwe Kehn
Phone: +49 7195 904330
uwe.kehn@greening.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Fuel cell system (chemical/electrical), thermal management, electrical storage, chemical storage, inverter (electrical/electrical), motor/generator, gearbox, vehicle electrical system	Stationary systems	Testing
		Development

GROB assembly lines: innovative and highly automated – from idea to series production



Since its founding in Munich in 1926, GROB has been on a constant growth path as a globally operating family-owned company in the development and manufacture of machine tools, plants, automation systems and fully automated assembly lines. Customers include the world's most renowned automotive manufacturers, their suppliers and renowned companies from a wide range of industries.

Through the acquisition of DMG meccanica, the Italian specialist for winding and feeding systems for stator production, in 2017 (now GROB Italy S.r.l.), GROB was able to expand its competences even further and is now a competent partner for the automotive industry in the production of hybrid and electric drives. Our activities range from the design and planning to the realisation of turnkey assembly plants for e-machines and electric motors. GROB also supplies new plant concepts for energy storage systems and provides support in the production and assembly of battery cells, modules, and packs. Together with its customers, GROB also develops innovative solutions for fuel cell assembly.

GROB-WERKE GmbH & Co. KG

Industriestraße 4
87719 Mindelheim
www.grobgroup.com

Employees: 6,800 (2021)

Contact

Nicole Guggenmos
Phone: +49 8261 9967297
Nicole.Guggenmos@grob.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Motor/generator	Stationary systems	Development



© Grohmann Aluworks GmbH & Co. KG

Aluminium casting and the art of engineering – for the innovations of the future!



The Grohmann Foundry Group is one of the leading companies in its industry and offers a unique range of services. In addition to prototypes, sand and gravity die casting, their mechanical processing and component assembly, compound casting is also an important technology for us. Castings for drive systems and power electronics are manufactured with integrated cooling lines or meander structures so that they can be actively cooled on the vehicle. As demanding and versatile the vehicles are, as diverse is the range of our services in terms of dimensions, quantities, and alloys of cast aluminium.

In joint projects with customers, we develop the castings until they are ready for series production. Our focus is on harmonising functionality, costs, and quality. This is the goal in every development project – this is where we start and create innovations in the form of aluminium castings.

Aluminium – light, heat-conducting, of high quality and reliable even under stress is irreplaceable as a material in many industries and offers a wealth of opportunities in application. Ask us!

Grohmann Aluworks
GmbH & Co. KG

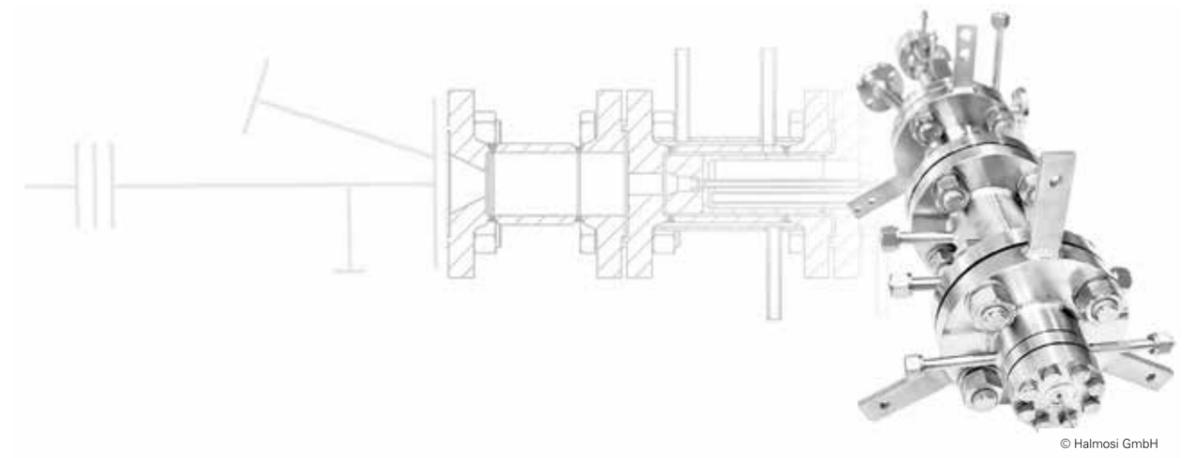
Heidelbergstraße 54
72406 Bisingen
www.welcome-to-grohmann.de

Employees: 700 (2019)

Contact
Jürgen Hänsch
Phone: +49 7476 9413 0
haensch@grohmann-aluworks.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Thermal management, gearbox, motor/generator		



© Halmosi GmbH

Special systems, apparatuses, and components for hydrogen technology



With Halmosi GmbH you can design and realise your customised pressure-bearing hydrogen systems. Our special focus is on high-pressure and heat-resistant customised apparatuses and components made of stainless steel and special materials that require precisely machined functional surfaces. Examples for this are hydrogenators and dehydrogenators for the LOHC technology and test chambers for pressurised hydrogen tanks. For developments in the field of heterogeneous catalysis, Halmosi GmbH supplies tubular reactors, both as standardised and individual solutions.

For more than 10 years, Halmosi GmbH has been supporting companies, engineering service providers, universities, and research institutions in connection with hydrogen technology projects- from first concept to production, acceptance procedures and documentation. Individual solutions from a single source. This bundling of engineering and manufacturing leads to solutions that are production-ready, conform to regulations, economical, and optimised in terms of delivery time. Dozens of projects have already benefited from this.

Halmosi GmbH

Pfaffenstr. 51
74078 Heilbronn
www.halmosi.de

Employees: 70

Contact
Dr. Hans Halmosi
Phone: +49 7131 3909610
hah@halmosi.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy
		Development



Building blocks for the mobility of tomorrow – made by Handtmann – ideas with a future

One company- many facets. We transform visions into goals, evaluate ideas and realise projects. In doing so, we benefit from the expertise and strength of the Handtmann Group. Besides our expertise in development and engineering, our complex machining competences and competences in component and system assembly complement our consistent product strategy. It is of great importance for us to act as development partners for our customers. We bundle competences, connect ideas, and set standards from the very beginning. We personally accompany you in all areas of light metal casting of ICE, structural, and chassis components and in the development of PHEV, BEV and FCEV system components. As a full-service provider, we support you from the idea to market readiness. We are your partners for the development of next-generation drive systems. In the areas of thermal management, electrical charging of fuel cell systems, power electronics, or complete battery systems, we deliver the solutions for tomorrow.



Handtmann Systemtechnik GmbH & Co. KG

Arthur-Handtmann-Straße 7/1
88400 Biberach/Riss
www.handtmann.de

Employees: 2,250 (2020)

Contact

Jonas Bodenbender
Phone: +49 7351 342-7765
Jonas.Bodenbender@handtmann.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Electrical storage, inverter (electrical/electrical), thermal management		Development
Interior		
Thermal management		
Exterior		
Chassis, vehicle body		



Heidelberg charging solutions. The easy way to charge.

Easy charging. Heidelberg wallboxes let you charge safely and conveniently. All our high-performance charging systems charge the batteries of your electric vehicles quickly, easily and conveniently. They are suitable for individual households and also for multiple users who want to charge their vehicles at the same time. Heidelberg wallboxes are the smart sockets for your electric car. They ensure that it is always reliably charged within the shortest time.

Heidelberg- charging technology made in Germany. The name Heidelberg stands for modern solutions in the print media industry. For this, electronics are a decisive success factor. The e-mobility division at Heidelberg translates this long-standing expertise into smart applications, for example reliable and durable charging systems for e-mobility.

All charging technology products are produced in Germany. Do you have any questions? Our hotline will be happy to help you at: Tel.: +49 6222 82-2266; E-Mail: wallbox@heidelberg.com; www.wallbox.heidelberg.com



Heidelberger Druckmaschinen AG

Gutenbergring 17
69168 Wiesloch
www.wallbox.heidelberg.com

Employees: 11,500 (2020)

Contact

Marco Flach
Phone: +49 6222 825695
Marco.Flach@heidelberg.com

Fields of competence

Components	System integration/system manufacturer	Service
Exterior	Automobile	Software
Electrics/electronics	Stationary systems	Development



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Automotive & Mobility, Materials Processing & Engineering and Digital Living Environments



With around 8,200 students, Heilbronn University (HHN) is one of the largest universities of applied sciences in Baden-Württemberg. Its emphasis is on the fields of technology, business, and computer science. HHN offers more than 50 future-oriented Bachelor's and Master's degree programmes at four locations. HHN also provides plenty of space for research: technical test benches, a logistics hall, and virtual reality facilities – HHN conducts research across discipline boundaries on many socially relevant topics such as electromobility.

Study future topics, shape the future

Whether full-time, part-time, or in combination with vocational training: HHN stands for future-oriented education and maintains close contacts with globally leading companies located in the region. Students can benefit from this network even during their studies.

International campus life – also digital

Many exchange students enrich campus life. In return, HHN offers opportunities to study abroad at a large number of partner universities. Through its start-up centre "Startklar", HHN also promotes starting into self-employment.

Heilbronn University of Applied Sciences

Max-Planck-Straße 39
74081 Heilbronn
www.hs-heilbronn.de

Employees: 679 (2020)

Contact

Prof. Dr.-Ing. Andreas Daberkow
Phone: +49 7131 504417
andreas.daberkow@hs-heilbronn.de

Fields of competence

Components	System integration/system manufacturer	Service
		Development



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E-mobility needs comprehensive solutions: from charging station and PV system to storage solution and service



E-volution – the future starts here. The future of individual mobility is electric. More and more companies, hotels, etc. are using their parking spaces as charging stations. There is also an increasing demand for e-mobility solutions in the private sector. We have been accompanying this growing market for many years. The trend develops towards comprehensive solutions. We offer everything that is needed for this: Photovoltaic systems generate green electricity: Use this energy for your building and for charging your electric vehicles and store the rest.

Manufacturer-independent consulting: Charging stations and hardware solutions, such as PV systems and battery storage, from various leading manufacturers: With us, you can choose from a wide selection. Together with our partners, we offer the best possible hardware for your requirements. In addition, we support you with integrating the hardware into your existing building management systems or setting up a special load management system.

Everything from a single source: From first consultation to commissioning and on-site training: With us, the development of your charging infrastructure will be a success. Even after the end of the project, we support you with maintenance and 24/7 services.

HELDELE GmbH

Uferstr. 40–50
73084 Salach
www.heldele.de

Employees: 750 (2021)

Contact

Manuel Strehle
Phone: +49 7162 4002-771
manuel.strehle@heldele.de

Fields of competence

Components	System integration/system manufacturer	Service
Exterior	Stationary systems	Energy
Electrics/electronics		



© highQ Computerlösungen GmbH

highQ IT solutions improve the flow and environmental friendliness of mobility



Smart solutions for mobility and control – that's what the name highQ stands for. With innovative software solutions, we support companies and municipalities in the efficient planning, implementation, and optimisation of their activities. highQ has successfully developed software for almost 25 years. Besides our headquarters in Freiburg, we also have offices in Hamburg, Berlin, Stuttgart, and Frankfurt so that we can ensure the proximity to our customers. highQ provides support on the way to becoming green cities: Companies as well as cities and communities can restructure their mobility systems, optimise traffic flow, and improve the quality of life. We offer advice, support implementation, and also provide the solution with our software products. Our customers become partners: We prefer agile development and improvement processes because technologies, requirements and goals are increasingly changing and in a flow these days.

We consistently make sure that our software is user-friendly and guarantee responsible handling of customer and user data in accordance with the GDPR.

highQ Computerlösungen GmbH

Schwimmbadstraße 26
79100 Freiburg
www.highQ.de

Employees: 62

Contact

Dr. Katharina Peine
Phone: +49 761 70 60 40
k.peine@highQ.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Development



© HIMA Paul Hildebrandt GmbH

Smart security solutions to protect people, environment, and assets



HIMA is an independent supplier of safety-related automation solutions for the process and railway industries. Founded in 1908, the family-owned company has 800 employees at more than 50 locations worldwide. For over 50 years, HIMA has been a reliable partner for the world's largest companies in the process industry (including chemicals, petrochemicals, energy, oil and gas). With more than 40,000 TÜV-certified safety systems (SIL3, SIL4) installed, HIMA is considered a technology leader in these industries and offers consulting, engineering, customer service, and training. HIMA has revolutionised the railway industry with their first programmable CENELEC SIL 4-certified safety controller. The commercial off-the-shelf products are open safety controls that provide customers with independence, flexibility and cost savings, and can be easily integrated and maintained in a wide range of solutions (e.g. level crossings, interlockings and rolling stock). In 2020, HIMA founded the innovation lab himalaya in Mannheim, which acts as an incubator for new business models and explores new ways to reduce risk for people and companies.

HIMA Paul Hildebrandt GmbH

Albert-Bassermann-Str. 28
68782 Brühl bei Mannheim
www.hima.com/de

Employees: 800 (2021)

Contact

Felix Köhler
Phone: +49 172 8570870
felix.koehler@himalaya.rocks

Fields of competence

Components	System integration/system manufacturer	Service



© P. Stein (Labor für Strömungsmaschinen und Energytechnik)

HTWG Konstanz is a modern university with an application-oriented profile



The HTWG Konstanz – University of Applied Sciences is a modern university that takes a practical, hands-on approach. We offer a broad range of programs, and students benefit from our interdisciplinary approach and focus on combining theory and practice. The HTWG Konstanz is a key player in the international scientific and business community in the Lake Constance region. We maintain partnerships with innovative companies and organizations and pursue excellence in the areas of research and development, technology transfer and continuing education. The university's main objective is to provide top-level educational and career opportunities to talented and highly-motivated individuals from diverse backgrounds. We place high value on advising students personally, supporting their individual development and providing them opportunities to gain international experience. HTWG's overall goal is to contribute to the sustainable development of society. The Institute for Applied Thermodynamics and Fluid Dynamics at HTWG is the centre of competence for all questions concerning thermodynamics and fluid dynamics. Research and development are undertaken across all disciplines, from process and environmental engineering to energy technology. This benefits the scientific education in the respective departments.

HTWG Konstanz – University of Applied Sciences

Alfred-Wachtel-Straße 8
78462 Konstanz
www.htwg-konstanz.de

Employees: approx. 5,000 students und 350 employees

Contact

Prof. Dr. Peter Stein
Phone: +49 7531 206304
pstein@htwg-konstanz.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Development



© Huber Automotive AG

Innovative vehicle electronics and drive systems for the mobility of tomorrow



HUBER AUTOMOTIVE is a specialist in the development of the latest vehicle electronics systems for the mobility of tomorrow. As a Tier 1 and Tier 2 supplier, HUBER develops customer-specific control units from comfort electronics to safety-relevant vehicle electronics for renowned automotive manufacturers. The company has the entire development competence in-house, from software and hardware development to series production, which allows HUBER to approach new solutions individually, efficiently, in line with market requirements, and in a customer-oriented manner.

HUBER's special focus is on the development of vehicle battery solutions in the area of control components such as cell module controllers, of battery management systems, or the dedicated development of high-performance battery systems. HUBER is one of the pioneers of e-mobility – and has engaged in the development and integration of holistic hybrid and electric drive systems for over ten years. Especially in the field of passenger car and light commercial vehicle applications, HUBER develops drive and system solutions for the mobility of tomorrow.

Huber Automotive AG

Industrie- und Businesspark 213
73347 Mühlhausen
www.huber-automotive.com

Employees: 250 (2021)

Contact

Fabian Schneider
Phone: +49 175 687 0559
fabian.schneider@huber-group.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage, inverter (electrical/electrical), motor/generator		Testing
Interior		Development
Electrics/electronics		
Exterior		
Electrics/electronics		



© Fa. Benzing

"A lot has changed in the last 80 years, but one thing hasn't: our ambition."



Hugo Benzing GmbH & Co. KG is one of the leading manufacturers of safety elements world-wide.

Our cutting-edge main facility on more than 30,000 m² in Korntal-Münchingen (near Stuttgart) produces everything that is connected with the safety of moving parts: retaining rings and washers, moulded springs and snap rings, stamped and precision-stamped parts, bent wire and sheet metal parts, deep-drawn parts, turned or milled parts, die-cast parts and valves of all kinds – more than 125 billion pieces in total since the company was founded more than 80 years ago. Laid out end to end, these safety elements could be wound around the globe 20 times. In addition, there are complex, comprehensive security systems such as parking barriers, parking barrier actuators and connecting rods, the components of which also come from our own production. Our extensive range is complemented by high-performance, future-oriented protection elements for e-mobility in the form of bursting discs and venting or bursting valves, which are an integral part of our special valve technology series.

Hugo Benzing GmbH & Co. KG

Daimlerstrasse 49-53
70825 Korntal-Münchingen
www.hugobenzing.de

Employees: 986

Contact

Markus Tomasin
Phone: +49 711 80006 724
M.Tomasin@hugobenzing.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Electrical storage, motor/generator, gearbox		



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KERN-LIEBERS GROUP OF COMPANIES – WE LIVE TECHNOLOGY



KERN-LIEBERS is an international supplier to system manufacturers in the automotive, textile, and consumer goods industries. The group of companies develops and manufactures precision strip and wire products of the highest quality at over 40 locations worldwide. Thanks to the size of the company, its consistent technological development efforts, and the close cooperation it maintains with its customers, it not only has the experience but also the expertise to offer everything from design to series production from a single source.

KERN-LIEBERS operates internationally in nine product fields and supplies a wide variety of industries. Comprehensive know-how in metal processing, plastic composite technology combined with special machining processes and technologies are the core competences of the group.

Hugo Kern und Liebers GmbH & Co. KG
Dr. Kurt-Steim-Str. 35
78713 Schramberg
www.kern-liebers.com

Employees: 7,200 (06/2021)

Contact

Dr. Benjamin Hertweck
Phone: +49 7422 511 483
benjamin.hertweck@kern-liebers.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Electrical storage, vehicle electrical system, inverter (electrical/electrical), motor/generator, thermal management, gearbox, fuel cell system (chemical/electrical)	Stationary systems	
Interior		
Equipment, electrics/electronics, thermal management		
Exterior		
Electrics/electronics		



© HWA AG

**HWA ENGINEERING SPEED:
Fast and innovative solutions for an
emission-free future!**



For years, HWA AG has utilised the innovative power of motorsport to develop mobility technologies that are as resource-efficient and environmentally friendly as possible. As HWA RACELAB, the long-standing company based in Affalterbach, we prepared the Mercedes-Benz EQ Team in the Formula E and later supported it as a motorsport partner in the all-electric world championship. In August 2020, HWA joined forces with experienced partners to launch the HYRAZE League – the world's first racing series to use environmentally friendly hydrogen as fuel.

We made it our goal to use our years of engineering expertise in the field of motorsport and significantly contribute to the mobility transition in standard road traffic. For example, as a partner in the ZEDU-1 project funded by the state of Baden-Württemberg, we are developing an emission-free drive axle together with the German Aerospace Centre: a new mobility solution that also includes a minimisation of brake and tyre abrasion. We also developed a concept for a fully electric motorhome for our partner Knaus Tabbert AG.

HWA AG

Benzstr. 8
71563 Affalterbach
www.hwaag.com

Employees: 299 (2021)

Contact

Timo Kresse
Phone: +49 7144 8717-170
t.kresse@hwaag.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator, gearbox		Testing
Exterior		Energy
Chassis, vehicle body		Development



© IBM

**Artificial Intelligence, Business Analytics,
Cloud Computing, Blockchain, IoT, Security**



In order to support companies of all sizes in the digital transformation of their business models and to make the opportunities of digitalisation available to them, IBM is focusing on the growth initiatives of artificial intelligence (AI), business analytics, cloud computing, blockchain, IoT (Internet of Things) and security. These strategic fields form the basis of IBM's continuously expanding solutions portfolio as well as its ongoing transformation into an AI and cloud platform provider.

Innovation is at the core of IBM's strategy. With the founding of the IBM Watson Group, IBM is emphasising the importance of AI-based solutions for businesses – a new era of solutions that can learn, reason and interact with people in natural language. IBM Watson was designed to use natural language to handle the analysis, evaluation and interpretation of enormous amounts of unstructured data within fractions of a second. In 2019, IBM filed more than 9,200 US patents. This makes IBM the most innovative company in the US for the 27th year in a row.

IBM

IBM-Allee 1
71139 Ehningen
www.ibm.com/de

Employees: >350.000 worldwide
(2019)

Contact

Dr. Jochen Friedrich
Phone: +49 160 9694 1964
jochen@de.ibm.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Development



© IHI Charging Systems International Germany GmbH



© iinovis

We are successfully shaping the transition to CO₂-neutral mobility



IHI Charging Systems International GmbH (ICSI) is a subsidiary of IHI Corporation (Tokyo). Its employees develop, produce, and distribute turbochargers for the European automotive industry. The company's headquarters are located in Ichtershausen (Thuringia), on the premises of one of its two state-of-the-art production plants. The second plant is located in Cernusco (Lombardy, Italy). The Engineering Centre, R&D, and Independent Aftermarket departments are located in Heidelberg.

ICSI's innovative charging systems are successfully used in millions of cars by almost all European car manufacturers. Future orientation and the associated responsibilities are integral parts of the company's philosophy. IHI has adopted CO₂-free mobility and the related "hydrogen society" as key issues world-wide. In the course of the strategic transition of ICSI's products and services to alternative drive concepts, the company intends to integrate charging systems for fuel cells into its core competences.

IHI Charging Systems
International GmbH
Haberstrasse 24
69126 Heidelberg
www.ihl-csi.de

Employees: 1,000 (2020)

Contact

Dr. Dietmar Filsinger
Phone: +49 6221 3096 160
d.filsinger@ihl-csi.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Fuel cell system (chemical/electrical), thermal management	Stationary systems	Development

We are innovation, vision, and integration



iinovis is a leading service provider for vehicle technology in the segments of passenger cars, commercial vehicles, agricultural vehicles and motorbikes. Whether prototype construction, simulation, testing, electrics/electronics, or small series production, iinovis offers successful and scalable services.

With over 400 colleagues at four locations in Germany and one location in Spain, we are working on the mobility of tomorrow every day- also in the field of fuel cell technology.

With our innovative humidifier test stand, which is set up at our development centre at the Bad Friedrichshall site, we can measure different operating points. In addition, it allows comparisons between simulations carried out in-house, expected properties, and measured real-life results.

In addition to measurements on the test bench, we are also happy to offer our know-how as development partners – from concept design to series production.

iinovis

Bergrat-Bilfinger-Str. 5
74177 Bad Friedrichshall
www.iinovis.com

Employees: >400

Contact

Peter Diehl
Phone: +49 7136 999 0
Peter.Diehl@iinovis.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Vehicle electrical system, fuel cell system (chemical/electrical)		Development
Interior		
Equipment, electrics/electronics		
Exterior		
Chassis, vehicle body		



© Interplex Holdings Pte.

Customised mechatronic solutions and global footprint: any solution, anywhere

Interplex is a vertically integrated global multi-technology solutions company headquartered in Singapore. For over 60 years, we have been instrumental in providing customised bespoke solutions of the highest quality. Market segments are: automotive, datacom & telecom, medical & life sciences and aerospace. Our team of around 13,000 employees is present for our customers at over 30 locations in 14 countries. Our core competences are stamping technology, electroplating and plastics technology. Our global presence is flanked by two power teams: Interplex Product Development (IPD) and Technology Innovation Centers (TIC). Our IPD teams and TIC facilities focus on new technologies as well as design, development, optimal manufacturability, and advanced production. Interplex NAS Electronics GmbH was founded in Heilbronn, Germany, in 1982. We have an efficient service and application centre with prototyping, test facilities, and laboratory. Our plants are certified according to ISO 9001, IATF 16949, ISO 14001, ISO 13485 and others. From pre-sales and after-sales to engineering, production, quality, marketing, and logistics, we offer perfect support for our customers.



Interplex

Otto-Hahn-Straße 8
74078 Heilbronn
www.interplex.com

Employees: 13,000 (2019)

Contact

Julio Kuntz
Phone: +49 7066 941410
julio.kuntz@de.interplex.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Motor/generator, inverter (electrical/electrical), thermal management		Development
Interior		
Thermal management, electrics/electronics		
Exterior		
Electrics/electronics		



© IPG Automotive

Goal in sight with virtual driving tests

As a global technology leader for virtual driving tests, IPG Automotive develops innovative simulation solutions for vehicle development. The software and hardware products can be used throughout the development process, from the concept phase to validation and release. By working with virtual prototypes, the automotive systems engineering approach can be applied consistently and new systems can be developed and tested in the virtual vehicle as a whole.

IPG Automotive is an expert in the field of virtual development methods in the areas of autonomous driving, ADAS, powertrain and vehicle dynamics and helps to master the increasing complexity in these areas. Together with its international customers and partners, the company increases efficiency in the development process with its pioneering solutions.



IPG Automotive

Bannwaldallee 60
76185 Karlsruhe
www.ipg-automotive.com

Employees: 250 (2019)

Contact

Dr. Pascal Piecha
Phone: +49 721 985200
info@ipg-automotive.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software



© IPT Technology GmbH



© KIT

Wireless energy supply for mobility. The future is wireless – we are setting standards



With more than 20 years of experience, IPT Technology GmbH offers a sophisticated generation of wireless power solutions for industry and e-mobility, providing flexibility in production processes and guaranteeing optimal safety and improved availability. Our products are used in both industrial and e-mobility applications where wireless energy transmission is used to provide highly efficient, reliable, and hassle-free charging, on- and offshore!

We design, manufacture, install and maintain wireless charging systems for all types of solutions for cars, buses, ships, robots, and industrial trucks. We have installed more than 11,000 metres of continuously charged ground or rail tracks and provide wireless energy to thousands of vehicles every day.

Safe, solid, simple, and sustainable.

Cables are eliminated and the charging stations invisibly blend into their environment. Landmarks, parks, and cultural sites are preserved, visual pollution is minimised, and the charm of cities is generally enhanced.

IPT Technology GmbH

Im Martelacker 14
79588 Efringen-Kirchen
www.ipt-technology.com

Employees: 22 (2020)

Contact

Richard van den Dool
Phone: +49 7628 692960
richard.dool@ipt-technology.com

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Stationary systems	Energy
Equipment, electrics/electronics		Development
Exterior		
Electrics/electronics		

Characterisation and modelling of electro-chemical converters and storage mediums



Electrochemical technologies are essential pillars of the energy transition, of electromobility, but also of the sustainable production of fuels and recyclables. With our research and development at the Institute for Applied Materials – Electrochemical Technologies (IAM-ET), we are actively shaping the future of energy conversion and storage. Our expertise includes experimental analyses, modelling and simulation-based optimisation of fuel cells (SOFC, PEMFC, AMFC), electrolysers (SOEC, PEMEL, AMEC) and batteries (Li-Ion, All Solid State) on different scales. Electrocatalysts, electrode structures, cells and stacks are electrochemically and structurally characterised at the IAM-ET laboratories. An electrocatalysis laboratory and test benches for cells and analytics (including XRD, FIB-SEM, μ CT) are available for this purpose.

The development of methods for characterisation and data analysis is a focal point of our research. Modelling and simulation provide insights into cell behaviours, reveal material and design-related limitations, and allow targeted optimisation.

Karlsruhe Institute of Technology (KIT) – Institute of Applied Materials – Materials for Electrical and Electronic Engineering (IAM-ET)

Adenauerring 20b
76131 Karlsruhe
www.iam.kit.edu/et/index.php

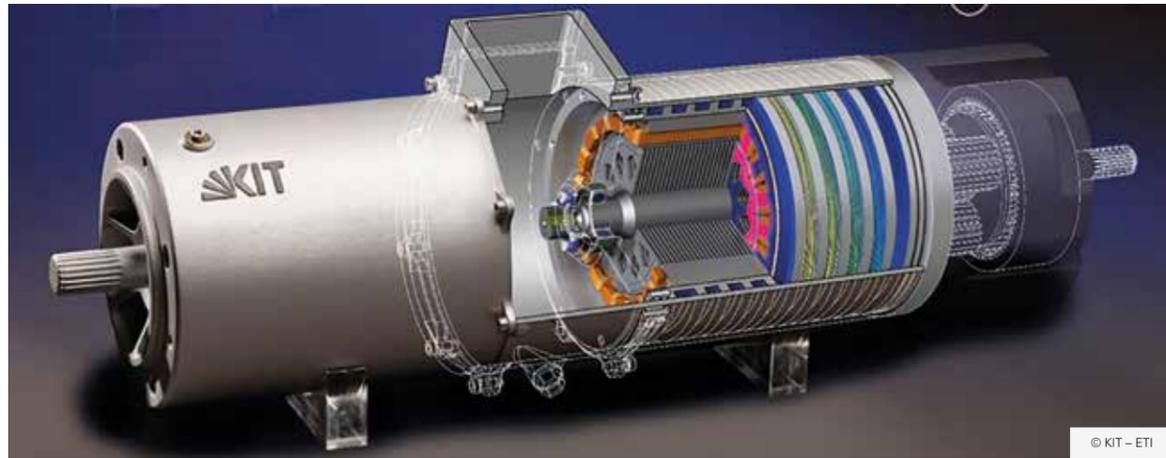
KIT employees: 9,618 (2020)

Contact

Dr.-Ing. André Weber
Phone: +49 721 608 47572
andre.weber@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
		Development



© KIT – ETI

Research in electrical drive technology: focus on holistic mechatronic optimisation



The Karlsruhe Institute of Technology (KIT) is one of the world's largest research and teaching institutions. KIT's goal is to become an institution of cutting-edge research and excellent scientific education. At KIT's Electrotechnical Institute (ETI), experts in power electronics, electrical machines, and drive control conduct research with these neighbouring research areas and work together across disciplines. One of the core tasks of the ETI is to meet the increasing requirements in terms of power density and functionality and, last but not least, to improve energy efficiency.

Weight, efficiency, costs, and the operating strategies and control algorithms that are required for optimal performance are optimised. And the design of electric drives is also in the focus of research and development work at the ETI. Optimal design can only be achieved if the mechanical and electromagnetic design and modelling of the drive train are carried out in an interdisciplinary and overall approach.

Karlsruhe Institute of Technology
(KIT) – Institute of Electrical
Engineering (ETI)

Kaiserstraße 12
76131 Karlsruhe
www.eti.kit.edu

Employees: 60

Contact

Prof. Dr. Martin Doppelbauer
Phone: +49 721 60846250
martin.doppelbauer@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Software
Thermal management, electrical storage, vehicle electrical system, inverter (electrical/electrical), motor/generator		Testing
Interior		
Electronics/electrics		



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We create value from information



Modern mobility is based on the digital services, marketplaces, and platforms behind it. Prof. Weinhardt's staff conduct research to improve the quality of electronic markets and platforms. In interdisciplinary research projects, we combine methods from the fields of economics, business administration, business informatics and psychology.

For example, we investigate how stakeholders can be encouraged to collect mobility-relevant data and share it on data marketplaces. We also investigate the preferences of electric vehicle users with regard to smart charging and evaluate to what extent their behaviour is influenced by incentives (e.g. smart tariffs, use of local electricity, or emission reduction). Furthermore, we investigate whether behavioural changes of private and commercial users are necessary and how electric mobility can be adapted to their needs. Understanding this allows the efficient coordination of electromobility within the overall system of sustainable energy supply.

Karlsruhe Institute of Technology
(KIT) – Institute of Information
Systems and Marketing (IISM)

Kaiserstraße 89–93
76133 Karlsruhe
im.iism.kit.edu

Employees: 30

Contact

Prof. Christof Weinhardt
Phone: +49 721 60848370
office-ise@iism.kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Energy
		Development



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Research and development for mobility solutions. Training and consulting services.



We are a research institution at the Karlsruhe Institute of Technology (KIT) and consider us a centre of scientific product development and innovation with a focus on drive systems, mobility, and devices.

We particularly focus on all high-revving, electric and hydrogen-based drive systems as well as on the vibration and acoustic behaviour of drive systems.

Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)

Gotthard-Franz-Str. 9
76131 Karlsruhe
www.ipek.kit.edu

Employees: 100 (2019)

Contact

Dipl.-Ing. Sascha Ott
Phone: +49 721 60843681
sascha.ott@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Gearbox, thermal management, electrical storage	Stationary systems	Testing
Interior		Development
Equipment		
Exterior		
Chassis, vehicle body		



© KIT/Markus Breig

Research for electromobility: Development and optimisation of production processes



The wbk Institute of Production Engineering at the Karlsruhe Institute of Technology (KIT) with its more than 100 employees belongs to the Faculty of Mechanical Engineering thematically. The three areas of manufacturing and materials technology, machines, plants, and process automation as well as production systems, which are headed by Professors Prof. Dr.-Ing. habil. Volker Schulze, Prof. Dr.-Ing. Jürgen Fleischer and Prof. Dr.-Ing. Gisela Lanza, are engaged in application-oriented research, teaching and innovation in the field of production technology at KIT.

In addition to research activities in the traditional fields of mechanical and plant engineering, the wbk focuses on the development of production technology for enabling technologies such as electromobility. On the one hand, it investigates how traditional production technologies and systems can be transferred to new materials, and on the other hand, it researches the upscaling of plants and the design of future factory worlds. In joint projects with industrial partners, the wbk develops solutions for a wide range of topics in production technology and also methods and processes for the production of tomorrow.

Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)

Kaiserstraße 12
76131 Karlsruhe
www.wbk.kit.edu

Employees: 105 (2019)

Contact

Prof. Dr.-Ing. Jürgen Fleischer
Phone: +49 721 608 44009
juergen.fleischer@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Chemical storage, electrical storage, motor/generator, gearbox, fuel cell system (chemical/electrical)		
Exterior		
Chassis, vehicle body		



Effects of mobility services on transport behaviour in passenger transport



The Karlsruhe Institute of Technology (KIT) is both a university of the state of Baden-Württemberg and an institution of the Helmholtz Association for research, teaching, and innovation. The KIT Institute of Transport (IfV) is part of the KIT Centre for Mobility Systems and deals with all questions in the field of mobility, ranging from planning concepts based on society as a whole to the technical developments in transport. With its interdisciplinary approach, the IfV pursues the goal of organising traffic efficiently and sustainably, researching the effects that new mobility systems such as micro- or electromobility and also (fully) automated vehicles have on their users, and ensuring system integration. The latest methods of agent-based travel demand modelling are applied with the mobiTopp software (www.mobitopp.de).

The main topics of the institute are mobility research, transport planning and modelling, and transport technology and telematics.

Karlsruhe Institute of Technology (KIT) – Institute for Transport Studies (IfV)

Otto-Ammann-Platz 9
76131 Karlsruhe
www.ifv.kit.edu

Employees:
KIT 9,618 (2020)
IfV 24 (2021)

Contact

Dr.-Ing. Martin Kagerbauer
Phone: +49 721 60847734
martin.kagerbauer@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Energy
		Development



Research and teaching for the mobility and vehicle systems of the future



Against the background of climate change and congested urban traffic, we are establishing knowledge, methods, and solutions at four levels: the vehicle as a digital mechatronic system, the interaction of people and vehicles, the vehicle in traffic and infrastructure, and the vehicle in society and the environment.

Our basis – outstanding equipment:

- Test benches for complete vehicles and components
- Hall with lifting platforms and workshops for vehicle preparation
- Test vehicles and various driving test areas on site
- Participation in the project Test Area Autonomous Driving Baden-Württemberg
- Extensive competences and equipment for analytical and numerical modelling and simulation as well as control and optimisation methods

We transfer our know-how to numerous organisations and committees:

- KIT Mobility Systems Center with around 40 participating professorships
- Profiregion: High Performance Center for Mobility Research Karlsruhe
- Strategic Dialogue for the Automotive Sector Baden-Württemberg
- acatech- National Academy of Science and Engineering

Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)

Kaiserstr. 12
76131 Karlsruhe
www.fast.kit.edu

Institute members: Four professors, 115 scientists, 15-member technical and admin team (2020)

Contact

Prof. Dr. rer. nat. Frank Gauterin
Phone: +49 721 60842370
frank.gauterin@kit.edu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Thermal management, motor/generator		Development
Interior		
Thermal management, electrics/electronics		
Exterior		
Chassis		



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Energy-efficient mobility: safe, smart networks and alternative drives



The Institute for Energy Efficient Mobility (IEEM) focuses on various topics for efficient, sustainable, and holistic mobility. The holistic concept is reflected by the institute's focus on connected mobility systems within its R&D fields, which encompass more than only the vehicles. Such openings in systems generally bear the risk of cyber-attacks, which is why the IEEM is answering the questions about security in embedded and distributed systems. Regarding drive systems, IEEM focuses on the use of alternative fuels as renewable energy carriers and offers a unique climate and altitude simulation test stand for hand-held power tools. Using an IoT-based remote control – with the functions of a human hand – the test objects in the test stand can be remotely controlled in an automated manner. Efficiency also includes the development of assistance systems and smart driving functions, e. g. for vehicles and e-bikes. These topics are addressed by another research team at the institute. IEEM has its headquarters at the Bruchsal research campus and at the campus of Karlsruhe University of Applied Sciences.

Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)

Moltkestr. 30
76133 Karlsruhe
www.h-ka.de/ieem

Employees: approx. 25

Contact

Prof. Dr.-Ing. Reiner Kriesten
Phone: +49 721 9251420
reiner.kriesten@h-ka.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator, thermal management, vehicle electrical system		Testing
Interior		Development
Thermal management, electrics/electronics		
Exterior		
Electrics/electronics		



© Kellner Telecom GmbH

Charging stations are more than sockets



To avoid compromises in the use of the charging infrastructure later, it makes sense to plan and install it professionally from the start. The experience gained through installing many different charging stations makes Kellner Telecom one of the most competent service providers in the still young electromobility sector. As a specialist in the field, the company is therefore the first point of contact when it comes to setting up and operating charging infrastructures.

Kellner Telecom offers all services for future-proof charging infrastructures: From obtaining permits for public locations to sensible site planning, manufacturer-independent delivery of charging stations, rollout management, and installation by specially trained employees. Services are rounded off by maintenance contracts, a hotline for troubleshooting, and equipment warehousing. Kellner Telecom also provides services such as analysing charging processes. Depending on requirements, these services can be rendered under individual contracts or as a general contractor.

Kellner Telecom GmbH
Siemensstraße 28
70825 Korntal-Münchingen
www.kellner-telecom.de

Employees: 200

Contact

Thomas Schinzel
Phone: +49 7150 9430 343
thomas.schinzel@kellner.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy



© KESSLER energy GmbH

Your drive is our solution

KESSLER energy GmbH develops and manufactures direct drives for applications in machine tools, for stationary applications such as winch drives, centrifuges and agitators, presses, and plants, and for mobile applications in commercial vehicles, classic cars, marine propulsion systems and sports motorboats.

KESSLER energy GmbH offers a wide portfolio of asynchronous, synchronous, torque and linear motors and even special motors and complete drive systems. Customised solutions are developed together with users. Within the KESSLER Group, KESSLER energy GmbH bundles the production of electric drives. KESSLER energy accompanies the products from their electrical and mechanical design through to the numerical calculation using the finite element method and analytical calculation programs- including testing, commissioning, and parameter optimisation. The motors meet the highest efficiency requirements. The customer base includes the most important companies in the mechanical engineering industry. With the company's competences from the core business, the megatrend of electrification is opening up great opportunities in new business fields.



KESSLER energy GmbH

Franz-Kessler-Straße 2
88422 Bad Buchau
www.kessler-energy.de

Employees: 800 (2020)

Contact

Karl-Heinz Haller
Phone: +49 7582 8094089
Karl-Heinz.Haller@kessler-group.biz

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Motor/generator	Stationary systems	



© Klingel GmbH

Expert in machining

- Manufacture of metallic components from quantity 1 up to 1 million
- Production of components made of aluminium and magnesium alloys (others possible on request)
- IATF certified
- Development support with regard to an optimisation of component design for economical production processes
- Large supplier network for the procurement of raw parts of various types of casting operations, thus contact for a wide range of applications
- Responsible for the entire downstream process, such as assembly, washing, leak testing, surface treatment, etc.



Klingel GmbH

Handwerkstrasse 24
71336 Waiblingen
www.Klingel-GmbH.de

Employees: 250 (2021)

Contact

Viktor Deister
Phone: +49 7151 98923318
v.deister@klingel-gmbh.de

Fields of competence

Components	System integration/system manufacturer	Service



© KMS Automation GmbH

Passion for automation. High-tech solutions for the mobility of tomorrow



KMS Automation GmbH, a manufacturer of special-purpose machines, is your first contact for all aspects of automation and assembly technology. With our products that range from clamping devices to automation solutions and systems for LTCC or battery technology, we have always had a very special eye for the needs of our business partners around the globe. With our specialisation in aluminium components of various casting types, for example those that are used as housings for e-machines, gearboxes, or power electronics, but also as structural components, we can now cover a large part of the production chain with our clamping fixtures and automation technology.

In the field of LTCC, we have covered large sections of the production chain for several decades, from handling and punching to laminating the soft sheets, through to automation solutions. Based on this competence, we have developed and delivered our own coating systems for the development and production of ceramic foils, which are required for SOFC systems, and electrode foils for batteries.

KMS Automation GmbH
Im Webertal 20
78713 Schramberg-Waldmössingen
www.kms-automation.de

Employees: 98

Contact
Peter Schneider
Phone: +49 7402 9306 143
p.schneider@kms-automation.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Testing
		Development



© König Metall Group

Innovation and efficiency in e-mobility: GVI® by König Metall Group



GVI® is a division of the König Metall Group. It is dedicated to increasing efficiency in e-mobility. The goal: more safety, more range, shorter charging time. With the help of the patented GVI® technology, this goal is just one innovative thermal management makes electric cars more efficient. In addition, the housing protects the cells from mechanical damage caused by crashes. Thanks to GVI®, the requirements of UNECE R100.2 can be covered with one component. Problems caused by "thermal propagation" are a thing of the past.

König Metall Group – GVI®

Josef-König-Straße 1
76571 Gaggenau
www.gvi-systems.com

Employees: 1,200 (2019)

Contact
Michael Fischer
Phone: +49 7225 6803253
m.fischer@koenigmetall.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Electrical storage, thermal management	Stationary systems	



Konzelmann – Innovations from plastics for industry, automotive, e-mobility and medical applications



Konzelmann GmbH, with headquarters in Löchgau between Stuttgart and Heilbronn, has been developing and manufacturing high-quality plastic products for the medical, automotive, e-mobility and industrial sectors for more than 55 years.

We plan, develop and manufacture high-precision components and complex assemblies from polymer materials. Our many years of experience have made us one of the market leaders in the field of special technical applications.

Thanks to our continuous development efforts, we can realise customised projects based on the specifications within the shortest possible time. Konzelmann develops own products meeting the requirements and also takes over the industrialisation and series production. According to the motto "Plastics, the material that combines ecology and economy", we optimise friction properties and emission reduction in the fields of tribology and fluid technology. In the e-mobility segment, our focus is on membrane technology in battery modules – especially bursting and pressure equalisation – where we innovated the Berstring®. In the medical segment, our focus is on device engineering.

Konzelmann GmbH

Lise-Meitner-Straße 15
74369 Löchgau, Germany
www.konzelmann.com

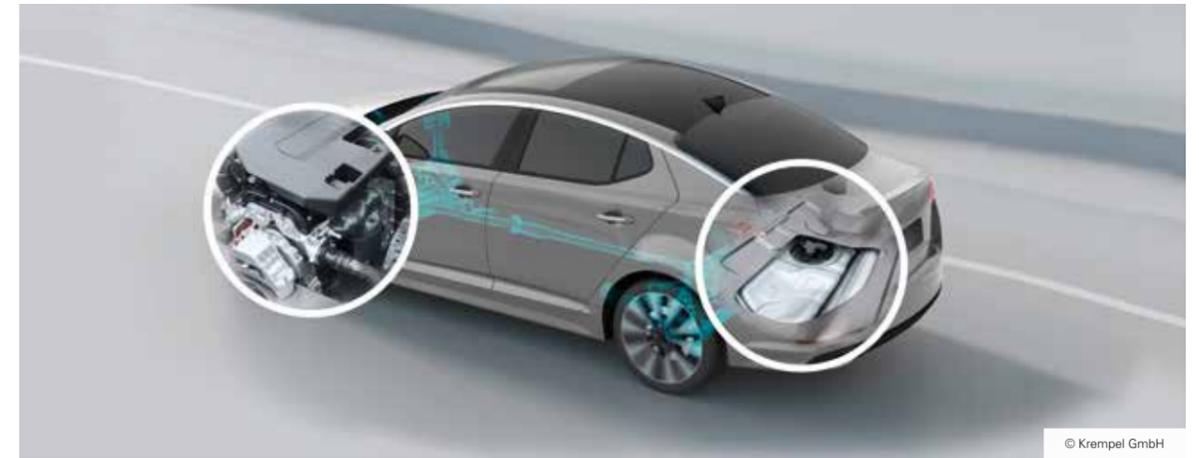
Employees: 300 (2021)

Contact

Dipl.-Ing. ET Volker Buchmann
Phone: +49 7143 4080 1090
v.buchmann@konzelmann.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Chemical storage, electrical storage, gearbox, fuel cell system (chemical/electrical)		Development



Krempel – innovative development partner and materials manufacturer in the area of e-mobility



As a premium manufacturer with many years of practical experience in electrical and thermal insulation technology and in the field of innovative materials, we want to support you in your various development projects in the area of e-mobility.

High performance electric motor insulation: With our comprehensive product portfolio at Krempel, we offer electrical insulation materials in the automotive segment that have proven their quality multiple times in the series production of e-drives.

Optimal materials for fuel cells, batteries, and the e-infrastructure in the vehicle and the charging stations: Tailor-made insulation systems for batteries and busbars as well as high-temperature foils and flexible copper laminates. Thermal and electrical insulation.

Composites for automotive engineering: Your materials expert for fibre composites made of glass, carbon, or aramid fibres, e. g. for battery housings and various light-weight components in vehicles. From requirements analysis and material selection to series supply- we create innovative components for e-mobility in close cooperation with you. Certified according to IATF TS 16949.

Krempel GmbH

Papierfabrikstraße 4
71665 Vaihingen an der Enz
www.krempel.com

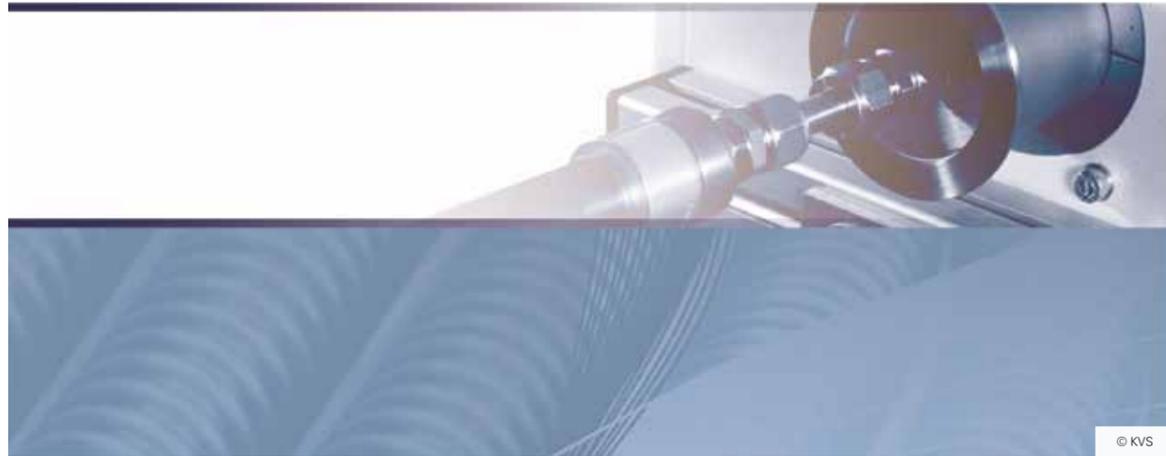
Employees: 1,150 (2020)

Contact

Tobias Bäessler
Phone: +49 7042 915368
t.baessler@krempel-group.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical), thermal management, motor/generator, inverter (electrical/electrical)		



Technical service provider in the field of vacuum and leak testing (H₂, He).



We carry out leakage tests in development and research and we also test series components.
Possible test pressures from 1*10⁻⁹ mbar to 2000 bar.
Tests with vacuum chambers up to test volumes of 1 cubic metre.
Leak detection on underground gas and water pipes.

KVS Vakuump- und Lecksuchtechnik
Mühlackerstrasse 29
71642 Ludwigsburg
www.kvs-vakuump.de

Employees: 4 (2021)

Contact

Dipl.Ing. Alexander Krutina
Phone: +49 7144 899663 10
alexander.krutina@kvs-vakuump.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing



E-mobility for all – simple, flexible, digital – that is our charging promise!



LAPP Mobility supplies user-friendly charging cables for charging at public AC charging stations, wallboxes, and household or industrial sockets to infrastructure operators, charging station and vehicle manufacturers, and private e-car users.

The mobile charging stations from Lapp Mobility provide e-car users the flexibility to charge their cars at standard household or industrial sockets. With the provided holder, the mobile charging stations can easily be mounted to walls and then connected to the mains. This is how you get a simple wallbox: the Wallbox light. If a mobile charging station is needed on the road, it can be removed in one easy step and stored in the boot. With this, you can be sure to charge anywhere, even when you're on the road. And you don't have to rely on finding a public charging station.

Our charging cables for charging poles or wallboxes are available in various shapes, including the LAPP Helix, a self-tidying quick-charging cable that automatically returns to its original shape after charging.

Lapp Mobility GmbH
Oskar-Lapp-Str. 2
70565 Stuttgart
www.lappmobility.com

Employees: 70 (2020)

Contact

Julia Dembele
Phone: +49 711 78381153
julia.dembele@lappmobility.com

Fields of competence

Components	System integration/system manufacturer	Service
Exterior		
Electrics/electronics		



© Liebherr-Components-Biberach GmbH

Powerful components for electric and hybrid drive systems

Liebherr is a specialist in the development and manufacture of high-performance components in the fields of mechanical, hydraulic, and electrical drive and control technology. The high-quality components are characterised by the latest technologies and their particularly robust construction, and they are custom-made for a wide range of applications: mobility and vehicle construction, transport and logistics, shipping, wind energy technology, mechanical and plant engineering, etc.

Liebherr's complete electrical systems integrate all elements of drive systems: motors, generators, fuel and battery cells, energy storage systems as well as power and control modules. In the development and supply of the latest technologies for electric and hybrid drives, Liebherr uses state-of-the-art test benches, including, for example, power test benches for motors, energy storage systems and frequency converters. Liebherr regularly participates in international partnerships for researching and developing future technologies in the fields of electric and hybrid drive systems, especially in shipbuilding and vehicle construction.

LIEBHERR

Liebherr-Components-Biberach GmbH

Ernst-Ottenbacher-Str. 2
88400 Biberach an der Riß
www.liebherr.com/de/deu/produkte/Components/Components.html

Employees: 1,730

Contact

Fabian Zell
Phone: +49 7351 41-37 88
Fabian.zell@liebherr.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Gearbox, motor/generator, inverter (electrical/electrical), electrical storage		



© Lifestyle-House GmbH, Ulm

Construction of a seasonal energy storage system based on H₂ for decentralised building energy supply

LIFE STYLE HOUSE

Lifestyle-House GmbH, based in Ulm, is a company that develops concept houses using completely new approaches and creative ideas. The experienced Lifestyle team consists of architects, designers as well as competent and certified craftsmen. Through its close cooperation with the industry and with established construction companies, Lifestyle-House achieves the highest level of quality. The company offers builders high-quality architecture, carefully selected materials, high-quality timber constructions, flexible planning, the latest energy and environmental technology, state-of-the-art BUS technology and, last but not least, the opportunity to realise individual wishes. The Lifestyle House sales network canvasses the entire German market.

Lifestyle-House GmbH

Magirus-Deutz-Strasse 14
89077 Ulm
www.lifestyle-house.de

Employees: 3 (2021)

Contact

Dipl.-Ing. (FH),
Dipl.-Wirtsch.-Ing. (FH)
Robert Kratzer
Phone: +49 731 6031642
info@lifestyle-house.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Energy
Fuel cell system (chemical/electrical)		Development
Interior		
Thermal management		



Technology leader for integrated system solutions for testing automation



One of the great challenges of our future lies in the preservation of nature, but also in the effort to reduce the increasing emission of pollutants. For this reason, the search for alternative energy generation systems and for drive concepts that ensure our mobility has experienced a boost. Fuel cells play an essential role in such systems, including the bipolar plates.

Based on this and with the knowledge gained from our experience to date, we developed, among other things, a leak test system for bipolar plates which, by means of trace gas, allows measurement accuracies down to the range of $<1E-4$ mbar*l/s, irrespective of the temperature.

LIWO Prüfautomation has been familiar with the processes, the testing methods and the quality requirements of the major automotive suppliers, the energy sector, and the pharmaceutical industry, and has developed efficient system concepts for them – true to the motto "Lippok & Wolf [FINALLY A SOLUTION]".

Lippok & Wolf Prüfautomation

Hutt-Keller-Straße 2
73642 Welzheim
www.liwo.de

Employees: 60 (2020)

Contact

Holger Fordinal
Phone: +49 7182 9366054
h.fordinal@liwo.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Motor/generator, inverter (electrical/electrical), electrical storage, chemical storage, fuel cell system (chemical/electrical)	Stationary systems	



High-tech solutions for media supply



LR Pure Systems develops high-tech solutions for ultra-pure gas and fluid systems. These include individual components, assemblies, and complex systems, such as those used in wafer processing, measurement technology or technical gas supply. We offer a range of services from development and design to production, cleaning, qualification, and on-site integration.

From idea to production drawing: We develop concepts for you, for the transfer and transport of acids, bases, technical gases, and ultra-pure liquids/gases. Components, assemblies, and systems of the highest precision: Our team will support you from prototypes and special series to the production of small and medium-sized series. Highest level of purity: We clean your stainless-steel assemblies to be free from particles ($<1 \mu\text{m}$) and free from hydrocarbons. Competent services for your gas and fluid systems: Our certified team assembles pipelines up to the most complex supply systems under normal and clean room conditions. LR Pure Systems enables technical progress through purity and precision.

LR-Pure Systems GmbH

Röntgenstr. 24
71254 Ditzingen-Heimerdingen
www.lr-puresystems.eu

Employees: 60

Contact

Dipl. Phys. Edgar Woelki
Phone: +49 172 2475877
e.woelki@lr-puresystems.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Development
Chemical storage, thermal management, fuel cell system (chemical/electrical)		



© MAHLE

MAHLE is committed to shape future mobility by establishing a sustainable drive mix



MAHLE is a leading international development partner and supplier to the automotive industry and a pioneer for the mobility of tomorrow. The product portfolio covers all important issues along the drive train and air-conditioning technology – for powertrains with combustion engines and for electromobility alike. In 2019, the technology group generated sales of around EUR 12 billion with more than 77,000 employees in more than 30 countries at 160 production sites.

MAHLE Group

Pragstr. 26–46
70376 Stuttgart
www.mahle.com

Employees: 77,000 (2019)

Contact

Dr.-Ing. Nic Sautter
Phone: +49 711 501 47845
nic.sautter@mahle.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Chemical storage, electrical storage, inverter (electrical/electrical), motor/generator, thermal management, gearbox, fuel cell system (chemical/electrical)		
Interior		
Thermal management		



© MANN+HUMMEL GmbH

MANN+HUMMEL – innovative filtration solutions for clean mobility



MANN+HUMMEL is a leading global expert in filtration technology. The group of companies, headquartered in Ludwigsburg, Germany, develops filtration solutions for automobiles, industrial applications, for clean indoor and outdoor air in industrial and public spaces, and for the sustainable use of water. In 2020, 21,480 employees at over 80 locations worldwide generated sales of around EUR 3.8 billion. Products include air filter systems, suction systems, liquid filter systems, technical plastic parts, filter media, cabin air filters, industrial filters as well as membranes and modules for water filtration, wastewater treatment and process applications. We successfully apply these competences to electrified powertrains: to protect battery systems against water ingress and condensation, separate pollutants from cooling air and cooling liquids in battery and fuel cell systems, in acoustically optimised and pressure loss-minimising systems for supply and exhaust air ducts for fuel cells including the purification of cathode air, or for clean air in the interior – we are your competent system partners for e-mobility filtration solutions.

MANN+HUMMEL GmbH

Schwieberdinger Str. 126
71636 Ludwigsburg
www.mann-hummel.com

Employees: 21,480 (2020)

Contact

Dr. Michael Harenbrock
Phone: +49 7141 982242
michael.harenbrock@mann-hummel.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical), electrical storage		



© Manz AG

30 years of experience in the entire process chain of a lithium-ion cell and module production line



Founded in 1987, Manz AG is a global high-tech engineering company. In addition to the turnkey CIGSfab production line in the solar segment, the company has special focus on the automotive industry with its electronics and energy storage segments providing both economic and competitive systems for the production of lithium-ion batteries – from cell to finished pack – and automated assembly lines for cell contact systems.

With 30 years of experience in process engineering and assembly solutions for the production of lithium-ion battery cells and modules, Manz offers its customers measurable advantages in terms of the degree of automation, process accuracy and reliability.

The group of companies, which has been listed at the German stock exchange since 2006, employs 1,500 people in eight countries. The Manz Group's turnover in the fiscal year 2019 was about EUR 264 M.

Manz AG

Steigäckerstraße 5
72768 Reutlingen
www.manz.com

Employees: 1,500 (2019)

Contact

Eduard Ams
Phone: +49 7121 90000
eams@manz.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	
	Stationary systems	



© Marposs S.p.A.

Marposs: your traditional partner for the new electromobility challenge



The company was founded in Bologna in 1952 and is currently led by Stefano Possati (Chairman of the Board). Marposs supplies precision measuring instruments to industries all over the world: from traditional sectors such as automotive and mechanical processing to emerging sectors such as aerospace, electromobility and consumer electronics. Exports account for more than 90 % of production. About 20 years ago, Marposs started acquiring solid, well-positioned companies that deliver top quality products in their respective fields. This has made Marposs a world leader in quality and process control. Marposs has become a world leader in quality and process control, offering its customers a combination of advanced products, market expertise and commitment to long-term global partnerships.

Building on this foundation, Marposs has established an international organisation with approximately 3,500 employees that is capable of delivering application and service support virtually anywhere in the world.

MARPOSS GmbH

Mercedesstr. 10
71384 Weinstadt
www.marposs.com

Employees: >3.500 (2021)

Contact

Michael Klenk
Phone: +49 7151 2054-286
michael.klenk@de.marposs.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
	Stationary systems	Testing
		Development



© Marquardt GmbH

Battery management, fuel cell, charging connections & more – developing and delivering the future



If you want to convince customers, you must provide answers. As Marquardt does: With new battery management systems for 12 to 800 volts, we developed a key technology for e-mobility. We are also answering the question of how energy can be safely and reliably fed into the vehicle: with our charging connections named E-Lock. And last but not least, we consider the hydrogen and fuel cell technologies two of the major future-oriented topics along which we align our development and product portfolios. Whether passenger cars, commercial vehicles, two-wheelers or infrastructure: Marquardt develops and delivers the future.

Founded in 1925 and headquartered in Rietheim-Weilheim, the family-owned company is one of the world's leading manufacturers of mechatronic systems. Marquardt has around 11,000 employees worldwide at 20 locations on four continents. Every year, around ten percent of the turnover is invested in research and development. The products of the mechatronics specialist – besides the solutions for e-mobility, the company also supplies operating elements, vehicle access or driving authorisation systems – are used by many well-known customers in the automotive industry.

Marquardt GmbH
Schloss-Straße 16
78604 Rietheim-Weilheim
www.marquardt.com/magazin/batteriemanagementsystem/

Employees: 11,000 (2021)

Contact
Wolfgang Häussler
Phone: +49 7424 99 2381
wolfgang.haeussler@marquardt.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Software
Inverter (electrical/electrical), fuel cell system (chemical/electrical)		Testing
Interior		Development
Equipment, electrics/electronics		
Exterior		
Electrics/electronics		



© Maschinenfabrik Lauffer GmbH & Co. KG

Production of hydraulic presses for e-mobility and lightweight construction, among others



Maschinenfabrik LAUFFER is a manufacturer of hydraulic presses for the electronics and metalworking industries. Founded in 1872 and headquartered in Horb am Neckar, Germany, the company employs over 280 people, and its products make it one of the leading manufacturers of machines and systems in the fields of laminating technology, plastics processing and encapsulation technology, forming technology and powder technology. LAUFFER is particularly appreciated by its customers for its high level of innovation, the reliability and quality of its systems and units, as well as its flexibility in developing complex solutions. With an export share of 70 %, LAUFFER products are used by customers all over the world.

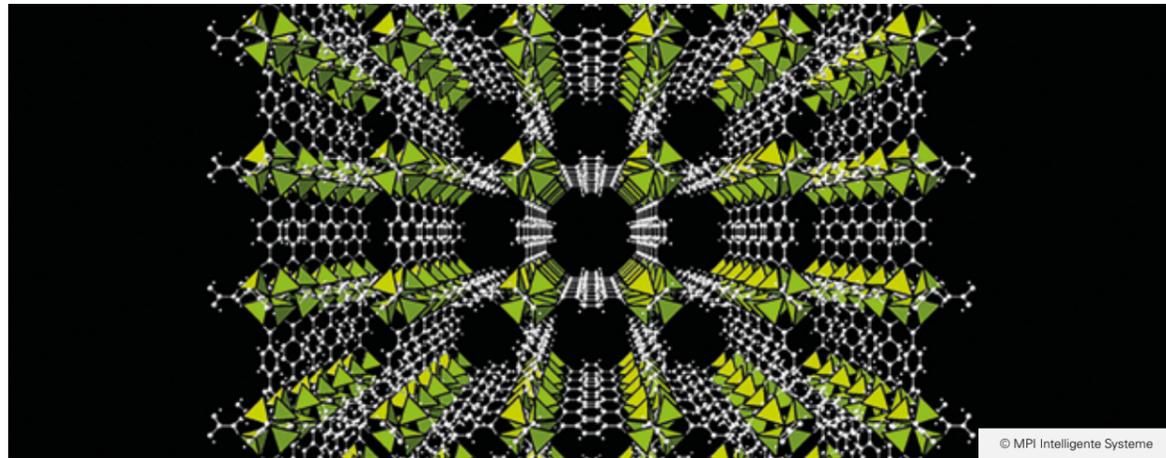
Maschinenfabrik Lauffer
GmbH & Co. KG
Industriestrasse 101
72160 Horb a. N.
www.lauffer.de

Employees: 280 (2019)

Contact
Florian Lier
Phone: +49 7451 902128
florian.lier@lauffer.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	



© MPI Intelligente Systeme

**Expertise in micro/nano robotics,
haptics, human-machine interaction,
bio-hybrid systems**



The MPI for Intelligent Systems conducts studies relating to the storage of hydrogen in solids. Particular focus is placed on ultra-porous materials with an extremely large inner surface for the cryogenic adsorption of hydrogen molecules.

Max-Planck-Institute for
Intelligent Systems

Heisenbergstr. 3
70569 Stuttgart
www.is.mpg.de

Employees: approx. 250

Contact

Dr. Michael Hirscher
Phone: +49 711 6891808
hirscher@is.mpg.de

Fields of competence

Components	System integration/system manufacturer	Service
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© Mehrer Compression GmbH

High pressure for hydrogen: Mehrer compressors are core elements in H₂ projects



Mehrer Compression GmbH is one of the world's leading manufacturers of oil-free reciprocating and diaphragm compressors. The Balingen-based company has set standards in gas and air compression for over 130 years and, with its fail-safe compressors, has been an important partner to the processing and process gas industries as well as to the energy and environmental sectors.

Mehrer Compression GmbH

Rosenfelder Str. 35
72336 Balingen
www.mehrer.de

Employees: 140 (2020)

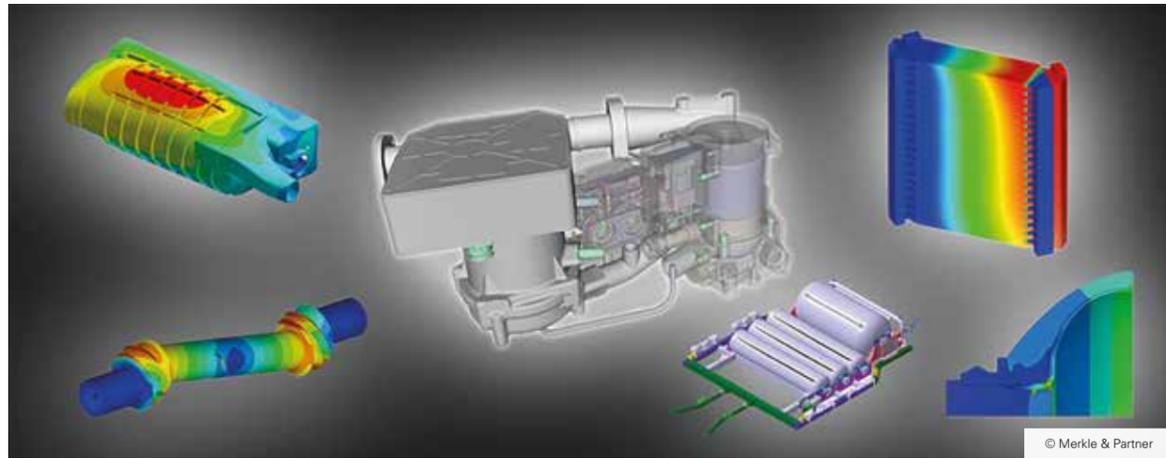
Based on their modular design and with drive powers from 3 to 350 kW, the compressors can be integrated into a wide variety of plant systems. They can be used in the low-pressure ranges but also when very high discharge pressures are required, regardless of whether the gas is in a particularly dry or a moist state. This flexibility makes it possible to realise a wide range of different applications. In particular, Mehrer compressors play a key role in the utilisation of hydrogen: With up to 1,000 bar, they compress the hydrogen after electrolysis so that it can be stored and then processed further. Also in the field of H₂ mobility and in research facilities, many renowned companies around the world rely on Mehrer's broad expertise in handling process gases.

Contact

David Barth
Phone: +49 7433 26058246
D.Barth@mehrer.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Chemical storage		



© Merkle & Partner

Merkle & Partner simulates complex physics and geometries and makes the invisible visible.



Merkle & Partner GbR was founded in 1989 by Dipl.-Ing. Stefan Merkle after he had completed his studies in aerospace engineering in Stuttgart and the company offers comprehensive services in the field of technical and engineering computations. New subject areas are explored constantly, and suitable methods are developed to keep pace with the rapid progress in hardware and software technology.

At its headquarters in Heidenheim and branch offices in Erfurt and Homburg/Saar, specialists work on about 500 projects for customers in the field of structural mechanics and flow simulation every year. For this, the company uses the latest and high-performing hardware and software. Well-known companies from the mechanical and plant engineering, aerospace, automotive, medical engineering, defence, and shipbuilding industries rely on the competence and expertise of Merkle & Partner. In the field of fuel cells, the company has decades of experience with stationary and mobile applications. and has played a decisive role in the use of simulation in the field. We support our customers with engineering computations, especially through FEM simulations, CFD simulations, and thermal simulations.

Merkle & Partner GbR

Friedrichstraße 1
89518 Heidenheim
www.merkle-partner.de

Employees: 50 (2021)

Contact

Dr.-Ing. Maik Brehm
Phone: +49 7321 9343137
m.brehm@merkle-partner.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Development



© Horst Nilgen

Mesa Parts GmbH – high-precision turned parts and valves for the mobility of tomorrow



Mesa Parts is a leading development and manufacturing partner for high-precision turned parts and turned part-based valve assemblies made of stainless steels, aluminium, and high-performance plastics such as PEEK used in automotive and medical applications. With more than 800 employees, we supply our international customers with over 1 million parts every day- from our main plant in the southern part of the Black Forest or our subsidiaries in the Czech Republic and Mexico.

To achieve optimal products, we accompany valve manufacturers with our experienced development and production teams – from the first concept to prototypes and finally large-scale production. We not only take over the development of the production concept, but also individual project steps, for example design, simulation or testing at our in-house test benches, or even entire development projects. The focus of these activities is on the mobility of tomorrow, which, with its high demands on tolerances and quality, perfectly matches the Mesa Parts portfolio.

Mesa Parts GmbH

Im Gewerbegebiet 1
79853 Lenzkirch
www.mesa-parts.com

Employees: 850 (2021)

Contact

Dr. Max Mehring
Phone: +49 7653 683640
max.mehring@mesa-parts.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Chemical storage, motor/generator, fuel cell system (chemical/electrical)		



MicroNova offers solutions for testing components and systems in the area of electromobility

The software and system supplier MicroNova offers innovative products and services for various industries. Our experts in the testing solutions division develop solutions for testing electronic control components

MicroNova particularly focuses on holistic concepts: from turnkey hardware-in-the-loop (HiL) test benches to proven software solutions for testing automation to professional on-site support or comprehensive consulting services. With its product and service portfolio, MicroNova fully covers all testing processes and supports companies in optimising their entire testing landscapes.

Due to our many years of experience, our current focus is on the automotive and wind power sectors. However, our products and solutions are suitable for all industries in which electronic control units must be reliably protected.

Our goal: to find the optimal solution for our customers to meet the challenges of tomorrow. 300 experts work with technological competence and passion on exciting projects that move people.

MICRONOVA Software und Systeme

MicroNova AG

Heidenheimer Str. 5
71229 Leonberg
www.micronova.de

Employees: 300 (2020)

Contact

Abdülkerim Dagli
Phone: +49 151 23302286
abduelkerim.dagli@micronova.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Fuel cell system (chemical/electrical), gearbox, motor/generator, inverter (electrical/electrical), electrical storage, chemical storage		Testing
Interior		Development
Electrics/electronics, equipment		
Exterior		
Chassis, electrics/electronics		



Mission Hydrogen helps you to make your projects and products known even better

The aim of Mission Hydrogen GmbH is to support and promote the hydrogen community in the long term. Mission Hydrogen connects the community as an independent partner and advises companies on their way into a profitable hydrogen future.

Moreover, Mission Hydrogen organises the world's probably largest hydrogen event, the Hydrogen Online Conference, including an exhibition with virtual exhibition booths and interactive networking areas with themed chats.

We believe that the hydrogen community will only be possible if everyone pulls together. The production and use of "green" hydrogen is essential to defossilise the industry and transport, and thus, to protect the climate. The time is now to further consolidate and expand the hydrogen community and to involve even more companies, entrepreneurs, politicians, and the media.

MISSION: HYDROGEN

Mission Hydrogen GmbH

Lise-Meitner-Straße 20
71364 Winnenden
www.mission-hydrogen.de

Employees: 2 (2020)

Contact

Silke Frank
Phone: +49 7195 9043900
silke.frank@mission-hydrogen.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Chemical storage, fuel cell system	Stationary systems	Energy
		Development



We help companies to realise future drive concepts



"It is our customers' goal to realise modern and inspiring products that are clean and sustainable." We have over 20 years of experience in automotive development projects, especially for vehicle powertrains. Combustion engines, their peripherals, and drivetrains were our core business in the beginning and still have an important place in our portfolio. Nevertheless, we have been involved in the automotive transition towards e-mobility from the very beginning and have built expertise in the development of electric drives, fuel cell and battery technology, including their integration into vehicles and their thermal management.

- Development and construction of parts, complex systems, and their integration, from concept to start of production
- One-stop shop for complete vehicle development as a development partner
- Calculation, simulation, and testing
- Sample parts, prototype construction and rapid prototyping for components and fixtures, in-house or together with other partners

MOTEC GmbH

Im Boppling 2
73571 Göggingen
www.motec-gmbh.de

Employees: 19 (2021)

Contact
Mathias Wöhrle
Phone: +49 171 9815 333
mathias.woehrle@motec-gmbh.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Development



MR PLAN Group is your project partner for the industrialisation of hydrogen



ENGINEERING FOR EXCELLENCE – the corporate promise of the MR PLAN Group stands for competence in planning and project management. MR PLAN Group is the direct partner of medium-sized businesses and the industry from the first strategic considerations in the planning of structures and processes to implementation support. Over 300 engineering experts support customers all over the world with their extensive know-how.

When we present our customers the latest approaches, hydrogen technology is one of the top solutions for the MR PLAN Group.

1. We plan and accompany the realisation of the H₂ infrastructure, for example its generation by means of electrolysis, storage and supply.
2. To industrialise H₂, the use of hydrogen and thus a H₂-oriented redesign of production and logistics processes is an essential building block on the way to an emission-neutral factory.
3. The MR PLAN Group assists the development of H₂ components with the planning and integration of test benches and laboratories.
4. Development, planning and realisation of H₂ components production complement MR PLAN Group's hydrogen competence.

MR PLAN Group

Metzinger Straße 29–31
72622 Nürtingen
www.mrplan-group.com

Employees: 280 (2020)

Contact
Michael Munz
Phone: +49 7022 3005-17
michael.munz@mrplan-group.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Energy
	Stationary systems	Development



© MS2 Engineering und Anlagenbau GmbH



© MVV

MS2 – your partner for testing technology around the topics of fuel cell and hydrogen



MS2 offers you individual test technologies and suitable test concepts around the topic of fuel cells- we have 20 years of experience in this field. From concept to after-sales service: Use our know-how and our many years of experience for your success. We offer you test systems for research and development.

- Fuel cells: from single-cell test stands to 200 kW stack test stands with freeze-start option (media and environment) at -35 °C
- Fuel cell system test stands for outputs up to 400 kW with air conditioning
- Component test stands for anode and cathode path components
- Component and tank test stands for high-pressure H₂ supply up to 1,000 bar
- Test stands for testing media resistance of materials
- Leak test rigs
- End-of-line acceptance and conditioning test stands for production

Regular on-site calibration of the equipment by the MS2 calibration service (DAkkS or factory calibration) ensures consistent quality and reproducibility of your results.

MS2
Engineering und Anlagenbau GmbH

Lise-Meitner-Straße 24
73230 Kirchheim unter Teck
www.ms2-engineering.de

Employees: 35

Contact

Dipl.-Ing. (FH) Martin Schäfer
Phone: +49 7021 4855112
martin.schaefer@ms2-engineering.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Thermal management, fuel cell system (chemical/electrical)	Stationary systems	Testing
		Energy
		Development

A holistic approach to electromobility: Charging infrastructure + photovoltaics + storage



With around 6,100 employees, MVV Energy AG is one of Germany's largest energy companies. MVV Enamic is part of the MVV Energy Group and, as an experienced partner, develops intelligent energy efficient solutions for the trades, industry, and the real estate sector. The modular range of solutions includes energy data management, energy supply, sustainable energy generation, energy efficiency services and electromobility. We install and operate charging infrastructure solutions for fleet vehicles, employees, and visitors for our customers throughout Germany. We offer our customers the following modular services:

- Consulting and design
- Manufacturer-neutral hardware selection and procurement
- Electrical planning incl. transformer and mains connection
- Installation and commissioning incl. earthworks and civil engineering
- Maintenance and servicing
- Billing of all charging processes
- Charging and load management
- Green electricity supply, photovoltaics, and storage solutions

MVV Enamic GmbH

Luisenring 49
68159 Mannheim
www.mvv.de

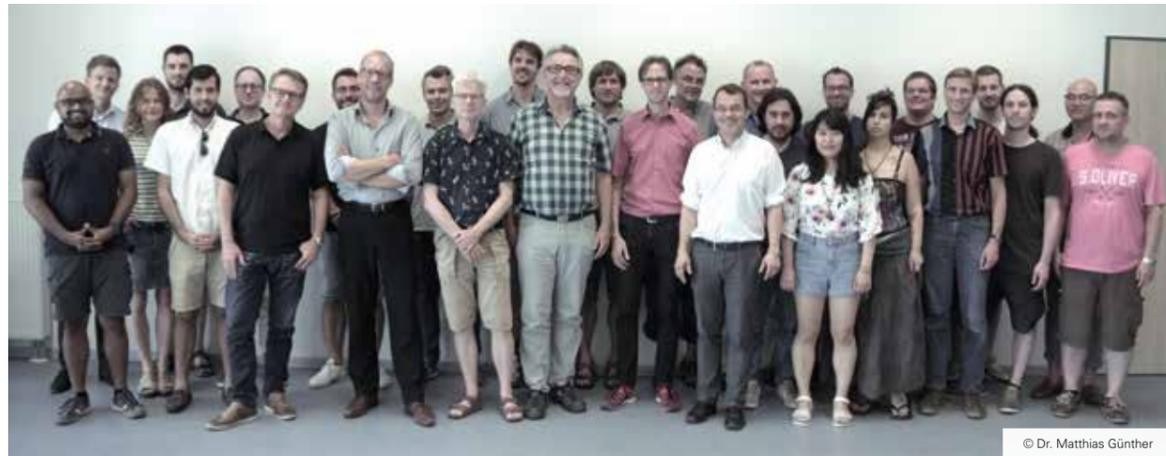
Employees: 530

Contact

Gerhard Kiesbauer
Phone: +49 621 2902356
gerhard.kiesbauer@mvv.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Software
		Energy



© Dr. Matthias Günther

Applied research on systems for sustainable energy use



The research activities of the Institute for Energy Systems Engineering (INES) at Offenburg University of Applied Sciences focus on the investigation and development of systems for sustainable energy use. Eleven professors and their staff are working on various interdisciplinary projects in the far-reaching field of energy systems technology. Research and development topics include battery technology, hydrogen technology, electromobility, smart grids, building energy technology, photovoltaic technology, and energy management. Equipment includes test stands and pilot plants, including laboratories for battery characterisation, hydrogen technology and photovoltaic production technology, a decentralised energy network (smart grid with renewable power generation, storage, and consumers), climate chambers for investigating energy distribution systems in buildings and an licenced electric vehicle. INES has extensive expertise in modelling, simulation, control, and optimisation – from multi-physical simulations of lithium-ion batteries to model predictive control of thermally activated component systems.

Offenburg University – Institute of Energy Systems Technology

Badstraße 24
77654 Offenburg
www.ines.hs-offenburg.de

Employees: 35 (2019)

Contact

Prof. Dr. Christian Klöffler
Phone: +49 781 205-4870
christian.kloeffler@hs-offenburg.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Motor/generator, fuel cell system (chemical/electrical), inverter (electrical/electrical), chemical storage	Stationary systems	Development



© <https://www.hydrasun.com/markets/renewable-energy/>

From components to turnkey systems, the customer decides, we deliver.



Leading specialist providing integrated fluid transfer solutions
ISO 9001, ISO 14001 and ISO 45001
Hydrasun is a distributor of numerous hydrogen-specific components, that are required for the integration of hydrogen systems, including high pressure gas distribution systems, refuelling hoses & nozzles, controls, and instrumentation. Hydrasun's highly experienced and competent installation team has successfully completed installations of H₂ refuelling systems in an increasing number of power-to-mobility projects as the infrastructure is progressively rolled out: including product specification, procurement, installation and commissioning, maintenance and operation, hydraulic and pneumatic pressure testing, certification, design engineering, and project management. Hydrasun has extensive knowledge of static and mobile hydrogen handling, storage and dispensing equipment and currently manufactures mobile H₂ storage systems that can be delivered directly to buses and other light and heavy vehicles and aircrafts.

Parcom Hydrasun GmbH

Ewald Renz Strasse 1
76669 Bad Schönborn
www.hydrasun.com

Employees: 450 (2021)

Contact

Cedric Krebs
Phone: +49 170 3886481
cedric.krebs@hydrasun.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Fuel cell system (chemical/electrical)	Stationary systems	Energy Development



© Pininfarina S.p.A.

Pininfarina combines elegant styling concepts with concrete engineering solutions



Premium design and engineering. In industry and automotive applications, from racing to commercial vehicles, from concept to prototype to small series production. Pre-development concepts including styling, modelling, VR as well as innovative package solutions at the system and component level, or even the complex project management for the development of complete vehicles for system suppliers and OEMs.

From Germany, we manage and coordinate projects for our German customers for the entire Pininfarina Group. In the automotive sector, our strengths lie in the core competences of bodywork, exterior, interior, package, chassis, and digitalisation. With over 230 highly qualified employees at our Munich and Leonberg locations, we focus on customer proximity, fast response times and efficient and innovative project realisation.

Pininfarina Deutschland GmbH

Riedwiesenstr. 1
71229 Leonberg
www.pininfarina.de

Employees: 235 (2019)

Contact

Bernd Bauer
Phone: +49 151 55105861
bernd.bauer@pininfarina.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Development
Equipment		
Exterior		
Chassis, vehicle body		



© polatek SL-Laminiertechnik GmbH, In der Raite 2, D-72800 Eningen

We supply laminating solutions for membranes in fuel cell production



Founded in 1989, polatek® was one of the first suppliers of professional laminating technology on the German market. Up to this day, our team of specialists stands for high-quality products and technical know-how and offers customised solutions meeting your individual requirements. Our product portfolio covers a wide range including the following areas:

- Industrial and special laminators for research, development and production processes in electrical engineering, automotive engineering and e-mobility, medical engineering, safety engineering, solar technology, and hydrogen technology
- Industrial laminating machines for the manufacture and processing of coverings, insulation and foam materials, decors, protective sealants, safety glass and components for vehicle, ship, and aircraft construction
- Cutting machines from manual table-top units to fully automatic machines for production lines
- Thermal laminating machines for finishing printed products
- Pocket and roll laminators
- Laminating films from our wide product range

polatek SL-Laminiertechnik GmbH

In der Raite 2
7200 Eningen
www.polatek.de

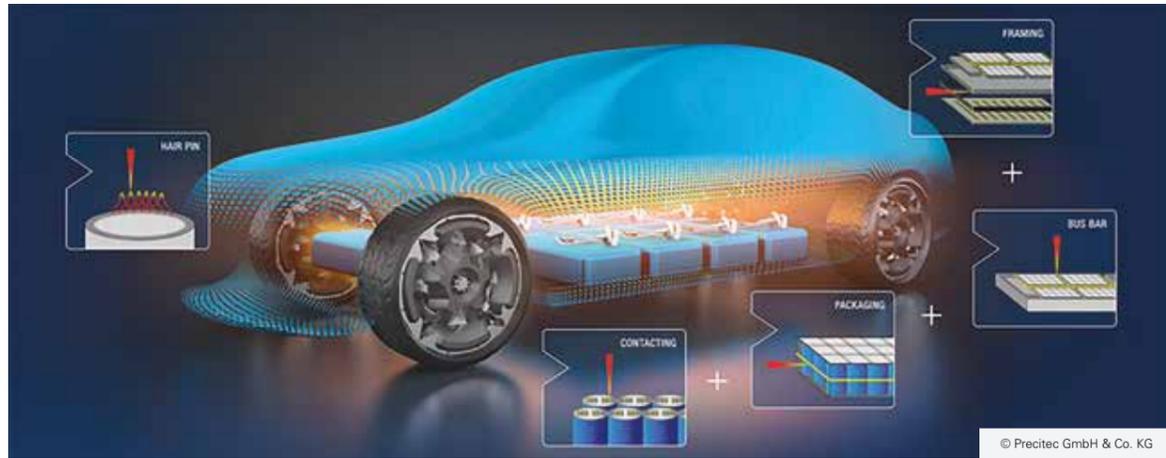
Employees: 15 (2020)

Contact

Tomislav Vucetic
Phone: +49 7121 98680
info@polatek.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Energy
Chemical storage, electrical storage	Stationary systems	Development



© Precitec GmbH & Co. KG



Attractive laser welding solutions for e-mobility

Laser goes e-mobile: With the global demand for electric motors, battery cells and power electronics in the automotive industry rising sharply, the need for innovative and efficient laser welding solutions is increasing too. Precitec offers turnkey solutions for durable welded joints through smart quality monitoring.

The topic of laser welding in the automotive industry is more topical than ever. The advantages of the laser, such as the contactless and force-free processing from only one side with extremely high energy densities, are gaining new importance with the topic of e-mobility. Its extremely high dynamics and maximum precision make the laser an efficient production tool. However, it is not only the speed of the welding process that makes the laser so successful. The laser's economy is largely based on process monitoring and seam bead control, which are carried out directly during the welding process. A component is only deemed successfully welded when the quality of the laser welding has been checked and documented. These are our strengths – and make us a valued partner in the automotive industry.

Precitec GmbH & Co. KG

Draisstr. 1
76571 Gaggenau
www.precitec.com

Employees: 700 (2021)

Contact

Jens Reiser
Phone: +49 7225 684 359
j.reiser@precitec.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Electrical storage, inverter (electrical/electrical), motor/generator, thermal management		
Interior		
Electrics/electronics, thermal management		
Exterior		
Electrics/electronics		



© PROFILMETALL

Metal profiles: from prototype to series production and profiling systems = PROFILMETALL



The PROFILMETALL Group is the specialist for roll-formed metal profiles. Its innovative profiling systems allow profiling processes in a whole new dimension. As the only supplier of roll-formed profiles in Germany, the group combines the areas of engineering, tooling, profiling system construction, and series production under the umbrella of one group of companies.

The focus is on customised, thin-walled profiles from all materials in strengths starting at 0.08 mm. Our customers value us as experts for efficient profiling processes and for the direct communication with our experienced designers – and the technological know-how from numerous research and development projects with national and international partners and customers.

We process all formable materials, e.g. steel in various qualities (galvanised, plain, lacquered, polished, ground, film-laminated) up to strengths of 1,500 MPa, but also non-ferrous metals such as aluminium, copper and others.

PROFILMETALL-Gruppe

Wagnerstraße 1
72145 Hirrlingen
www.profilmetall.de

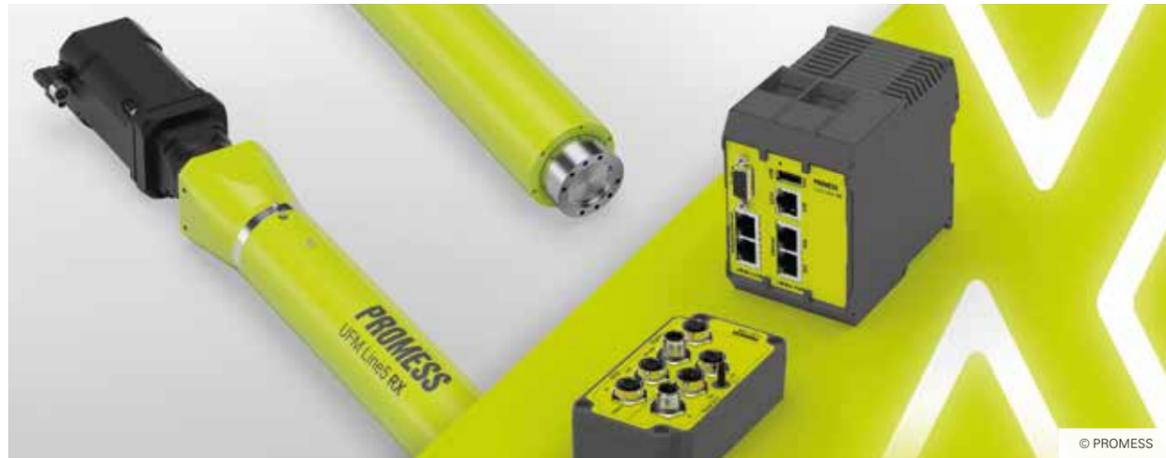
Employees: 100

Contact

Dr. Daniela Eberspächer-Roth
Phone: +49 7478 92930
dr.eberspaecher-roth@profilmetall.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Stationary systems	Development
Equipment		
Exterior		
Chassis, vehicle body		



© PROMESS

PROMESS: Manufacturer of universal joining modules/partner in assembly and testing technology



PROMESS has specialised in the development, manufacture, and worldwide distribution of servopresses for over 30 years. Our core competences are the development of technologies for solving individual and complex assembly and testing tasks, and the manufacture of high-quality standard components. In addition to the extensive range of servopresses, our product range includes universal torque modules, single workstations, and testing stations. PROMESS was founded in 1977 by Dr.-Ing. Gerhard Lechler as an engineering firm in the field of production measurement and initially engaged in the manufacture and sale of patented measuring bearings for tool monitoring. In 1989, the company specialised in assembly and automation systems and developed the Universal Joining Module (UFM) with integrated NC control and user-friendly user interface running under MS Windows. Our products are used in the automotive sector, e. g. in gearbox, chassis, or engine assembly. They are also used in other areas such as the electrical industry, battery production or medical engineering to monitor force-displacement in joining, forming, stamping, or punching.

PROMESS Montage- und Prüfsysteme GmbH

Nunsdorfer Ring 29
12277 Berlin
www.promessmontage.de

Employees: 100 (2019)

Contact
Dietmar Fechter
Phone: +49 151 67820092
fechter@promessmontage.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Chemical storage, electrical storage, motor/generator, gearbox	Stationary systems	Testing



© iStock Foto

PTV technology empowers mobility and transport for an environment-aware and intelligent future



PTV Group. Empowering mobility.

PTV Group offers software and consulting services to make mobility and transport fit for the future. Its market-leading software for intelligent traffic management and transport optimisation helps decision-makers from politics, communities, industry, and the trades to save time and money, make roads safer and protect the environment. PTV Group is using simulations today to show how the mobility of tomorrow can be realised considering all its ecosystems and dimensions and how the transformation can be designed efficiently and in a way that adds value, for example by way of a needs-based planning of the charging infrastructure for electromobility. The company was founded in 1979. Today, around 900 employees worldwide work on forward-looking solutions to make mobility and transport smarter and more environmentally conscious. For this, the PTV Global Research division engages in national and international research projects, to develop concepts, strategies, and models for the mobility of tomorrow in interdisciplinary teams. The company headquarters that are located at the heart of the technology region of Karlsruhe are also PTV's development and innovation centre.

PTV
Planung Transport Verkehr AG

Haid-und-Neu-Str. 15
76131 Karlsruhe
www.ptvgroup.com

Employees: 900

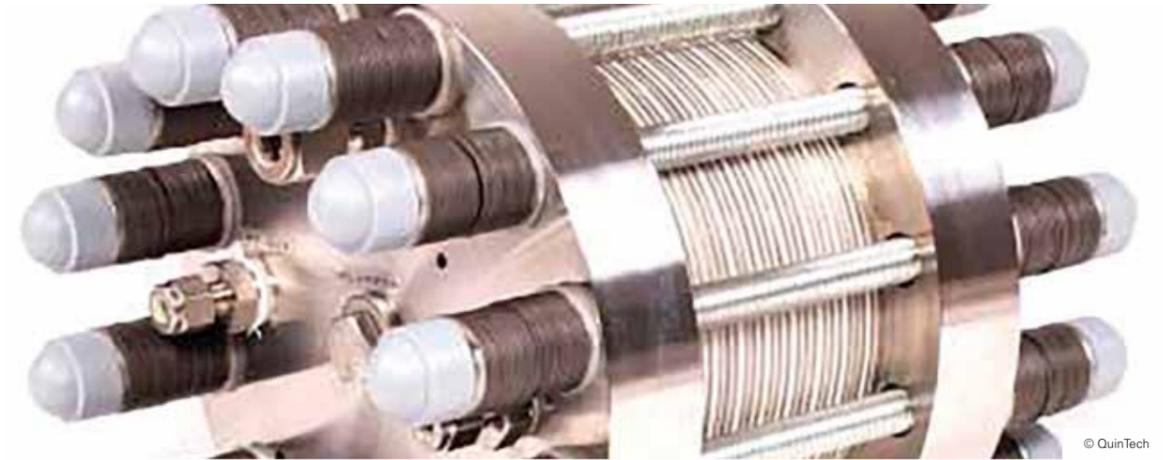
Contact
Michael Schygulla
Phone: +49 721 96517284
michael.schygulla@ptvgroup.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Development



© PVS-Kunststofftechnik GmbH & Co. KG



© QuinTech

We are your partners for technologically challenging electric motor insulations



The PVS Group is an innovative injection moulding company specialising in the development and production of technical plastic components for electric motor insulation. In addition to the overmoulding of stators and stator segments with iron lengths of 5 to 200 mm, the overmoulding of rotors has been developed in recent years.

Around 450 employees work at the company's headquarters in Niedernhall, Germany, in plants in the USA, Hungary, and China. The company was founded in 1976 and is currently managed by Jürgen Frank.

The PVS Group has a total production area of 33,000 m² worldwide and operates 120 injection moulding machines with clamping forces of from 15 to 1,600 tonnes.

PVS-Kunststofftechnik
GmbH & Co. KG

Salzstraße 20
74676 Niedernhall
www.pvs-plastics.net

Employees: 450 (2020)

Contact

Dipl.-Ing. (FH) Jürgen Frank
Phone: +49 7940 912670
j.frank@pvs-plastics.net

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Motor/generator		

Fuel cell and electrolysis components, cells, stacks, systems



QuinTech has been the European fuel cell and electrolysis partner for research, development, and production for over 20 years.

With over 600 products from 50 suppliers, QuinTech is your key partner for purchasing, consulting and customer services – under one roof and hand in hand.

This is only possible because QuinTech has decades of experience with single components, subsystems, or end-user products.

Together with its strong network, QuinTech offers the realisation of complete projects from planning and design to certification.

QuinTech

Danziger Str. 8
73035 Göppingen
www.quintech.de
www.brennstoffzelle-Energy.de

Employees: < 10

Contact

Nicole Seidl
Phone: +49 7161 946318
quintech@quintech.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Chemical storage, motor/generator, fuel cell system (chemical/electrical)	Stationary systems	Energy
		Development



© R. Kohlhauser GmbH

KOHLHAUER – Integrating environmentally friendly innovations into infrastructure



R. KOHLHAUER GmbH, based in Gaggenau, is one of the leading system suppliers for noise protection measures on roads and railways in Germany and Europe and the market leader for transparent noise protection systems. As a medium-sized, owner-managed family business with over 25 years of experience in the field of noise protection, we offer individual, innovative, and high-quality system solutions for noise reduction tailored to our customers' requirements and needs.

Our product portfolio is supplemented by grid insulation systems, aluminium cassette systems and wooden designs. You are welcome to get an overview of our diverse product range at our website at www.kohlhauser.com.

R. Kohlhauser GmbH

Draisstr. 2
76571 Gaggenau
www.kohlhauser.com

Employees: 30 (2019)

Contact

Reinhard Kohlhauser
Phone: +49 7225 97570
reinhard.kohlhauser@kohlhauser.com

Fields of competence

Components	System integration/system manufacturer	Service
		Energy
		Development



© RA Consulting GmbH

RA® – IT service provider and tool specialist for diagnosis, measurement, calibration, and testing



RA® projects and RA® products such as the DiagRA® MCD Toolset or the Open Test Framework® provide support for the development processes of electronic control units and vehicle networks with regard to diagnosis, measurement, calibration, and testing. Our services include the development of customised software solutions, database projects, and telematics applications to ensure efficient and safe development processes for approval-relevant data. All our developments are based on the standards of ASAM e.V. and ISO to which we actively contributed. As a technology-oriented company, we consider research a great opportunity to strengthen our power of innovation, and as such, we also have extensive experience in research and development projects. We have successfully participated in numerous joint research projects in the field of electromobility and autonomous driving and continue to actively engage in research initiatives. More than 400 renowned customers in the automotive industry worldwide show how closely we cooperate with our customers and prove the high degree of maturity of our RA® products.

RA Consulting GmbH

Im Technologiedorf
Zeiloch 6a
76646 Bruchsal
www.rac.de

Employees: 70 (2021)

Contact

Dipl. Inform. Armin Rupalla
Phone: +49 151 17165721
armin.rupalla@rac.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator, gearbox		Testing
Interior		Development
Electrics/electronics		
Exterior		
Electrics/electronics		



We set sustainable new standards in electrification – for a green driven future

Setting new standards with sustainable solutions – this is not only our philosophy, but also our vision and mission for the future. We develop solutions for an efficient, economically and ecologically conscious way of working. Wherever the electrification of mobile machines and commercial vehicles is required. Whether in automated vehicles for container transport, agricultural or construction machinery, whether municipal vehicles or e-buses – solutions from REFUdrive can be used flexibly, efficiently, and sustainably.

Together we develop the specific solutions that perfectly fit your mobile applications. We are always at your side – with our competences in design, project planning, commissioning, and service. Benefit from our broad product portfolio – from inverters for drives or auxiliary units of different types and performance ratings to storage and charging components, always optimally adjusted and connected via intelligent communication solutions. As part of the internationally operating Prettl Group, we – together with our sister companies – are your partners on the road to e-mobility.



REFU Drive GmbH

Marktstr. 185
72793 Pfullingen
www.refu-drive.com

Employees: 105 (2021)

Contact

Bernd Horn
Phone: +49 7121 4332100
bernd.horn@refu-drive.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development
Inverter (electrical/electrical)		



remoso is leading the industry and implements the best software systems for your mobility



remoso GmbH develops the mobility of the future. The vehicles of international mobility providers and DAX-listed corporations are reserved, used, shared, and billed with our comprehensive digital applications. With our complex usage concepts and innovative business models, we create the maximum added value for our customers' vehicle fleets in more than ten European countries. Our focus is on the development of innovative usage and sharing concepts for vehicle fleets and on the implementation of comprehensive mobility platforms for companies and municipalities. We are convinced that the future of mobility lies in shared vehicle use and the flexibility of processes. We can develop holistic fleet systems and overarching mobility services that can be used by companies and end customers. Bringing together different mobility entities and combining different usage models are top priorities for us.

remoso GmbH

Zuppingerstraße 18
88213 Ravensburg
www.remoso.com

Employees: 48

Contact

Claus-Michael Keun
Phone: +49 751 2018790
michael.keun@remoso.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software



© FKFS/Fotograf: Jürgen Wittke

Research in Motion. 90 years of research and development services



Excellent know-how, a unique range of highly specialised test benches and measurement, testing, and simulation methods developed in-house have made the independent Research Institute of Automotive Engineering and Vehicle Engines Stuttgart FKFS a sought-after partner of the international automotive industry. About 180 highly qualified and committed employees work on solving complex and demanding problems and realise research and development projects in the fields of vehicle drives, vehicle technology, and vehicle mechatronics.

With its outstanding infrastructure and interdisciplinarity, the institute is ideally equipped to meet the challenges of future mobility. Founded in 1930 as an independent foundation under civil law, FKFS cooperates closely with the Institute for Automotive Engineering Stuttgart (IFS) at Stuttgart University on the basis of a cooperation agreement.

Research Institute of Automotive Engineering and Vehicle Engines Stuttgart (FKFS)

Pfaffenwaldring 12
70569 Stuttgart
www.fkfs.de

Employees: 180 (2020)

Contact

Prof. Dr.-Ing. Hans-Christian Reuss
Phone: +49 711 68565888
info@fkfs.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Software
		Testing
		Development



© rnv

Electrically mobile on rail and road



As the largest mobility service provider in the European Rhine-Neckar mobility region, rnv's special focus is on electric drives. More than two thirds of the approximately 170 million passengers transported per year are being transported electrically and emission-free now. All this is based on rnv's rail network of around 207 kilometres and the 190 electric light rail vehicles running there. The services will be further expanded in the coming years with a new generation of light rail vehicles that will be put in operation in 2022 and with new routes.

In parallel, rnv is stepping up its activities in the electrification of bus transport. This transition to emission-free drives is to be achieved within a decade, so that rnv will operate 100 % electric in the future. Two lines in Mannheim and Heidelberg are already operated with e-buses. With the procurement of further vehicles, the proportion of electric buses in the fleet will be increased continuously. In addition, rnv is planning to use fuel cell range extenders, which are particularly suitable for large vehicles with long circulation times on lines with high demands.

Rhein-Neckar-Verkehr GmbH (rnv)

Möhlstraße 27
68165 Mannheim
www.rnv-online.de

Employees: 2,300 (2019)

Contact

Yunus Keskin
Phone: +49 152 54678784
y.keskin@rnv-online.de

Contact

Sebastian Menges
Phone: +49 621 4651706
s.menges@rnv-online.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Energy
		Development



© Rheinmetall Automotive AG

Rheinmetall Automotive AG Technologies for the mobility of the future



Rheinmetall Automotive AG represents the mobility division of the Rheinmetall technology group and is leading in its respective markets as a global supplier to the automotive industry with competences in the areas of air supply, emission control, and pumps, and in the development, manufacture, and spare parts supply of pistons, engine blocks and plain bearings.

The product spectrum for electric vehicles ranges from electrically driven cooling water, oil, and vacuum pumps to electric coolant valves and actuators, or heat pump modules and housing components for electric motors and batteries. Rheinmetall Automotive has also demonstrated its engineering competence for electric vehicles through several demonstrator vehicles. Firstly, a battery-electric vehicle was equipped with a small combustion engine with generators for range extension. A city car, the EMove, followed that featured in-house developments for electric motors and battery packs. In addition to these high-voltage applications, there are also promising developments with ETUs (electric traction units) and 48 V battery systems for light vehicles, P4 hybridisation, and pedelegs.

Rheinmetall Automotive AG
Karl-Schmidt-Straße 2–8
74172 Neckarsulm
www.rheinmetall-automotive.com

Employees: 12,400 (2019)

Contact
Dipl.-Ing. Jürgen Niehues
Phone: +49 7132 334341
juergen.niehues@de.rheinmetall.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Electrical storage, thermal management, motor/generator, inverter (electrical/electrical)		



© Robert Bosch GmbH

Technology for life



The Bosch Group is a leading international technology and services company with around 400,000 employees worldwide (as of 31 December 2019). It generated sales of EUR 77.7 billion in the fiscal year 2019. Its activities are divided into the four business units Mobility Solutions, Industrial Technology, Consumer Goods and Energy and Building Technology. As a leading supplier in the area of the Internet of Things (IoT), Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility.

Bosch pursues the vision of sustainable, safe, and inspiring mobility. With its expertise in sensor technology, software, and services, and with its own IoT cloud, the company can offer its customers connected and cross-domain solutions from a single source. The Bosch Group's strategic goal is to provide solutions and products for a connected life that either include artificial intelligence (AI) or are developed or manufactured with its help. Bosch improves people's quality of life worldwide with innovative and inspiring products and services. Bosch provides "technology for life".

Robert Bosch GmbH
Robert-Bosch-Platz 1
70839 Gerlingen-Schillerhöhe
www.bosch.com

Employees: 398,200 (2020)

Contact
Adam Babik
Phone: +49 711 811-24841
Adam.Babik@de.bosch.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Vehicle electrical system, inverter, motor/generator, thermal management, BZ-System		
Interior		
Electrics/electronics		
Exterior		
Chassis		



Your contact for assembly systems for the manufacture of sustainable drive systems



As a globally operating company from Thuringia, ruhlamat GmbH has established a worldwide reputation in the construction of special machines.

With its customised automation systems, ruhlamat provides suitable machine solutions in this branch of business – largely for the automotive supplier industry. Due to the transition from conventional drive systems to sustainable alternatives, the company has lately been developing assembly systems for the manufacture of components required for electromobility and fuel cell technology. In the fuel cell technology market segment, ruhlamat GmbH offers its customers scalable and flexible automation solutions that help them transition from semi-automated to fully automated production. Depending on the customers' wishes and requirements, the company plans, designs, manufactures, and commissions customised machine systems. Regular maintenance and servicing, rapid delivery of spare parts and machine-specific training are also part of the company's extensive range of services.

ruhlamat GmbH
Sonnenacker 2
99834 Gerstungen OT Marksuhl
www.ruhlamat.de

Employees: 1,200 (2020)

Contact
Stefan John
Phone: +49 151 12293299
s.john@ruhlamat.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development
	Stationary systems	



Design and development for the economic success of your products



Scala Design was founded in 1986 as an engineering company for technical products by Werner Gräfensteiner, Heiko Tegeder and Peter Theiss. All three are acting managing directors of the company. In the four departments of design drafting, CAD construction (using Catia, SolidWorks, Rhinoceros 5, Siemens NX), prototype and model construction, and small series production, we develop products in close cooperation with our clients – from first ideas and sketches to functional prototypes and small series.

Our expertise has developed over the years and with 1,000 successfully completed projects. As a Tier 1 supplier, we currently operate with 42 employees in our development and production workshops and project areas in Böblingen near Stuttgart.

Scala Design Technische
ProduktDevelopment GmbH

Wolf-Hirth-Straße 23
71034 Böblingen
www.scala-design.de

Employees: 42

Contact
Martin Gottlob Wohlbold
Phone: +49 157 80528842
M.Wohlbold@scala-design.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Development
Equipment	Stationary systems	
Exterior		
Vehicle body, chassis		



© Schaeffler

Schaeffler technologies significantly contribute to the mobility of the future

The Schaeffler Group is a globally leading automotive and industrial supplier. The group's portfolio includes precision components and systems in engines, gearboxes, and chassis, and rolling and plain bearing solutions for a wide range of industrial applications. With innovative and sustainable technologies in the fields of electromobility, digitalisation, and Industry 4.0, Schaeffler has decisively contributed to the mobility of the future. In 2019, the technology company generated revenue of approximately € 14.4 billion.

With approximately 86,500 employees, Schaeffler is one of the world's largest family-owned companies and, with around 170 locations in over 50 countries, has a wide-spread global network including production sites, research and development facilities, and distributor companies. With almost 2,400 patent applications in 2019, Schaeffler ranks second among Germany's innovative companies according to the German Patent and Trademark Office.

SCHAEFFLER

Schaeffler Group

Industriestraße 1-3
91074 Herzogenaurach
www.schaeffler.com

Employees: 86,500 (2020)

Contact

Philipp Kautzmann
Phone: +49 9132 8288233
philipp.kautzmann@schaeffler.com

Contact

Jürgen Remmlinger
Phone: +49 721 60841762
juergen.remmlinger@schaeffler.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Inverter (electrical/electrical), fuel cell system (chemical/electrical), gearbox, thermal management, motor/generator		Testing
Interior		Energy
Electrics/electronics, thermal management		
Exterior		
Chassis		



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Your specialist in the power supply sector. We start where others stop!

SCHAEFER e-solutions

SCHÄFER Elektronik GmbH and its solution-oriented team are your competent partners for the customised development and manufacture of industrial power supplies up to several MW. Thanks to over 50 years of experience, we are specialists in extraordinary AC/DC, DC/DC, and DC/AC solutions in the high power range, and we are market leaders in the field of grid compensation systems. With its unique variety of products and reliable engineering services, SCHÄFER has successfully carried out various projects in the area of laser technology, in the transport, power plant, and defence industries, and in the electromobility and renewable energy segments.

As an internationally operating company with subsidiaries in the USA and Ireland, SCHÄFER has established a worldwide reputation as a leading manufacturer of custom solutions. With SCHÄFER e-solutions, SCHÄFER has launched cascadable modules for self-sufficient hydrogen-based quick-charging stations on the market. SCHÄFER e-solutions stands for turnkey quick-charging solutions based on industrial high-performance technology for critical infrastructures or when grid power is not available or insufficient.

SCHÄFER Elektronik GmbH

Oststr. 17
77855 Achern
www.schaefer-e-solutions.de
Employees: 180 (2020)

Contact

Martin Kern
Phone: +49 7841 20 52-36
martin.kern@schaefer-e-solutions.de

Contact

Alexander Spengler
Phone: +49 7841 20 52-70
alexander.spengler@schaefer-e-solutions.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Energy
Inverter (electrical/electrical)	Stationary systems	Development
Interior		
Electrics/electronics		



© Schaffner EMV

**We reduce complexity in EMC –
With us, customers can focus on essentials**



The Schaffner Group is an internationally leading provider of solutions that ensure efficient and reliable operation of power electronic systems through the targeted conversion of electrical power. The Schaffner Group's product range includes EMC filters, power magnetic components, and power quality filters and associated services. For the automotive industry, Schaffner develops and produces antennas for keyless entry systems and filter solutions for hybrid and electric vehicles and their charging infrastructure. Schaffner components can also be found in electronic motor controls, wind and photovoltaic systems, railway technology, machine tools and robots, electrical infrastructure, and the power supply for electronic devices.

Schaffner Deutschland GmbH

Schoemperlenstraße 12b
76185 Karlsruhe
www.schaffner.com

Employees: 3,000

Contact

Ulrich Stitz
Phone: +49 162 2890017
Ulrich.Stitz@Schaffner.com

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Testing
		Energy
		Development



© Scherzinger Pumpen GmbH & Co. KG, BurkART Fotografie

**The development and production of
application-oriented pumps are our strength!**



Scherzinger – the hidden champion from the Black Forest. We ensure that super sports cars deliver top performance, that roads are reliably defrosted in winter; we remove barriers and ensure comfortable air conditions in buses. We take responsibility for the reduction of emissions from trucks or marine diesel engines, for ensuring the permanent function of solar power plants, and we take pleasure in exploring new topics. For example, we have been working on the use of hydrogen for environmentally friendly mobility for some time. Our pump expertise is in demand both in the field of hydrogen logistics, in the production of fuel cells and in fuel cells as such. In addition to the pumps that represent the hearts of the systems, we also develop complete systems including the control technology. Scherzinger – The Heart of Hightech!

Scherzinger Pumpen GmbH

Bregstrasse 23
78120 Furtwangen
www.scherzinger.de

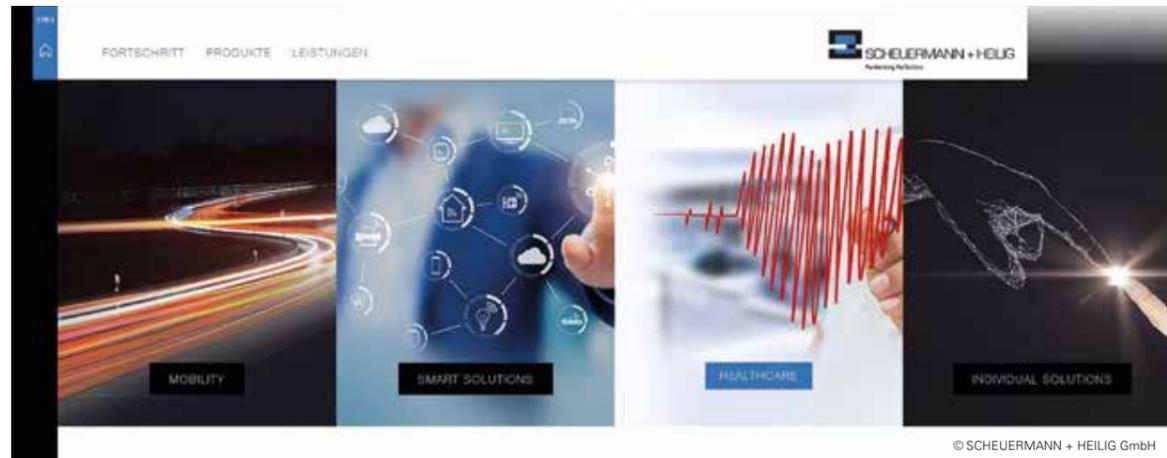
Employees: 200 (2021)

Contact

Dipl. Ing. (FH) MBA Matthias Derse
Phone: +49 77236506201
matthias.derse@scherzinger.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Chemical storage, electrical storage, thermal management, gearbox, fuel cell system (chemical/electrical)		



© SCHEUERMANN + HEILIG GmbH

SCHEUERMANN + HEILIG – your forming and assembly specialist for metals and plastics



SCHEUERMANN + HEILIG supplies metal parts for almost every conceivable product in the sectors mobility, smart solutions, medical, and individual solutions. The product portfolio of stamped, stamped & bent parts, springs, and assemblies includes busbars, connectors, cell connectors, shielding plates and shielding sleeves, return rings, rotor and stator packs, bipolar plates, and technical springs. With the development of a bracing system for fuel cell stacks, SCHEUERMANN + HEILIG has for the first time succeeded in presenting a technologically mature, economical, and resource-saving manufacturing process for large-scale production. SCHEUERMANN + HEILIG covers the entire process chain, from consultation to development, prototype construction and validated assemblies as the end products, and thus the entire workflow under one roof – from the customer's first idea to the perfect series product. The company's modern machinery allows the latest production technologies for forming, joining, and assembly processes (including various laser technologies for cutting, welding, or marking). SCHEUERMANN + HEILIG is certified according to the following QM systems: IATF 16949, DIN EN ISO 9001, 14001, 50001.

SCHEUERMANN + HEILIG GmbH

Buchener Str. 29
74722 Buchen
www.sh-gmbh.com

Employees: 450 (2019)

Contact

Benjamin Kugel
Phone: +49 6281 907132
benjamin.kugel@sh-gmbh.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Fuel cell system (chemical/electrical), motor/generator, vehicle electrical system, gearbox		
Interior		
Electrics/electronics, equipment		



© Eigenes Bild

Gas generators for on-demand supply of ultra-high purity gases



SCHMIDLIN – a decades-long reliable partner when it comes to gas generators, laboratory equipment, and accessories. With our know-how gained over 25 years, we support our customers with our continuous services throughout Germany – from the design and specification of optimal products to their commissioning. Our equipment generates the purest gases such as hydrogen, oxygen, zero air or nitrogen and at the highest level so that their users can carry out analyses and experiments in testing laboratories, but also during quality controls in production.

SCHMIDLIN
Labor & Service GmbH & Co. KG

Jusistraße 9
72581 Dettingen
www.schmidlin-labor.de

Employees: 4 (2019)

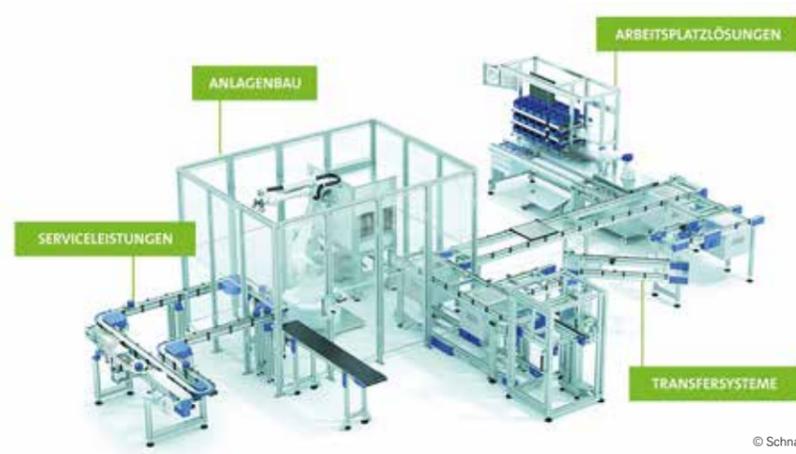
Contact

Ralf Winterstein
Phone: +49 7123 889750
ralf.winterstein@schmidlin-labor.de

Our gas generators ensure reliable 24/7 supply but there are also cost-efficient alternatives for companies engaged in the development and production of fuel cell and hydrogen technologies, among other things. Our H₂ gas generators use a sophisticated and patented electrolytic cell technology that produces ultra-high purity gas featuring unique performance advantages, with a minimum of moving parts, thus requiring little maintenance. Our gas generators are used in various industries such as automotive, pharmaceutical, chemical, and environmental.

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	



© Schnaithmann Maschinenbau GmbH

"We have the solution for you: scalable automation – from workstation to complete system".



Schnaithmann Maschinenbau GmbH was founded in 1985 and is a system supplier for automation technology in Remshalden near Stuttgart manufacturing transfer and assembly systems for automation, assembly, material flow and handling tasks with a focus on the automotive industry. The company supplies flexible systems for production and assembly to meet the increasing demands of future mobility. Due to the transition from conventional drives towards environmentally-friendly drive types, the requirements in production have also increased. With more than 35 years of experience in finding individual solutions for the requirements of our customers, Schnaithmann considers itself a competent partner. In the field of fuel cell peripherals, Schnaithmann has developed manual and automated solutions for industrial production. For battery production, we have realised production plants ranging from cell assembly to finished battery packs. Schnaithmann offers all services under one roof, from the first concept to planning and construction, commissioning, and on-site maintenance. With an export quota of over 50 percent, Schnaithmann supplies customers all over the world.

Schnaithmann Maschinenbau GmbH

Fellbacher Str. 49
73625 Remshalden
www.schnaithmann.de

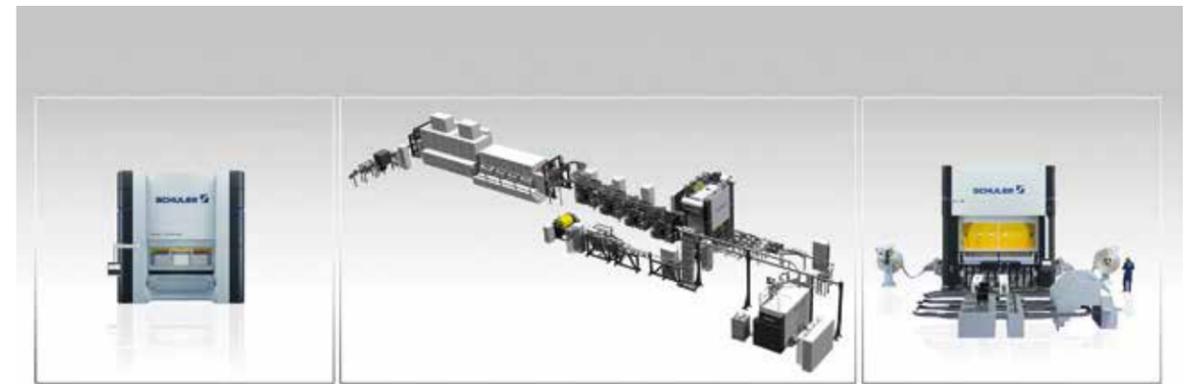
Employees: 250 (2020)

Contact

Dipl.-Ing. (FH) Heiko Schneider
Phone: +49 7151 9732576
h.schneider@schnaithmann.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobil	Software
Inverter (electrical/electrical), motor/generator, thermal management		Development
Interior		
Electrics/electronics		



© Schuler Pressen GmbH

Ready for electric mobility



Whether bodywork, batteries, fuel cells or traction motors: Schuler offers sophisticated systems for the economical series production of components for e-cars. The automotive and supplier industries are in a process of transformation, with renowned manufacturers currently investing billions of euros in electric mobility. Schuler is prepared for this transformation and offers lines for the economical series production of components for e-cars, for example body and structural parts, bipolar plates, metal housings for battery cells or sheet metal packages for traction motors.

Schuler Pressen GmbH

Schuler-Platz 1
73033 Göppingen
www.schulergroup.com

Employees: approx. 5,000 (2021)

Contact

Markus Röver
Phone: +49 7161 66-540
Markus.Roever@schulergroup.com

Contact

Dr.-Ing. Hermann Uchtmann
Phone: +49 7161 667949
hermann.uchtmann@schulergroup.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Fuel cell system (chemical/electrical)		



© SciMo- Elektrische Hochleistungsantriebe GmbH

SciMo develops and produces electric motors with the highest power densities and efficiency



SciMo builds electric motors with the highest power densities and efficiency. Thanks to a new winding technique, SciMo has achieved significantly higher copper filling factors and much improved heat dissipation. Electric motors with the highest performance requirements are in demand in the field of mobility, especially for electric flying, but also for vehicles and special applications. We are currently producing small quantities, but our goals are to make this motor technology available to a much broader market with our new automated winding machine, to find completely new areas of application, and address a wider audience.

SciMo – Elektrische Hochleistungsantriebe GmbH

Wikingerstraße 13
76189 Karlsruhe
www.sci-mo.de

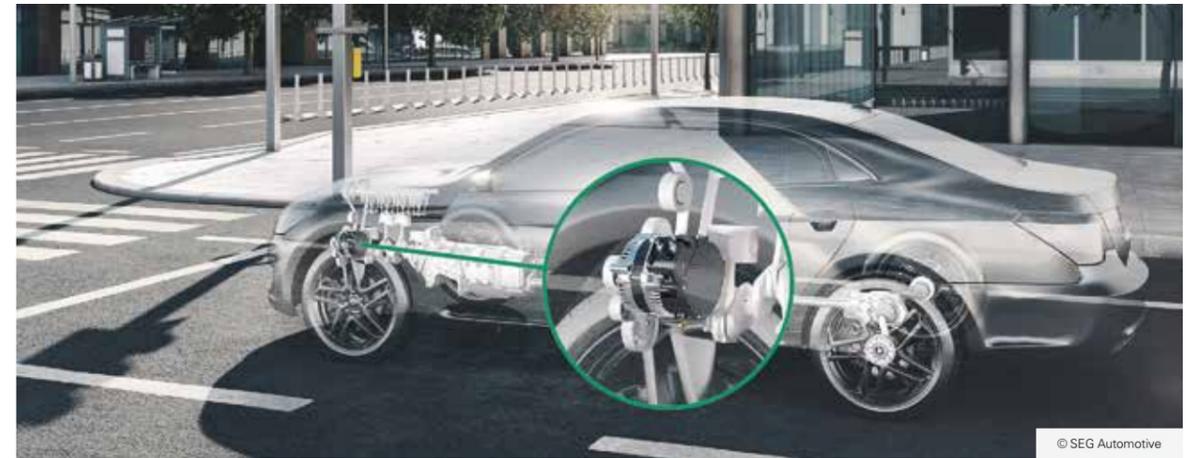
Employees: 10 (2021)

Contact

Dr.-Ing. Markus Schiefer
Phone: +49 152 34271190
markus.schiefer@sci-mo.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Software
Inverter (electrical/electrical), motor/generator		Testing
		Energy



© SEG Automotive

Mobility starts with us: global automotive supplier and technology leader



The history of SEG Automotive is closely linked to that of the automobile. For more than 100 years, we have stood for decisive developments in drive components: from starters and alternators to start/stop and mild hybridisation. With our passion for innovation, we are driving the transition towards more efficient combustion engines, 48 V mild hybrid vehicles, and electrification.

By reducing vehicle emissions, SEG Automotive is making a significant contribution to climate protection. Examples for this are our 48 V Boost Recuperation Machine for a cost-effective hybridisation of combustion engines and our future EM product family. It offers even higher savings and allows a fuel-saving 48 V e-drive functionality with scalable performance- from mild hybrids to e-drives for light vehicles. Nearly all car manufacturers worldwide trust our products that combine strong performance, durability, competitiveness, and a uniform and high quality standard worldwide. This is backed by our intercultural team of over 7,000 employees in 14 countries and our global production network in the world's most important automotive markets.

SEG Automotive Germany GmbH

Lotterbergstraße 30
70499 Stuttgart
www.seg-automotive.com

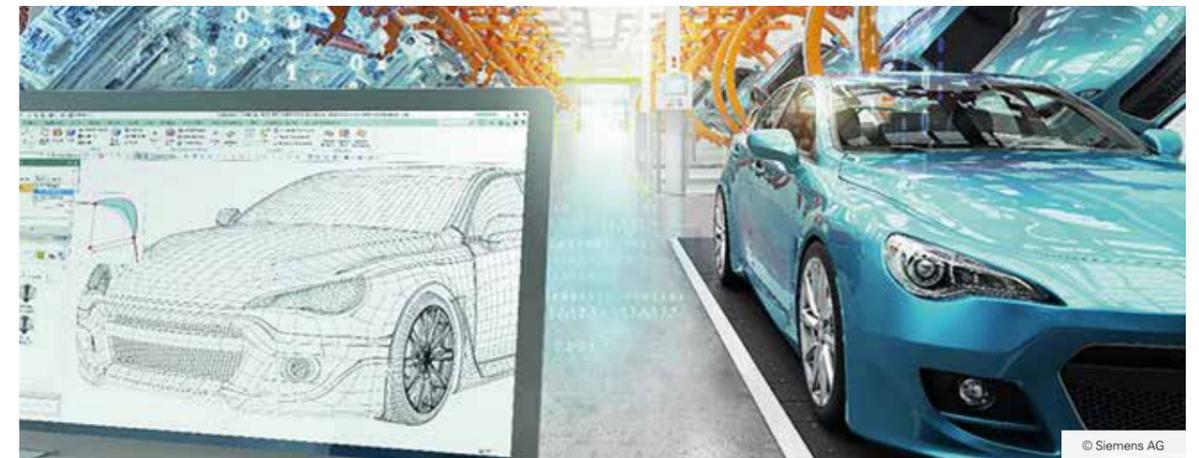
Employees: >7,000 (2020)

Contact

Frank Ahlborn
Phone: +49 711 40097328
Frank.Ahlborn@SEG-Automotive.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Motor/generator, vehicle electrical system		



SELB takes care of JIT-JIS operations within supply chains. Logistics, quality.



Our focus is on the supply chain management for our customers (well-known car manufacturers) and on ensuring optimal logistics and quality management for manufacturers and suppliers.

We operate in the areas of supplier and quality management as well as in the planning and project planning of individual supply processes. Within the transition process towards electrification, we consider our role that of a strategic partner and design solutions for the charging infrastructure and for low-voltage drives.

SELB Engineering GmbH

Schelmenwasenstraße 37
70567 Stuttgart
www.yourSELB.com

Employees: 15 (2019)

Contact

Bálint Nagy
Phone: +49 171 8963413
balint.nagy@yourselb.com

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Energy
Equipment	Stationary systems	Development
Exterior		
Chassis, electrics/electronics, vehicle body		

Holistic automation – from the virtual world to real production



Partner to the automotive industry in the digital transformation

Siemens Digital Industries is a technology and innovation leader for industrial automation and digitalisation. Working closely with partners and customers, Siemens Digital Industries is driving the digital transformation in the discrete and process industries. We connect the real and the digital worlds. We bring together previously separate processes in one continuous flow of data and so enable the industrial Internet of Things. Across the entire value chain, from the factory to the office floors, from sensors to the cloud. And all this also in fuel cell environments. The core of our services is our Digital Enterprise portfolio. It offers companies of all sizes products, end-to-end solutions, and services for the integration and digitalisation of the entire value chain. Optimised for the requirements of specific industries, our services help to shorten product development times and increase the flexibility, productivity, and environmental efficiency of production processes.

Siemens Aktiengesellschaft – Digital Industries

Weissacherstr. 11
70499 Stuttgart-Weilimdorf
www.siemens.com/automotive

Employees: Siemens Digital Industries ~78.000 Employees (2021)

Contact

Wolfgang Gaiser
Phone: +49 173-9795019
Wolfgang.Gaiser@siemens.com

Fields of competence

Components	System integration/system manufacturer	Service
		Software



© Silberform AG



Technological competence meets creativity

The Silberform Group considers itself a provider of design and development services. We offer draft design, 3D modelling, visualisation and rendering services for marketing documents, the creation of operating and display concepts (HMI/UX/UI), and touch applications. In addition, we realise virtual reality and augmented reality applications for our customers. We also develop and manufacture prototypes, show cars, technology demonstrators, design models, wind tunnel models, special vehicles, and small and special series.

Furthermore, Silberform manufactures assembly and handling tools for actual series production. In this area, we provide services ranging from process consulting to ready-for-use equipment. Silberform was founded in 2010 as a public limited company and has developed into a group of eight companies. The group's headquarters are in Renningen. Our work on complex projects is carried out under one roof in workshops, design and presentation areas on more than 10,000 m² while maintaining the highest degree of secrecy. We also have locations in Wolfsburg, Krakow in Poland, and Washington D.C. (USA).

Silberform
Aktiengesellschaft

Industriestraße 10
71272 Renningen
www.silberform.eu

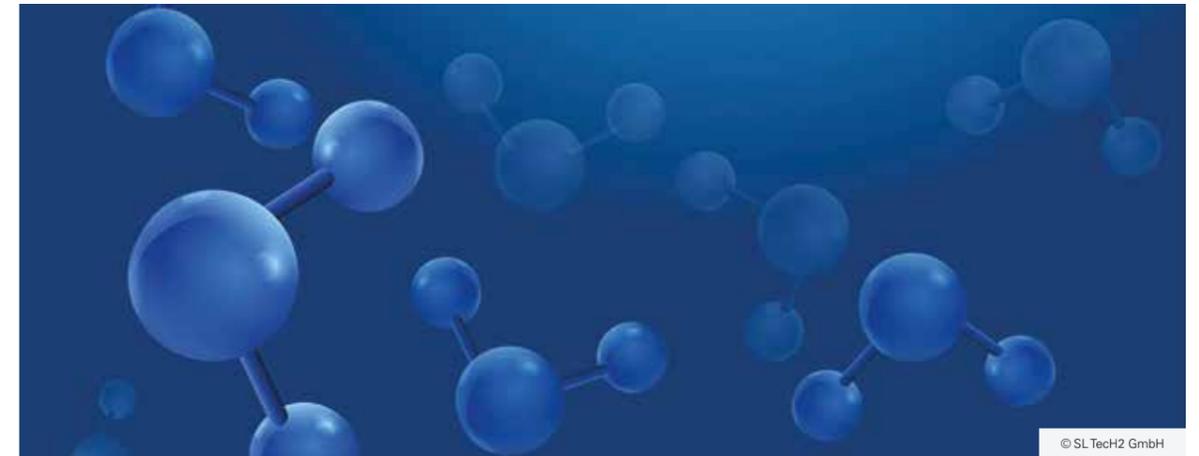
Employees: 180 (2020)

Contact

Björn Alber
Phone: +49 7159 16306180
bjoern.alber@silberform.ag

Fields of competence

Components	System integration/system manufacturer	Service
Interior		Development
Equipment, electrics/electronics		
Exterior		
Chassis, vehicle body		



© SLTech2 GmbH



Testing services for alternative drives

In August 2012, the company operating as a sole proprietorship became the SL Tech2 GmbH that currently employs over 20 people. The specialist knowledge in the areas of high-pressure and high-voltage technology that has been gained over the years was used to establish an in-house infrastructure to carry out high-pressure, high-voltage, cyclisation, safety, and special tests and is constantly expanded.

The constantly growing data volumes from tests and trials, which must always be kept well-structured and analysable for the developers and decision-makers, led to the establishment of the Data Science division in March 2014. In July 2018, SL Tech2 GmbH opened a second location in 73340 Amstetten. This new location has its focus primarily on misuse tests for HV batteries or alternative energy storage systems, and on fire and burst pressure tests on pressurised components or systems. Based on our many years of experience, we combine the know-how from component development and from testing.

SL Tech2 GmbH

Hohenneuffenstr. 21
Gebäude 36
73340 Kirchheim-Teck/Nabern
www.sl-tech2.de

Employees: 25 (2021)

Contact

Stefan Liphardt
Phone: +49 7021 99 39 68- 0
info@sl-tech2.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing



© smartGAS Mikrosensorik GmbH

The competent partner for optical gas analysis and gas measurement solutions "Made in The Länd".



smartGAS Mikrosensorik GmbH develops and produces non-dispersive infrared (NDIR) and photoacoustic sensors (PAS) for gas detection in a wide range of applications. The product range includes analysers and sensors for gas analysis, process measurement technology, purity measurement and ambient air monitoring, gas warning devices as well as installation and customised solutions. Based on available standard sensors, smartGAS also offers customised adaptations in accordance with the respective customer requirements – everything from the modification of the measuring range to the development of completely new solutions is possible. The company currently employs around 30 people at its headquarters in Heilbronn.

smartGAS Mikrosensorik GmbH

Hünderstrasse 1
74080 Heilbronn
www.smartgas.eu

Employees: 30

Contact

Dipl.-Ing. (FH) Volker Huelsekopf
Phone: +49 7131 797553-30
volker.huelsekopf@smartgas.eu

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Testing
		Development



© smk gmbh & co. kg

Experience the dynamic spirit of smk!



Stainless steel, copper, or plastic, whether formed, welded or overmoulded: smk systeme metall kunststoff gmbh & co. kg offers versatile and innovative solutions for its customers from a very broad range of industries.

It specialises in technologically sophisticated and functional assemblies that are tailored to the individual needs of the customers. "Driven by dynamic spirit" is the motto that accompanies the team in its work. As a development partner for demanding solutions, smk develops and realises individual and functional assemblies, for example, heat exchangers, hybrid components and complex welded assemblies for battery systems.

What makes us special? We think every project new and develop perfect individual solutions, which we implement precisely and with full commitment.

smk systeme metall kunststoff gmbh & co. kg

Am smk Kreisel 1
70794 Filderstadt
www.smk-systeme.de
Employees: 470 (2019)

Contact

Stephan Pflugfelder
Phone: +49 711 778 66 806
stephan.pflugfelder@smk-systeme.de

Contact

Markus Allmendinger
Phone: +49 711 77866601
markus.allmendinger@smk-systeme.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Thermal management, motor/generator, vehicle electrical system, electrical storage	Stationary systems	



smopi® – the modular and intelligent charging solution offering high safety and flexibility



smopi® is the result of extensive expertise in the field of charging infrastructure and of load and charge management in the context of a sensible and sustainable use of surplus energy from renewable sources. smopi® was mainly developed to contribute to the progress of eMobility using a modular, systematically adapted and future-oriented approach. The solution, remote charging, company car billing, and billing in the public and semi-public sector are the main concerns. Charging solutions that consider the digital possibilities are essential components for a sustainable transport policy and infrastructure. "Charging becomes parking", parking space monitoring, and billing services can be realised now.

Rural regions and communities can benefit from the smopi® solution for P&R parking spaces, event and meeting premises, and for local users such as restaurants or hotels. Retailers, trade, or industrial businesses can also be integrated into sustainable mobility concepts. smopi® allows local and long-distance commuters to not only use the charging stations at their workplaces, but to conveniently choose other tariffs too.

smopi® –
Multi Chargepoint Solution GmbH

Im Eisenhütte 12
74626 Bretzfeld
www.smopi.de

Employees: 7

Contact

Lukas Schlipf
Phone: +49 7946 94455 30
info@smopi.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Software
Electrical storage		Testing
Interior		Development
Electrics/electronics		
Exterior		
Electrics/electronics		



We implement your individual AI-as-a-Service solution



Over the past four years, Spicetech has developed its own technology stack that allows the fast, efficient, and scalable development of custom Software-as-a-Service and particularly AI-as-a-Service solutions. Spicetech generally operates in all sectors, but the main focus on electromobility. Our software solutions consistently provide automated forecasts and analyses for municipal utility companies, energy suppliers and grid operators, e.g. on important aspects of connected loads, electricity sales, charging infrastructure and technology. Specifically, this could mean that we determine how many charging stations will optimally need to be placed where or what connected load will be required at which location in 2040.

What does scalability mean for us? 100,000 scenarios and variants over many projected years and the fully automated derivation of the analyses and forecasts that are particularly important for you and your economic benefit. The spectrum of our projects ranges from interactive workshops to detailed studies to derive recommendations for actions or the design and implementation of your customised IT solution.

Spicetech GmbH
Schloßstr. 59 C
70176 Stuttgart
www.spicetech.de

Employees: 11

Contact

Dr. Alexander Thieß
Phone: +49 711 93572672
alexander.thiess@spicetech.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Energy
		Development



© STABIL GROUP International GmbH

Development, validation and production of sensors, electronics, and connection technology



STABIL GROUP International GmbH is an established international developer and manufacturer in the area of sensors, electronics, and connection technology for passenger cars, commercial and special vehicles. More than 400 employees are involved with automotive-certified processes worldwide and at its engineering headquarters in Kirchheim unter Teck for your benefit.

As an expert for innovative customer-specific product solutions, STABIL has been supplying OEMs and Tier-1 suppliers with numerous temperature sensors, level sensors, Hall and Smart sensors, electronic control units (ECU) and metallic connection technology such as formed parts or hose clamps meeting the highest technical requirements for over 30 years. The future trends of electromobility and fuel cell technology have arrived at STABIL thanks to our strong network, publicly funded research projects and the continuous interaction with our customers. This resulted in sensor solutions for electrified powertrains, processes for measuring the quality of cooling liquids for batteries and safe connection technologies. Our many years of experience ensure the high level of know-how for the development, validation, and serial production of high-quality technical products at one stop.

STABIL GROUP
International GmbH

Lise-Meitner-Straße 2
73230 Kirchheim unter Teck
www.stabil-group.de

Employees: 420 (2020)

Contact
Dr. Florian Dittmann
Phone: +49 7021 738193
dittmann@stabil-group.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Motor/generator, thermal management, gearbox		Testing
Exterior		Development
Electrics/electronics		



© Stadtwerke Karlsruhe GmbH

Better supply, thought ahead: We are the energy partner in the Karlsruhe region



Our products make life easier and are available at any time in the blink of an eye or at the touch of a button. More than 1,100 employees at Stadtwerke Karlsruhe ensure that customers in Karlsruhe and the surrounding region can enjoy our services without any disturbances. But there is much more to it. The energy industry continues to change at a rapid pace. Climate change, the mobility transition, digitalisation, energy transition, and demographic changes are only some of the buzzwords that describe this development. As one of the largest German municipal utility companies, we are facing these challenges actively. We continue to work on the energy and heating transition and offer innovative and customised solutions in the region. We invest in renewable energy and strengthen our employees through continuous professional training to cope with future challenges. At the same time, our most important task remains to supply our customers profitably and in a technically innovative, safe, and environmentally friendly manner. The future belongs to the well-positioned and efficiently operating energy service providers – and we will be one of them.

Stadtwerke Karlsruhe GmbH

Daxlander Straße 72
76185 Karlsruhe
www.stadtwerke-karlsruhe.de

Employees: 1,100 (2019)

Contact
Ralf Gumpff
Phone: +49 721 5991032
ralf.gumpff@stadtwerke-karlsruhe.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy



© Staiger GmbH & Co. KG

Staiger GmbH & Co. KG – Innovative valve technology from Erligheim



STAIGER develops and manufactures high-quality micro solenoid valves and fluidic systems for a wide range of applications and customer requirements. For more than 45 years, we have consistently pursued our successful innovation course and offer new products and customer-specific solutions, particularly in the field of proportional valves and general valve technology for fuel cell systems. We produce everything from individual items to mass products at our site in Erligheim and we also create all manufacturing and testing equipment in-house. Our know-how allows us to create cost-effective high-tech solutions that give our customers a real competitive edge. Our customers include world market leaders in the medical engineering, automotive, industrial, aerospace, and drinking water technology sectors.

Staiger GmbH & Co. KG

Johannes-Bieg-Straße 8
74391 Erligheim
www.staiger.de

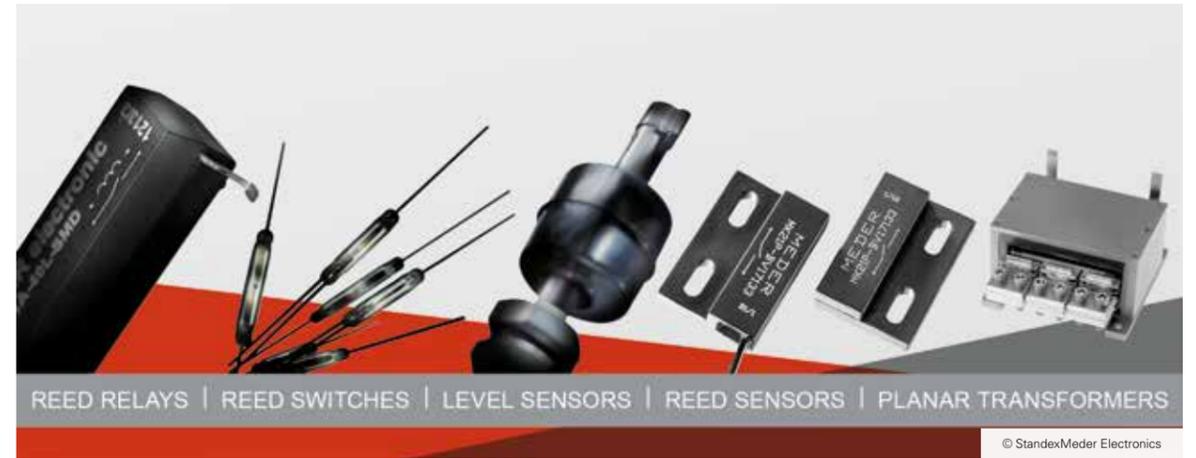
Employees: 200

Contact

Marc Staiger
Phone: +49 7143 27070
sales@staiger.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Fuel cell system (chemical/electrical), motor/generator	Stationary systems	



© StandexMeder Electronics

Mobility of the future with, among other things, environmentally friendly reed technology



Standex Electronics is a world leader in the design, development and production of standard and customised electromagnetic components and innovations based on reed switches. Our range of magnetically actuated components includes planar transformers, Rogowski coils, current transformers, low and high frequency transformers, and inductive components. Our reed-based product solutions include MEDER, KENT and KOFU reed switches and the complete range of reed relays. Furthermore, a comprehensive range of level, proximity, water flow, air conditioning condensate, hydraulic differential pressure, capacitive, conductive, and inductive sensors.

We provide engineered product solutions for a wide range of product applications in a variety of markets including automotive, appliance, renewable energy, and e-mobility. Committed to total customer satisfaction and customer-driven innovation, Standex Electronics offers worldwide sales support, development capacities and technical resources within a global organisation.

StandexMeder Electronics GmbH

Robert-Bosch-Straße 4
78224 Singen
www.standexelectronics.com/de

Employees: 1,500 (2020)

Contact

Marius Zeiher
Phone: +49 7731 839933
mzeiher@standexelectronics.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Electrical storage, vehicle electrical system, inverter (electrical/electrical)		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



© STAR COOPERATION GmbH



© Stäubli

Shaping the mobility of the future together

Networked expertise and passion for your success:

Since 1997, STAR COOPERATION has been helping companies of all sizes and from all sectors to efficiently plan, design and successfully implement projects. As our client, you benefit from interdisciplinary know-how and synergies from the fields of CONSULTING, ELECTRONICS, ENGINEERING, IT, LOGISTICS, MEDIA. Experienced experts accompany you in practice: As reliable partners, we provide you with innovative ideas and well thought-out solutions – precisely adapted to your needs. So that you use your resources optimally and improve every day.

STAR COOPERATION is certified according to the management systems DIN EN ISO 9001:2015, ISO 50001:2011, ISO 14001:2015 and ISO 45001:2018 Certificate Registration No. 12 340/100/104 26131 TMS.

We accompany industry, science and the public sector into the mobility of the future. We develop holistic mobility solutions, charging infrastructure and energy concepts as well as tools for vehicle networking- from the initial idea to final implementation on the market.

STAR COOPERATION®

Your Partners in Excellence

STAR COOPERATION GmbH

Otto-Lilienthal-Straße 5
71034 Böblingen
www.star-cooperation.com

Employees: 950 (2019)

Contact

Carolin Stickel
Phone: +49 7031 62883554
carolin.stickel@star-cooperation.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Electrical storage, vehicle electrical system		Testing
Interior		Energy
Electrics/electronics		Development
Exterior		
Electrics/electronics		

Pioneering connection technology for all industrial sectors

Stäubli is a specialist in technologically advanced connectivity solutions for industrial applications. The wide range of connectors for power, data, signals and media is designed to meet the requirements of demanding applications and harsh environments.

In electromobility, Stäubli solutions offer maximum reliability, absolute safety and resistance to temperature fluctuations or vibrations in in-vehicle and infrastructure applications. Typical applications include automated charging of driverless transport systems, battery connectors, contacting of assemblies within vehicles as well as solutions for energy supply and testing applications.

The compact components allow space-saving solutions with permanent electrical contact, easy maintenance and a long service life. Assembled connectors as completely tested, ready-to-install assemblies and customised solutions complete the range.

STÄUBLI

Stäubli Electrical Connectors GmbH

Hegenheimer Str. 19
79576 Weil am Rhein
www.staubli.com/electrical

Employees: 5,500 (2020)

Contact

Kai Meier
Phone: +49 7621 6670
ec.de@staubli.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Vehicle electrical system		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



Pioneering connection technology for all industrial sectors

Stäubli offers technologically advanced solutions in the field of mobility. The wide range of coupling technology for connecting and disconnecting gases, liquids and electrical energy has been developed to meet the needs of demanding applications and harsh environments. The compact elements feature a lightweight and space-saving design and are easy to use even in confined conditions.

Stäubli meets your requirements and specifications in terms of reliability, absolute safety and resistance to temperature fluctuations or vibrations. Stäubli's extensive knowledge of the industry is the basis for customised specific solutions.

Whether for charging or refuelling, for connections between modules such as for cooling on-board electrics or for connecting a wide range of cables in test benches or test laboratories: Stäubli offers you the reliability you need.

STÄUBLI

Stäubli Tec-Systems GmbH
Connectors

Theodor-Schmidt-Straße 19/25
95448 Bayreuth
www.staubli.com

Employees: 5,500 (2020)

Contact

Manuel Wohner
Phone: +49 921 883-2804
m.wohner@staubli.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Vehicle electrical system, motor/generator, inverter (electrical/electrical), fuel cell system (chemical/electrical), thermal management	Stationary systems	
Interior		
Thermal management		



Support with innovation management, financing and internationalisation



The Steinbeis Europa Zentrum stands for over 30 years of experience in innovation consulting and research funding throughout Europe and beyond.

Steinbeis Europa Zentrum forms the bridge to Europe for companies, research institutions, universities, administrations, and politics, and is a partner in the Enterprise Europe Network of the European Commission. We support you in the conceptual design of your innovation projects and in the identification of suitable funding and in the successful submission of applications – at the regional, national and European levels. The overall focus is on the topic of sustainable mobility and the networking of industry, research and start-ups through the organisation of events. Steinbeis Europa Zentrum is an experienced partner with expertise in administrative project management, communication and in the dissemination and exploitation of project results from EU research and innovation projects and is currently involved in the following projects in the field of hydrogen mobility: COSMHYC XL, COSMHYC DEMO, INN-BALANCE, H₂SHIPS.

Steinbeis Europa Zentrum

Steinhäuserstr. 12
76135 Karlsruhe
www.steinbeis-europa.de

Employees: 70 (2019)

Contact

Paul Haering
Phone: +49 721 93519133
paul.haering@steinbeis-europa.de

Contact

Dr. Marie-Eve Reinert
Phone: +49 721 93519130
marie-eve.reinert@steinbeis-europa.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Energy



© stoba e-Systems GmbH

High Power | Low Voltage

stoba e-Systems – a progressive, digitally prepared, and qualified development and manufacturing company for electric traction and work drives, hardware and software. An independent technology platform is being developed with the requirement "HIGH POWER by LOW VOLTAGE": A 48V drive system that makes electric mobility for traction and work machines in the off-highway sector profitable. With much ambition and passion, stoba e-Systems in Weinstadt is working on a holistic 48V drive system. The unique Integrated Electric Propulsion System ("InPS"), an independent technology platform with modular system architecture and performance, offers profitable solutions for diverse markets and needs of electric mobility in the off-highway sector. Modular and intelligent, it comprises the electric motor & inverter, battery pack incl. BMS, PECU (Propulsion Electronic Control Unit) with interface to the application, DC/DC converter, onboard charger, and power take-off. Comprehensive knowledge, thinking and acting coupled with an open working atmosphere make the difference. Setting the pace and providing the impetus, stoba e-Systems stands for the revolutionary technological change towards electromobility. The mission is: make a difference!



stoba e-Systems GmbH

Mercedesstraße 18
71384 Weinstadt
www.stoba-esystems.com

Employees: 65 (2021)

Contact

Marcus Fischer
Phone: +49 151 61915256
marcus.fischer@stoba-esystems.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Gearbox, thermal management, inverter (electrical/electrical), motor/generator		



© Stöhr GmbH

The future needs ideas and visions

Everyone is talking about electromobility- we are driving it forward. And not only now, but for many years already. As a pioneer in this field, our company has developed powerful, field-tested charging solutions with its comprehensive expertise.

Traditionally, Stöhr has been the established manufacturer of components and complete solutions for customers from various industries who rely on our expertise. Thanks to our wide range of products, we have considerable knowledge of new developments, processes, and procedures. Our engineers and technicians designed suitable products for e-mobility at early stages and decisively promoted this important future technology.

The market launch of the second generation of our Stöhr charging infrastructure is the next milestone in our company's history. In this way, we continue to ensure that things are moving.



Stöhr GmbH Metalltechnologie

Weierstraße 3
75203 Königsbach-Stein
www.stoehr-mobility.de

Employees: 52 (2020)

Contact

Michael Erbar
Phone: +49 7232 30640
info@stoehr-gmbh.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Development



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**We solve your challenge in the road test.
Customer-oriented. International.**



As one of the leading European specialists in the field of vehicle testing, we carry out road tests for our customers worldwide and have so far been able to gather experience from projects in almost 50 countries. We carry out all types of road tests – from endurance testing to functional testing – with the highest flexibility and agility. Our service portfolio includes all areas of vehicle support: from the operation of measurement technology and software such as CANape by our test drivers to the implementation of vehicle conversions, the updating of software versions, and worldwide vehicle and driver logistics. Our USPs include our own refrigerated containers at the Aldenhoven test track, an acoustic roller test stand, and our own NVH-compatible test track with a length of 825 m and four inclined hills.

We are active for our customers in all cutting-edge subject areas – e.g. alternative drives, data acquisition for automated driving systems, autonomous driving, brake or tyre testing. Our international network allows us to maintain permanent locations in England, Spain, Japan and China as well as direct contacts to over 180 test sites on all continents.

straesser automotive testing GmbH
Jägerstraße 1
71394 Kernen
www.straesser-automotive.com

Employees: 250 (2020)

Contact
Dominik Eiberger
Phone: +49 7151 94423928
dominik.eiberger@straesser-automotive.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Testing



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With extraordinary people, we create sustainable solutions for the world of the future.



The SÜLZLE Group is an international company, family-run in the fourth generation with over 140 years of experience and tradition, covering the areas of reinforced steel, steel trade and construction, steel rental, prefabrication, plant construction, building technology, sewage sludge recycling and plastics recycling.

Within the framework of the sustainable, holistic, and futuristic project GreenInnovationPark (GIP) in Sulz/Vöhringen, a managed business park is being developed and built around the key themes of energy efficiency, energy self-sufficiency, innovation and sustainability. The future-oriented innovation campus for national and international companies, start-ups and scale-ups upholds holistic sustainability standards in the fields of energy, construction, ecology and digitalisation. A collaborative platform for future-proof innovations and technologies, for a sustainable coexistence of work and life. Science meets business, expertise and resources are shared, and sustainability is reflected from its architecture to the energy concept. The sector coupling of renewable energy, hydrogen, storage applications, heat and cold generation can be experienced in practice.

SÜLZLE Gruppe
Hauffstraße 14
72348 Rosenfeld
www.suelzle-gruppe.de

Employees: 1,000 (2020)

Contact
Rüdiger Haasis
Phone: +49 7428 9414 570
ruediger.haasis@suelzle-gruppe.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy
		Development



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Your solution provider for future-oriented manufacturing



Our modular, individual solutions offer exactly the kind of flexible manufacturing needed for your production of tomorrow: ideal from small batches to mass production.

They also provide full flexibility when integrating new processes into existing production structures. From the seamless integration of a single system to a robot-guided machining process, all variants are possible. We always have the perfect solution in mind. Together with you, our team of future-oriented engineers and designers will develop the cutting-edge technology that will ensure long-term success in the constantly evolving world of manufacturing. Through early involvement, ideally during product development, we support you with regard to surface criteria, process technology and prototyping. Talk to us about your individual unique machining tasks or let us and our experts analyse your production chain together with you. In both cases, you will benefit from our innovative production systems, clever automation options and comprehensive services.

Supfina Grieshaber GmbH & Co. KG

Schmelzgrün 7
77709 Wolfach
www.supfina.com

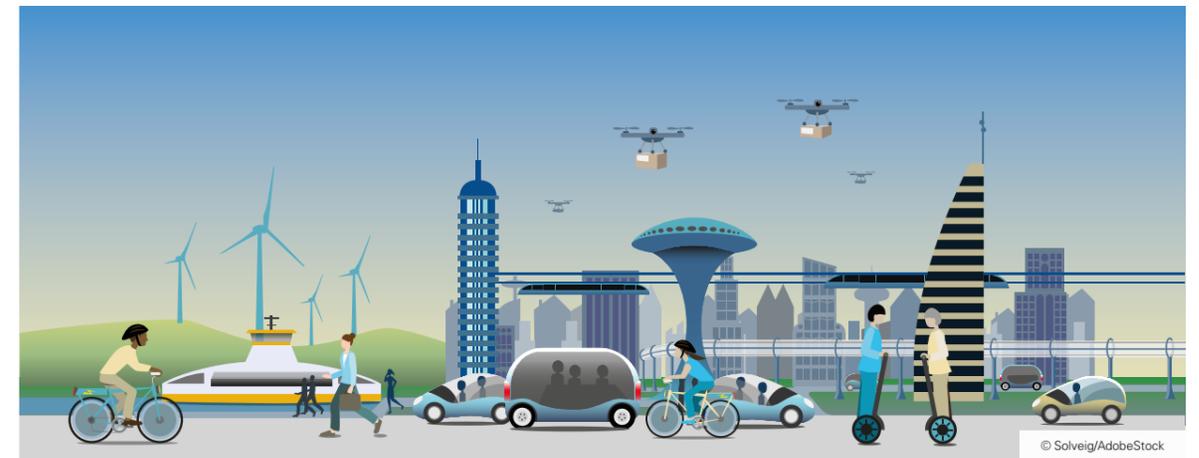
Employees: 156 (2020)

Contact

Michael Wöhrle
Phone: +49 7834 866241
m.woehrle@supfina.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development
	Stationary systems	



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SW Engineering ... your desire is clean transportation



Since 2006, our engineering firm has been working on leading developments in electric mobility and storage technologies in the Stuttgart region, in Germany and internationally.

Our focus is on project and business development in the fields of electric mobility, electric storage technologies and hydrogen as a carrier of electric energy and as fuel for fuel cell vehicles.

In these areas, we develop industrial and public projects, take over the project management in development, demonstration and series projects and advise interested companies on how they can use their existing or yet to be developed potential in the growth markets of electric mobility/electric energy storage in a targeted manner. For our customers and for our own projects, we have been selling products and services through SWE-Mobility UG (limited liability company) since 2012. Parts from our portfolio can be ordered through our webshop.
www.sw-engineering-services.com
www.swe-mobility-shop.com

SW-Engineering

Gausstrasse 42 A
70193 Stuttgart
www.sw-engineering-services.com

Employees: 2 (2020)

Contact

Sebastian Wider
Phone: +49 711 99337080
sebastian.wider@swe-mobility.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Development



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Technology, quality and customer service

Since its foundation in 1938, Tamagawa Seiki has been manufacturing high-precision sensors, motors and gyros.

The flexibility and precision of our products allows them to be used in a wide range of industries, such as automotive, manufacturing, aerospace, science engineering and robotics.

We offer you our high-quality sensor and motor products that can meet your requirements because we continuously improve and develop our technologies.

This helps us to contribute to the development of environmentally friendly electric mobility, to make production lines more efficient and productive, and to support scientific research.

With offices in Japan, China, Taiwan and Germany, we are able to support our customers wherever they need us.

Tamagawa Europe GmbH

Magirus-Deutz-Str. 14
89077 Ulm
www.tamagawa.eu

Employees: 8 (2020)

Contact

Isabella Burk
Phone: +49 731 96338958
i.burk@tamagawa.eu

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Inverter (electrical/electrical), motor/generator		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



We enable the successful electrification of drives for trucks, buses and vehicles in the agricultural and construction industries



TE Connectivity (TE) with its KISSLING products is a leading supplier of robust high-quality components and systems for switching and distributing high currents. These products are used in all industrial and commercial transport vehicles that have to prove their exceptional performance in harsh environments. Over decades, we have continuously worked to improve our products in the areas of switching applications, high current supply, and when switching under load. As the e-mobility market has evolved in the industrial & commercial transportation (ICT) sector, TE and its partners responded and developed new switching components for high power, high voltage and switching applications. We combine innovative ideas with technical expertise to develop e-mobility solutions that meet the new requirements in high-power electric vehicle and central electrical systems applications. Our portfolio of high-voltage systems allows applications ranging between 480 and 900 V. We can also offer individual solutions to meet specific customer requirements.

TE Connectivity
KISSLING Products GmbH
Bohnland 16
72218 Wildberg
www.te.com

Employees: 450 (2020)

Contact

Andreas Eckhardt
Phone: +49 172 7928160
Andreas.Eckhardt@te.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Vehicle electrical system		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



Develop and design disruptive mobility solutions

TEAMOBILITY

Founded in 2013 by electromobility pioneer Prof. Johann Tomforde, TEAMOBILITY GmbH stands for systemic vehicle and infrastructure solutions in all areas of sustainable automobility.

Together with project-specific and efficiently deployed specialists from network partners, an in-house team of senior experts works on sustainable mobility system solutions for industrial, sectoral and fleet customers in the business areas

- Urban Transportation
- Automobility Innovation & Design Support
- Mobility Services & Business Design
- Electric Vehicle Concept & Design
- UCCON Rolling chassis Ecosystem

TEAMOBILITY GmbH

Graf-Zeppelin-Platz 1
71034 Böblingen
www.teamobility.de

Employees: 8 (2020)

Contact

Prof. Johann Tomforde
Phone: +49 7031 3069595
tomforde@teamobility.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development



"WE LIVE AUTOMATION Assembly and testing systems for e-mobility components"

team
technik
PRODUCTION TECHNOLOGY

teamtechnik is one of the international market leaders for production technology, assembly and function testing systems. Our motto: WE LIVE AUTOMATION. We are part of the Dürr Group and concentrate on the development and construction of customer-specific automation solutions for the e-mobility, new energy, and medical technology sectors. Our high level of expertise in the field of software and control technology is our hallmark.

We live and breathe sustainable e-mobility in our business model and concentrate on the components required for e-mobility. At teamtechnik, we develop systems for soldering solar cells. This is complemented by assembly and function testing systems for the mass production of batteries and e-drives for use in e-vehicles.

teamtechnik, headquartered in Freiberg am Neckar, Germany, was founded in 1976 and today has production sites in Germany, Poland, China and the USA. With over 1,000 employees worldwide, we generate a turnover of EUR 200 million.

teamtechnik Maschinen und
Anlagen GmbH

Planckstraße 40
71691 Freiberg
www.teamtechnik.com

Employees: 1,000 (2021)

Contact

Dipl.-Ing. Ralph Heckmann
Phone: +49 7141 70030
feedback@teamtechnik.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
electrical storage, inverter (electrical/ electrical), motor/generator, gearbox, fuel cell system (chemical/electrical)		



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Mastering sophisticated testing tasks intelligently with TEKON contacting solutions



Made in Germany – TEKON Prüftechnik is the German market leader when the requirements on the testing performance are high, for example in the automotive industry, in mechanical and plant engineering, in the manufacture of household appliances, in medical engineering, and in the electronics industry. We lead the industry in the area of high-quality contact systems for reliable and sensitive testing of electrical plugs and sockets. The experienced specialists at TEKON develop and manufacture sophisticated testing equipment for customer-specific applications. The contact solutions stand for our innovative strength, ensure high production quality, and permanently minimise the testing costs of our customers. TEKON realises projects with very high contact cycles for manual testing processes of small batch sizes, as well as for the fully automated testing of complex series products with high quantities.

TEKON Prüftechnik GmbH
Auf der Höhe 17
71394 Kernen
www.tekon-prueftechnik.de

Employees: 50 (2020)

Contact
Dipl. Ing. Jörg Riehle
Phone: +49 7151 36884-0
j.riehle@tekon-prueftechnik.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Electrical storage, inverter (electrical/electrical), motor/generator, gearbox		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		

SAFE. ENERGY. NETWORKS.



We stand for safe, efficient, and environmentally friendly transport of gas from Lower Saxony to Lake Constance and to neighbouring countries. With our approximately 2,700 km long pipeline network, we connect the region to the European energy infrastructure and supply energy around the clock. Your secure gas supply is our top priority.

Our gas transport pipelines and facilities are controlled and monitored via an extensive optic fibre network. Our customers also benefit from this extremely secure high-speed network with excellent broadband performance. Our products and services are focussed on you, the customer. We work on site for you, exactly where you need us. Our experience of 60 years speaks for itself.

terrannets bw GmbH
Am Wallgraben 135
70565 Stuttgart
www.terrannets-bw.de

Employees: 300 (2020)

Contact
Laura Runte
Phone: +49 172 7435 009
l.runte@terrannets-bw.de

Fields of competence

Components	System integration/system manufacturer	Service
		Energy



© Marianne von Schwerin



© Jörg Weigl, Unicorn Engineering GmbH

Research and transfer for future-oriented energy and mobility solutions



Sustainable energy systems at the Institute of Energy and Drive Technology (IEA): At the IEA, experts teach and research electrical and thermal energy systems as well as energy management issues. The institute can draw on the entire range of renewable and innovative energy technologies: from fuel cells, batteries and combined heat and power units to geothermal energy, photovoltaics, and solar thermal energy. In the context of electromobility, charging systems and their integration into the grid are being developed and the behaviours of conventional and new battery technologies are being investigated on various test stands.

Modern mobility at the Institute of Vehicle Systems (IFS): The IFS offers scientific application expertise for teaching, research, and transfer in the fields of vehicle technology and electronics, driver assistance systems, mobile hydraulics as well as fluid mechanics, dynamics, and acoustics. The core of our infrastructure is a roller test bench and a dynamic engine test bench. An electrical source-sink allows battery systems to be cyclically loaded and hybrid and electric drives without own battery systems can also be operated on the test benches.

Ulm University of Applied Sciences

Prittwitzstr. 10
89075 Ulm
www.thu.de

Employees: 365 (2019)

Contact

Prof. Dr.-Ing. Michael Schlick
Dr. Thomas Aigle
Phone: +49 731 50-28154
iaf@thu.de

Fields of competence

Components	System integration/system manufacturer	Service
		Software
		Testing
		Energy
		Development

Modular energy storage system with battery, fuel cell and hydrogen cartridge



Unicorn Engineering GmbH develops innovative energy storage systems and charging infrastructure elements for the fuel cell and electrotechnology market. This particularly applies to light electric mobility and stationary applications. The company's development spectrum includes mechanical, electrical, software and hardware development. Unicorn Engineering GmbH carries out the development work from the concept stage to the production of functional prototypes.

Previous developments include the products EnergyTube® and EnergyCube® as scalable universal batteries. Furthermore, the following products are in the development phase: H₂ Fuel Cell Tube (universal fuel cell system), H₂ StorageTube® (refillable hydrogen cartridge) and EnergyLock® (standardised DC connector for light electric mobility).

All developments are based on a smart and modular approach and a smart energy grid.

Unicorn Engineering GmbH

Universitaetspark 1/1
73525 Schwäbisch Gmünd
www.energytube.de

Employees: 11 (2020)

Contact

Dr.-Eng. (Uni. Tech. Malaysia)
Jörg Dieter Weigl
Phone: +49 7171 1857815
joerg.weigl@unicorn.engineering

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Energy
Fuel cell system (chemical/electrical), chemical storage, electrical storage		Development
Exterior		
Electrics/electronics		



© Hochschule Esslingen

We offer excellent teaching and outstanding application-oriented research

The Faculty of Mechanical Engineering at Esslingen University of Applied Sciences has a history of over 100 years. In 1914, the Königlich-Württembergische Maschinenbauschule (Royal Württemberg School of Mechanical Engineering) was relocated from Stuttgart to the neighbouring town of Esslingen. This was mainly due to the rapid industrial developments in Esslingen at the beginning of the 20th century. Today we can see comparable transformations, which also reflect in the change in the understanding of mechanical engineering.

Today, mechanical engineering is the key engineering discipline at the interface of mechanics, electronics, computer science and management. There are currently about 600 young people studying mechanical engineering in Esslingen. The good reputation that Esslingen's mechanical engineering graduates enjoy and that is documented in numerous nationwide rankings, is based on the broad education with a focus on the fundamentals and its high level of practical relevance. In addition, the faculty successfully cooperates with globally leading companies from the region. The broad range of elective subjects allows students to develop their personal profiles.

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Fuel cell system (chemical/electrical), thermal management	Stationary systems	Testing
Interior		Energy
Thermal management		Development

Hochschule Esslingen
University of Applied Sciences
Nah an Mensch und Technik.

University of Applied Sciences
Esslingen – Faculty of Mechanical
Engineering

Kanalstr. 33
73728 Esslingen am Neckar
www.hs-esslingen.de

Employees: 630

Contact

Prof. Dr.-Ing. Walter Czarnetzki
Phone: +49 711 3973257
walter.czarnetzki@hs-esslingen.de



© INEM

Application-oriented research for sustainable energy technology and mobility

The Institute for Sustainable Energy Technology and Mobility (INEM) was established in 2012 as a focal point for the research and teaching at Esslingen University of Applied Sciences. The INEM is committed to subject-based and cross-subject teaching, to intradisciplinary and interdisciplinary research as well as to the transfer with regard to the development of sustainable and efficient technologies in the key areas of energy technology and transport. Due to an ever-increasing striving for a sustainable future, climate-friendly mobility concepts and sustainable energy systems are experiencing a rise in popularity. We meet the resulting challenges with our research activities. We conduct basic research and work on real problems in the fields of sustainable mobility and energy systems.

Fields of competence

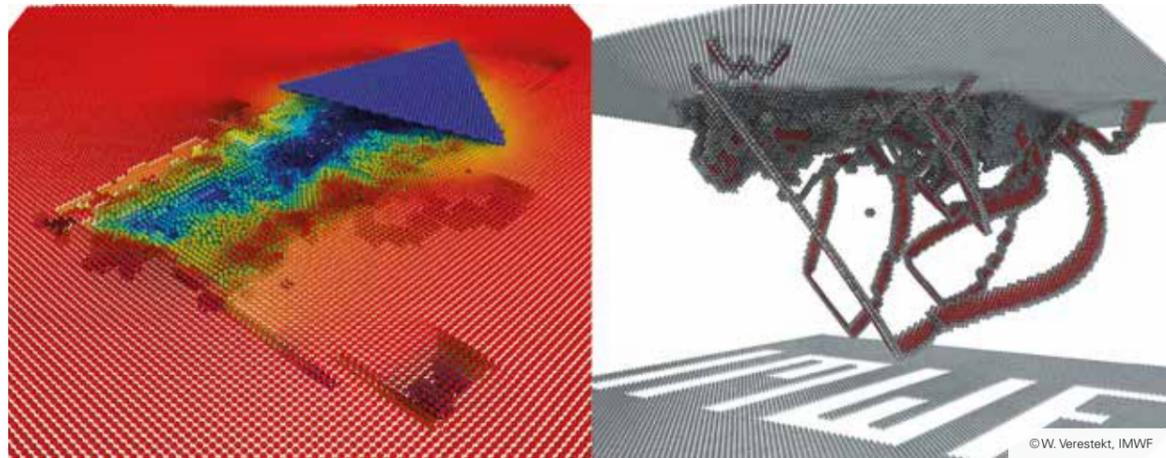
Components	System integration/system manufacturer	Service
		Testing
		Development



University of Applied Sciences
Esslingen – Institute for Sustainable
Energy Technology and Mobility
(INEM)
Neckarstraße 67
73728 Esslingen am Neckar
www.hs-esslingen.de/forschung/
forschungsarbeit/inem-institut-
fuer-nachhaltige-Energetechnik-
und-mobilitaet/
Employees: 20 professors,
19 employees

Contact

Prof. Dr. Ralf Wörner
Phone: +49 711 3974670
ralf.woerner@hs-esslingen.de



From electron to component – understanding materials on all scales



The main activities of the Institute for Materials Testing, Materials Science and Strength of Materials (IMWF) are research and development in the fields of microstructure mechanics, multi-scale modelling, materials and component testing as well as materials development and optimisation.

The computer simulations carried out at the IMWF cover all relevant length scales and focus on the damage behaviour of materials, samples and entire components. In particular, steels and light metals, fibre composites on metallic and polymer basis, metal-ceramic composites, hard metals and coatings are investigated experimentally and numerically. The focus of the investigations is on microstructure modelling and nanosimulation with regard to structure-characteristics correlations, and on the investigation of phenomena occurring on the lattice plane. In fields such as damage prevention, modern calculation methods, stress-based material selection and material-specific production methods, the IMWF cooperates closely with large, but also with small and medium-sized companies.

University of Stuttgart – Institute for Materials Testing, Materials Science and Strength of Materials (IMWF)

Pfaffenwaldring 32
70569 Stuttgart
www.imwf.uni-stuttgart.de

Employees: 30 (2021)

Contact

Prof. Siegfried Schmauder
Phone: +49 711 68562556
Siegfried.Schmauder@imwf.uni-stuttgart.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Testing
Fuel cell system (chemical/electrical)		Development



Electric driving – wireless charging



The Institute of Electrical Energy Conversion (iew) was founded in June 2011 at the Department of Electrical Engineering and Information Technology at the University of Stuttgart. The research work of the institute focuses on two main areas: electrical machines and contactless energy transfer.

Both areas are key to electromobility. The scientists at iew are researching the design of electric motors with very high torque densities and position-tolerant inductive charging systems. The aim is to develop highly efficient components for the electric vehicles of the future.

University of Stuttgart – Institute of Electrical Energy Conversion (iew)

Pfaffenwaldring 47
70569 Stuttgart
www.iew.uni-stuttgart.de

Employees: 20 (2020)

Contact

Dipl.-Ing. Marco Zimmer
Phone: +49 711 68568030
marco.zimmer@iew.uni-stuttgart.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Testing
Motor/generator, inverter (electrical/electrical)	Stationary systems	Development



© https://www.vaf-bopfingen.de/images/images/04_startseite_innovation.png

We move the future. Fuel cell production – efficient, sustainable, process-reliable



As a globally operating supplier of fully automated assembly lines and automation systems for renowned automotive manufacturers and their suppliers, VAF GmbH has made its extensive process and system know-how available to its customers in the fields of electromobility, battery, and fuel cell production since 2019. VAF develops and produces turnkey system solutions for innovative and agile plant concepts of the highest quality.

In the field of electromobility, the following applications have been successfully realised: Systems for rotor or stator assembly, electrode stacking, pouch production, battery production and the assembly of fuel cell stacks. For this, VAF works closely together with universities and research institutes.

As your innovative partner, VAF provides the production facilities that are crucial for series production and the assembly of battery cells and modules, and of hybrid and electric drives.

VAF GmbH

Bergstraße 13
73441 Bopfingen
www.vaf-bopfingen.de

Employees: 456

Contact

Matthias Fischer
Phone: +49 7362 9603894
matthias.fischer@vaf-bopfingen.de

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	
	Stationary systems	



© Vector Informatik GmbH

Developing electromobility like a nerd – with vector software and control units



Vector has been your competent partner for E/E developments on and off the road for more than 30 years. At 31 locations worldwide, over 3,000 employees support numerous manufacturers and suppliers in the automotive industry and the related sectors. This long-standing expertise also pays off in the field of electromobility. Vector employees are also actively involved in numerous standardisation committees, including the ISO 15118 standard and the OCPP protocol, to clear the way for electromobility to enter the mass market.

Vector's e-mobility solutions stand for fast and sustainable developments for electric and hybrid vehicles and charging stations, and for an efficient operation of the charging infrastructure. Vector offers developers comprehensive testing and measurement systems, universal charging controllers and customised software for charging controllers in vehicles or charging stations. In addition, Vector enables the efficient charging of vehicles and the monitoring of the charging process with charging and load management software.

Vector Informatik GmbH

Ingersheimer Straße 24
70499 Stuttgart
www.vector.com

Employees: 3,000 (2021)

Contact

Peter Guse
Phone: +49 711 80670-3983
Peter.Guse@vector.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		Software
Vehicle electrical system		Testing
Interior		Development
Electrics/electronics		



© vialytics GmbH

Artificial intelligence for better roads

Artificial intelligence for long-term road maintenance.

vialytics offers intelligent, systematic, and cost-efficient means for recording road conditions based on AI and thus plays a decisive role in the improvement and maintenance of the road infrastructure. At the heart of the data collection is a specially developed smartphone app.

The target group is municipalities, in particular their civil engineering offices. In contrast to other road monitoring procedures that collect data at five-year intervals, vialytics collects the road status data several times a year and can so, for the first time, show realistic road condition change histories.

The automatic evaluation of our data provides local authorities with objective data bases which can then be used to take action based on the current conditions of their roads. Because only through an early detection of damage can a sustainable and cost-efficient maintenance management be introduced.



vialytics GmbH

Silberburgstr. 187
70178 Stuttgart
www.vialytics.de

Employees: 19

Contact

Jonas Hock
Phone: +49 711 25295190
j.hock@vialytics.de

Fields of competence

Components	System integration/system manufacturer	Service
Interior	Automobile	Software
Equipment, electrics/electronics		Testing
		Development



© WAFIOS

WAFIOS electrifies

Groundbreaking manufacturing concepts for the production of current-carrying components in electrified drivetrains move us. Our focus is on the development of forming machines for insulated copper wire or copper profiles, or other automation solutions.

Specialising in the field of hairpin and busbar production, WAFIOS relies on flexible bending processes. This keeps the running costs of production low, e.g. in the area of tools, allows the flexible and highly accurate production of different geometries, and the fast reaction to material influences. Our experts are at your side from prototyping to SOP. For over 125 years, we have been reliable partners to our customers - with pioneering ideas and leading machine concepts. Our comprehensive range of services in the areas of automation, system integration, prototyping and tool development supports you throughout the entire production process.



WAFIOS AG

Silberburgstraße 5
72764 Reutlingen
www.wafios.com

Employees: 1,000 (2020)

Contact

Martin Bauer
Phone: +49 7121 146 219
ma.bauer@wafios.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Development
Electrical storage, motor/generator, thermal management		
Exterior		
Electrics/electronics		



© Weil Technology GmbH

Machines and systems with innovative laser, clamping and automation technologies



Our manufacturing solutions are used where change takes place and the products of tomorrow are created. For more than 30 years, we have been creating machines and modular systems that are characterised by combinations of innovative laser, clamping and automation technologies and that enable versatile production steps in the forming, cutting, and joining processes. We supply not only stand-alone machines, but also turnkey systems with stable production processes. In other words: machines and processes from a single source. Do you work in the field of fuel cells or e-fuel technology? Benefit from our knowledge in the areas of laser joining and cutting, for example to produce bipolar plates in series or for prototypes. We can manufacture the bipolar plates for you in our TechCenter. This process involves the technology used for our series module. Best conditions for the validation of your series processes.

Your advantages:

- Contour laser cutting of individual plates
- Laser welding of bipolar plates
- Leak testing through our technology partner
- Construction and production of clamping devices

Weil Technology GmbH

Neuenburgerstr. 23
79379 Müllheim
www.weil-technology.com

Employees: 240 (2020)

Contact

Florian Weil
Phone: +49 7631 18090
info@weil-technology.com

Fields of competence

Components	System integration/system manufacturer	Service
	Automobile	Development
	Stationary systems	



Thermodynamics and CFD Simulation for Pioneers.



Wenger Engineering GmbH is a leading development partner in hydrogen technology hydrogen



Wenger Engineering GmbH is a leading development partner in hydrogen technology. Since its foundation in 2007, Wenger Engineering has implemented around 500 projects in the fields of electromobility, renewable energy, and resource efficiency, of which around 250 involved hydrogen. Customers include corporations such as Daimler, Linde, Bosch, Toyota, Honda, and Shell, but also medium-sized global market leaders, or start-ups in the Silicon Valley. Wenger Engineering has been primarily known as a manufacturer-neutral engineering firm and consultant in the areas of hydrogen infrastructure, power-to-gas and H₂ ecosystems. Current projects include the planning of hydrogen fuelling stations for commercial vehicles and trains, off-grid power-to-gas projects in Australia, component development for H₂ tanks and the development of standards in the field of hydrogen fuelling.

For more information, please visit www.wenger-engineering.de.

Our sister company Mission Hydrogen GmbH is the organiser of the world's largest hydrogen conference, the Hydrogen Online Conference, that took place on 08/10/2020: www.hydrogen-online-conference.com

Wenger Engineering GmbH

Einsteinstraße 55
89077 Ulm
www.wenger-engineering.de

Employees: >20

Contact

Dr. David Wenger
Phone: +49 731 7906050
david.wenger@wenger-engineering.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Development
Fuel cell system (chemical/electrical), thermal management, motor/generator, inverter (electrical/electrical), electrical storage, chemical storage	Stationary systems	Energy
Interior		
Thermal management		



We charge industrial e-vehicles with inductive charging systems – safely and without contact!



Wiferion is the leading solution provider for mobile, wireless energy supply for industrial e-vehicles. The start-up was founded in 2016 by four former employees of the Fraunhofer Institute for Solar Energy Systems and it is one of the technology drivers in the field of wireless charging. Wiferion has set itself the goal of advancing the electrification of the global economy and creating the conditions for a resource-conserving and sustainable energy supply.

From inductive charging technology to lithium-ion batteries and energy management solutions, Wiferion offers its customers the entire spectrum of efficient energy supply for industrial trucks and automated guided vehicle systems. This also includes retrofit projects to optimise existing fleets. The system provider of charging and storage technology has well-known customers from the logistics, industrial and automotive sectors as references. These include leading providers of automation solutions such as the robotics companies KUKA and Magazino. In 2020, Wiferion received the LogiMAT Award "Best Product" and was named "Start-up of the Year" at the IFOY Awards.

Wiferion GmbH

Munzinger Straße 1
79111 Freiburg
www.wiferion.com

Employees: 40 (2020)

Contact

Julian Seume
Phone: +49 7611 542670
julian.seume@wiferion.com

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Stationary systems	Energy
Chemical storage, electrical storage		



Innovative high-end drive solutions for on- and off-highway powertrain electrification



Since 2006, WITTENSTEIN has been setting standards in power density, efficiency and intelligence in the field of powertrains for electric and hybrid vehicles. Our unique engineering solutions and series products are used in particular when challenging installation space situations have to be overcome and smaller series quantities are planned.

Applications include P1/P2 integrated starter generators for hybrid buses and trucks, and electrically assisted turbochargers for super sports vehicles. When more than the industry standard is required, electric motors, converters and gearboxes from WITTENSTEIN are used. That's why our products are 100% tailored to your application and achieve maximum efficiency in the smallest installation space.

WITTENSTEIN is the global partner for application-specific product design in the range of several hundred to 10,000 vehicles per year. With our e-mobility technologies, we set new industry standards, ensuring the success of our customers today and in the future.

WITTENSTEIN

Walter-Wittenstein-Straße 1
97999 Igersheim
www.wittenstein.de

Employees: 2,900 (2019)

Contact

Marvin Denninger
Phone: +49 7931 49318388
marvin.denninger@wittenstein.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Gearbox, motor/generator, inverter (electrical/electrical)		



© Wölfle GmbH

Specialist for thermal management, e-heating and e-climate systems, energy and climate models



Wölfle is a system supplier (Tier 1) in the field of vehicle and component air conditioning for various large vehicle manufacturers. Especially with our major customers Linde, Still and Jungheinrich, we have been active in the field of e-mobility for decades. This competence is complemented by the unique combination of heating/air-conditioning manufacturer, electronics and control unit manufacturer, and our own software programming. Wölfle e-mobility solutions in figures:

- 40 years of experience with heating and air-conditioning systems for vehicles
- 20 years as a system supplier for a wide range of electric vehicles
- 15 years since the first electric air conditioning system for commercial vehicles
- 8 years since the first battery cooling system for commercial vehicles
- 3 years HV/AC development partner of the BMW Group for electric vehicles
- >100,000 electric heaters, air conditioners and cooling systems in the field
- 234 is our quality score in ppm for electrical systems
- >68 different concept studies, projects, prototypes and series products
- Sole supplier for model-based HV/AC control systems in the commercial vehicle sector

References: BMW, Fendt, VDL, Ford, eGo, Linde, Still, Jungheinrich, Liebherr, Alstom, Siemens.

Wölfle GmbH

Biberacher Str. 63
88416 Ochsenhausen
www.woelfle-gmbh.de

Employees: 600 (2020)

Contact

Peter Geigle
Phone: +49 7352 929120
peter.geigle@woelfle-gmbh.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Thermal management, vehicle electrical system		Development
Interior		
Thermal management, electrics/electronics		
Exterior		
Electrics/electronics		



© WS Reformer GmbH

X-to-Hydrogen



Decentralised H₂ generation for buses and trucks

WS Reformer (WSR) is an SME that is established worldwide as a specialist for reformer solutions. It serves the markets for fuel cells in the power classes 1, 3, 5 and 10 kW. Reformers in the 100 to 400 Nm³/h performance classes are designed for on-site hydrogen plants and have been operated at various industrial locations for years. Furthermore, WSR has built up considerable expertise in the field of system integration for all types of fuel cells. In the short to medium term, WSR is expanding its spectrum to include gas conversion process technology for various green input materials. These include "green methanol", ammonia, DME and especially biogas. Together with its sister companies e-flox (www.e-flox.de) and btx-energy (www.btx-energy.de) in the WS group (www.flox.com), the company offers solutions for the production of green hydrogen from biogas.

WS Reformer GmbH

Dornierstraße 14
71264 Renningen
www.wsreformer.com

Employees: 30 (2020)

Contact

Dr.-Ing. Hans-Peter Schmid
Phone: +49 7159 1632-42
hp.schmid@wsreformer.com

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	



© Würth Elektronik eiSos GmbH & Co. KG

Formula E-proven components – Würth Electronics is a partner for e-mobility developers



The Würth Elektronik eiSos Group is one of the largest European manufacturers of passive components. Its range includes, for example, EMC components, inductors, transformers, capacitors, resistors, sensors, connectors and power supply elements, as well as its own range of products qualified for automotive applications. The manufacturer not only supplies electronic and electromechanical components, but also sees itself as a technology enabler for future-oriented electronics solutions. Through technology partnerships in Formula E and Formula Student as well as support for start-ups, Würth Elektronik has demonstrated its commitment to e-mobility and offers itself as a partner for developers. The availability of all catalogue components with no minimum order quantity, free samples, and extensive support from technical sales staff characterise the company's unique service orientation. Würth Elektronik is part of the Würth Group. The company employs 7,300 people and generated sales of EUR 823 million in 2020.

Würth Elektronik eiSos
GmbH & Co. KG

Max-Eyth-Str 1
74638 Waldenburg
www.we-online.de

Employees: 7,300 (2020)

Contact

Sven Lerche
Phone: +49 7942 9454486
sven.lerche@we-online.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Electrical storage, vehicle electrical system, inverter (electrical/electrical), motor/generator, fuel cell system (chemical/electrical)		
Interior		
Electrics/electronics		
Exterior		
Electrics/electronics		



© Würth Industrie Service GmbH & Co. KG

Würth Industry Service – Solutions for the automotive supplier industry



Würth Industrie Service GmbH & Co. KG is a company within the Würth Group and specialises in supplying the manufacturing industry in the field of automated C-parts management.

Under the brand name "CPS® – C-Product Service", Würth Industrie Service offers individually tailored, logistical procurement and service modules such as scanner-supported shelving systems, electronic ordering systems, fully automated Kanban systems and innovative technologies such as RFID and iBin®. Customers are supplied directly to the production line.

A specialised range of more than 1,100,000 articles forms the basis for professional industrial C-part processing: In addition to DIN and standard parts as well as connecting and fastening elements, the product range also includes customer-specific special and drawing parts as well as auxiliary and operating materials and much more.

Würth Industrie Service
GmbH & Co. KG

Drillberg
97980 Bad Mergentheim
www.wuerth-industrie.com

Employees: 1,680

Contact

Hans-Hermann Seez
Phone: +49 7931 912344
hans-hermann.seez@
wuerth-industrie.com

Fields of competence

Components	System integration/system manufacturer	Service
Interior		Software
Exterior		



We innovate and develop software and electronics with pioneering spirit, agility, competence

XTRONIC

We provide Mind Moving Engineering:

Development of automotive control systems for the trend topics of connectivity and new mobility.

Our service portfolio covers topics such as infotainment, automated driving and connectivity, but also virtual and augmented reality, comfort electronics, electromobility and functional safety, as well as methods, tools and test systems.

XTRONIC GmbH

Herrenberger Straße 56
71034 Böblingen
www.xtronic.de

Employees: 170 (2020)

Contact

Dr. Oliver Treichel
Phone: +49 152 09050759
oliver.treichel@xtronic.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	Software
Vehicle electrical system		Testing
Interior		Development
Electrics/electronics		



When regional wind power becomes green hydrogen



ZEAG Energy AG has stood for pioneering spirit and progressive thinking for more than 130 years. We were the first company in the world to transport three-phase current over a long distance. With our knowledge and experience with energy flows and complex infrastructures, we continue to break new ground today and network the various sectors in innovative overall systems.

With our H₂ORIZON project, we show what sector coupling can look like in practice: Here, renewable energy, hydrogen and storage applications, space travel, heat generation and mobility are coupled. Green electricity from our wind farm is used to produce green, high-purity hydrogen by means of PEM electrolysis, which is used directly on site by the German Aerospace Centre (DLR). The hydrogen has fuel cell quality and is thus also available for mobility applications. As a storage medium for large volumes of energy, and as an admixture in the gas supply network, ZEAG hydrogen can also make an important contribution to sustainable energy solutions.

ZEAG Energy AG

Weipertstraße 41
74076 Heilbronn
www.zeag-Energy.de
www.h2orizon.de

Employees: 280 (2020)

Contact

Franz Schütz
Phone: +49 7131 610 1204
Sabine.hemker@zeag-Energy.de

Fields of competence

Components	System integration/system manufacturer	Service
	Stationary systems	Energy
		Development



© Zeller+Gmelin GmbH & Co. KG

Innovative solutions for e-mobility and the future of mobility



Zeller+Gmelin is a medium-sized, international manufacturer of lubricants, printing inks and chemicals. Founded in 1866 with headquarters in Eisingen/Fils, the company is still family-owned. With 16 subsidiaries and many partners, we are well connected worldwide and supply our high-quality products to more than 80 countries. We have understood and provided solutions for more than 150 years and will continue to do so in the future. This is how we create a tangible benefit for our customers. Because we understand the customer and develop solutions which are reliable, flexible and tailor-made. The electrification of the drivetrain and the drive system is gaining momentum. Our long-standing expertise in the automotive industry is a key success factor in the development of intelligent lubricant solutions – made in Germany – for future mobility applications. Efficient and sustainable e-mobility solutions rely on new lubricant solutions. Our large R&D laboratory and test field capacities enable us to develop and test the right solutions for new challenges together with our customers – quickly and flexibly.

Zeller+Gmelin GmbH & Co. KG

Schlossstrasse 20
73054 Eisingen/Fils
www.zeller-gmelin.de

Employees: 900 (2021)

Contact

Christian Stapper
Phone: +49 7161 802 514
c.stapper@zeller-gmelin.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain		
Thermal management, fuel cell system (chemical/electrical)		
Interior		
Thermal management		
Exterior		
Chassis, vehicle body		



© ZELTWANGER

System solutions for leak testing and automation of assembly and laser processes



Complex assembly and manufacturing processes such as laser welding must go hand in hand with seamless and continuously documented leak and function testing. To optimally combine both worlds – that of manufacturing and that of testing – broad process and automation knowledge is required. ZELTWANGER is your specialist for both automation and leak testing.

For hairpin stator production, we have further optimised our own laser welding process platform (X-CELL) in order to be able to support our partners in development and production in the best possible way with our specially developed clamping device. We are supported by the in-house laser application lab, where we can carry out process developments including weld seam analyses. For the fuel cell sector, we offer our expertise in automated assembly (automated stacking) as well as leak and function testing, both at component level and at stack level. In the field of battery system assembly, we are the specialists when it comes to automated leak testing or the automation of assembly and laser processes.

ZELTWANGER

Jopestraße 3
72072 Tübingen
www.zeltwanger.de

Employees: 420 (2019)

Contact

Patrick Reich
Telefon: +49 7072 92897 526
P.Reich@zeltwanger.de

Fields of competence

Components	System integration/system manufacturer	Service
		Testing
		Development



ZIEHL-ABEGG AUTOMOTIVE offers complete axle drive modules for electric commercial vehicles



People all over the world come into contact with ZIEHL-ABEGG products every day. Lifts are operated with ZIEHL-ABEGG motors, underground trains are ventilated with ZIEHL-ABEGG fans and electric city buses run with axle drive modules from ZIEHL-ABEGG. Innovative air technology, drive technology and control technology from ZIEHL-ABEGG can be found in industrial plants, in wind and other power plants, in large buildings such as the Allianz Arena, in hospitals, in trains and many other applications. ZIEHL-ABEGG is certified according to DIN 9001. The family-owned company is the world's largest supplier of motors and electronics for medium-sized lift manufacturers and is also the technology leader for large industrial fans.

At the 16 production sites, 28 companies and more than 100 sales locations, the company currently employs more than 4,300 people worldwide. At the end of 2011, ZIEHL-ABEGG founded the company ZIEHL-ABEGG AUTOMOTIVE based in Kupferzell in order to focus its core competences in the fields of wheel hub drives, axle drives and generators and to offer forward-looking solutions to the commercial vehicle industry.

Ziehl-ABEGG AUTOMOTIVE
GmbH & Co. KG

Günther Ziehl-Straße 1
74635 Kupferzell
www.ziehl-abegg.com

Employees: 4,300 (2020)

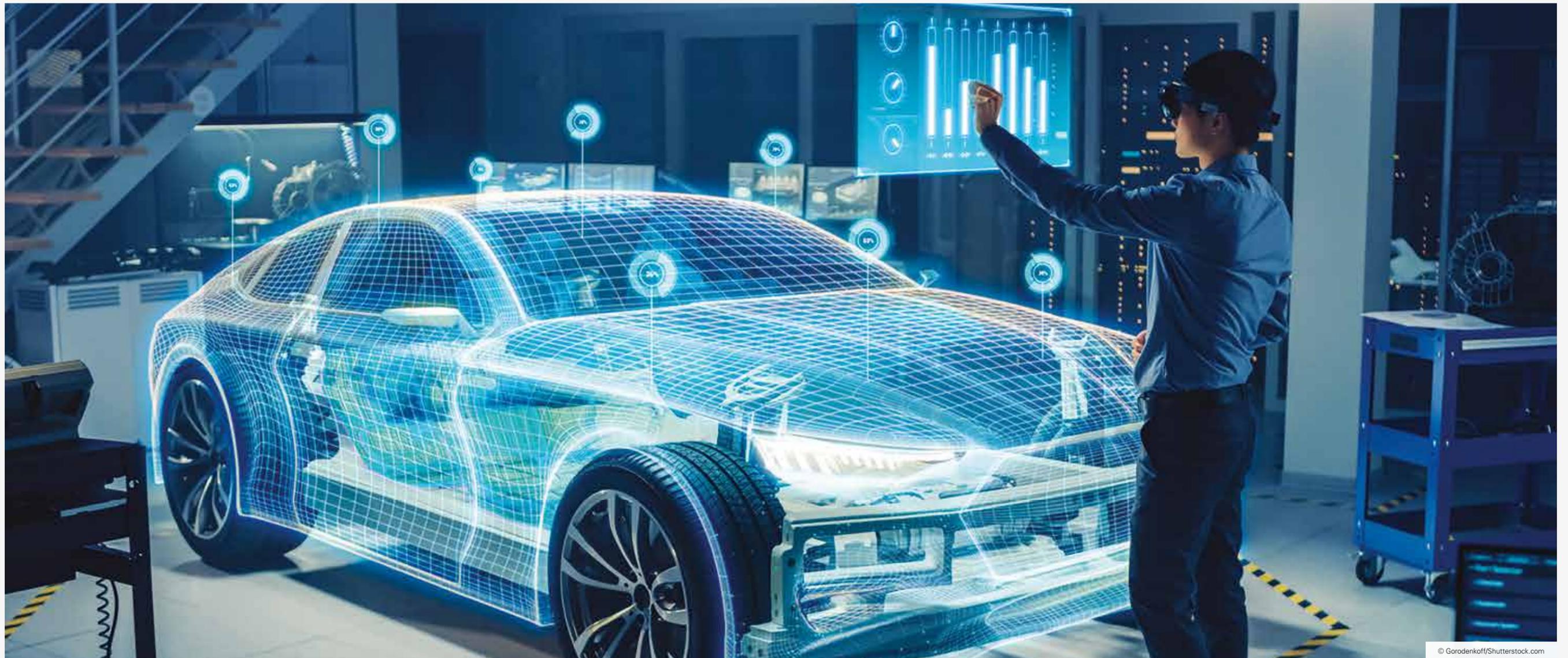
Contact

Oliver Vahsen
Phone: +49 940 16-95040
oliver.vahsen@ziehl-abegg.de

Fields of competence

Components	System integration/system manufacturer	Service
Drivetrain	Automobile	
Motor/generator, inverter (electrical/electrical)		

**Additional partners of Cluster Electric Mobility
South-West and Cluster Fuel Cell BW**



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ARENA INNOVATION

Agency for the implementation of the Federal Experimentation Act. Establishment of real laboratories as test rooms for innovations and regulations based on data-driven AI applications in the field of modern mobility and Industry 4.0. Transfer and scaling of successfully tested innovations into regular operation (www.arena-innovation.com).



Baden-Württemberg International

Baden-Württemberg International (bw-i) is the competence centre of the State of Baden-Württemberg for the internationalisation of business and science. bw-i supports domestic and foreign companies and clusters, research institutions and universities, as well as regions and municipalities in all matters relating to internationalisation issues.



Automotive BW

Automotive BW is the state-wide automotive cluster that connects different players in the industry in Baden-Württemberg such as vehicle manufacturers, automotive suppliers, service providers, university institutes, automotive research facilities and associations. The goal of Automotive BW is to promote new models of cooperation and to stimulate targeted development cooperation and to support suppliers in the transformation.



Bildungswerk

The Bildungswerk der Baden-Württembergischen Wirtschaft e.V. has been supporting has been supporting companies for 50 years with practical training concepts and is a reliable partner in education, counselling, and service. With a view to topics such as change, innovation, and crisis management, we act as a transformation guide for our customers.



Automotive Engineering Network e. V.

Automotive Engineering Network e.V. (AEN) acts as a mediator, coordinator and initiator in the interaction between companies, universities, administration and politics in the Karlsruhe region. AEN brings together member and partner companies with relevant fields of activity – for intelligent mobility and engineering.



BOCK Handelsvertretung GmbH – im Auftrag für PLAGAZI

PLAGAZI is the holder of a patent for the CO₂-neutral production of pure hydrogen. In this process, up to 40,000t of waste are broken down annually into their basic components – among the harmless end products is hydrogen in the amount of 6,000t/year). The production costs are only 25% compared to the conventional electrolysis process.



Automotive Solutions Center for Simulation e. V.

asc(s) e.V. is a non-profit association for know-how carriers in the field of automotive simulation. As a research association, interest group and multiplier, it offers its members from science and industry the opportunity to promote new simulation methods for virtual vehicle development quickly and efficiently.



Deutscher Wasserstoff- und Brennstoffzellenverband

The German Hydrogen and Fuel Cell Association is the umbrella organisation for H₂ and FC technology in Germany. It coordinates interested individuals and companies, informs experts, public and political decision-makers, and is the "lobby" for H₂ technology in Germany. It works closely with partner organisations in other countries.



Edgar Lederer Consulting

As an independent expert for production technology, I support you in defining and selecting production technologies for fuel cells and in the project planning of production lines in various automation stages. The production-oriented design of components rounds off my services. More at www.elederer.com or by e-mail to e.lederer@elederer.com.



Fachverband Elektro- und Informationstechnik Baden-Württemberg

The Electrical Engineering and Information Technology Association of Baden-Württemberg is the umbrella organisation of the electrical and information technology guilds and, as an employer and trade association, it represents the interests of around 7,500 companies. Among other things, it promotes the standard-compliant installation and safe operation of charging infrastructures for e-mobility.



IG Metall

IG Metall Baden-Württemberg is a determined trade union. „Jobs – secure and fair conditions“: Under this motto, we do not only negotiate collective agreements that regulate income and working hours. We also care about good work and are committed to a fair transformation of the automotive industry. We develop ideas for the working world of tomorrow.



IHK Karlsruhe

The Karlsruhe Chamber of Industry and Commerce (IHK) promotes the business community in its district with a broad range of advisory services and bundles their interests among others on topics of technology, energy, and industry. It acts as the lead organisation for the 12 IHKs in Baden-Württemberg in the fields of industry/energy and technology. More at www.karlsruhe.ihk.de.



JU-KNOW GmbH

Our network of experts shapes the transformation of mobility, develops strategies for social acceptance of the transportation transition, provides impetus at congresses/events, accompanies transformation projects in companies and municipalities, and supports the market launch of innovations, links industry partners with start-ups and both with mobility decision-makers in municipalities and companies. More at www.ju-know.com.



K11 Consulting GmbH

K11 Consulting is a full-service provider in the field of data protection which aims to efficiently implement the General Data Protection Regulation (GDPR). We are always process-oriented and based on a management system. We have founded CertNex GmbH with the aim of establishing a Europe-wide certification of eMobility procedures on this basis.



Marsilli

As a leading supplier of customised manufacturing systems to produce electric motors and coils, Marsilli has been convincing customers with highly innovative winding solutions and all related process steps for more than 80 years. In addition, Marsilli offers support in the industrialisation and implementation of complete factory automation.



Merck KGaA

Merck is a leading science and technology enterprise. Complementing traditional R&D, the Merck Innovation Center develops completely new businesses and technologies beyond the current spectrum, such as special manufacturing and coating processes for a high-performance CCM. Interested? innovationcenter@merckgroup.com.



microTEC Südwest e. V.

The leading-edge cluster microTEC Südwest is the network of excellence and cooperation for intelligent microsystems technology solutions for Europe and is the point of contact for microsystems technology in Baden-Württemberg. As a link between science, industry, and politics, microTEC Südwest supports its members in funding projects and finding associated partnerships.



Technische Akademie für berufliche Bildung Schwäbisch Gmünd e.V. (TA)

The TA was founded over 30 years ago as a non-profit association. Since then, it has organised continued and advanced training courses, especially in the industrial- technical field. It has also initiated projects and specialist events of all kinds to provide the economy with a practical vocational training offer and to promote technology transfer. In addition, the association offers demand-oriented retraining and qualification measures.



Messe Stuttgart

With around 60 trade fairs and over 100 congresses and events, Messe Stuttgart is one of the leading German trade fair companies. In the centre of the vibrant region of Stuttgart, with f-cell it is host to one of the most important international trade events for the hydrogen and fuel cell industry, and i-Mobility, the TESTIVENT for intelligent mobility. www.messe-stuttgart.de



Wirtschaftsförderung Raum Heilbronn GmbH (WFG)

As a municipal business development agency, the WFG provides competent advice, support, and mediation in all matters relating to the Heilbronn economic region. Other tasks include active industry management in the automotive, metal, plastics and hydrogen sectors, assistance with the acquisition of funding and technology transfer.



Metropolregion Rhein-Neckar GmbH

The Metropolregion Rhein-Neckar GmbH, with the department Future Fields and Innovation, is responsible for the topics of energy efficiency in existing buildings, environmentally friendly mobility, smart city/region, and hydrogen model region in the metropolitan region. As a non-profit legal entity, the GmbH can act independently and act as a neutral driver of regional development.



Wirtschaftsförderung Region Stuttgart GmbH

Whether it be the f-cell convention, the project Stuttgart Hydrogen Region or the model project region for electric mobility: when it comes to sustainable mobility and new technologies, the Stuttgart Region Economic Development Corporation is always at the forefront. This is no coincidence: more than 200,000 people are employed in the mobility cluster in the region.



Pionix GmbH

PIONIX is developing an open-source software for e-charging stations & energy management called "EVerest" and offers reference hardware optimised for it. As an open-source ecosystem, we want everyone to benefit from EVerest: producers & operators of commercial charging systems, automotive industry, utilities as well as private wallbox users.

International partners of the Cluster Electric Mobility South-West



ACCIÓ

The Catalan government agency ACCIÓ is responsible for promoting the competitiveness of companies in the region. It is subordinate to the Ministry of Economy and Science. With a worldwide network of 40 field offices, it supports companies in strengthening their innovative strengths and in internationalisation.



Automotive Cluster Oulu

The Automotive Cluster Oulu brings together more than 130 companies and research institutions in Finland. They offer solutions for wireless connectivity and instant data transfer, data security, lighting solutions, machine vision, lightweight and durable solutions enabled by printed electronics, and many other technologies such as the co-development of 6G led by the University of Oulu.



BOM Foreign Investments & International Trade

BOM Foreign Investments & International Trade is based in Tilburg, the Netherlands, and is part of the Brabant Development Agency (BOM) with 100 highly specialised and motivated employees. When setting up, expanding, or relocating your business activities, the essentials need to be quickly and carefully dealt with at the same time. BOM Foreign Investments & International Trade accompanies you as a partner through all stages of your project and offers you a wealth of services and support options that save you time and money.



Business Region Göteborg

Business Region Gothenburg is the economic development department of the City of Gothenburg and represents twelve municipalities. We support the establishment or development of your business with our know-how and the necessary contacts. Our core competences include transport, e-mobility, ITC, energy, and life sciences. We are the initiators of the visitor programmes "Testbed Gothenburg" and "Green Gothenburg". We were awarded the "European Entrepreneurial Region 2020" prize for the best economic policy programme in Europe.



CARA

CARA, European Cluster for Mobility Solutions, is a French cluster based in Auvergne-Rhône-Alpes with 250 members: Manufacturers, transport operators, universities, research and education centres. CARA represents the PFA, Auto-motive Industry and Mobility Solutions. The cluster supports the transformation of passenger and freight transport systems in six sectors: industrial vehicles, automobiles, cableways, inland waterways, active mobility, railways.



CUTRIC

CUTRIC spearheads, designs and initiates technology and commercialisation projects to further develop next-generation transport technologies and mobility solutions. The cluster initiative develops simulation tools that enable transit operators in North America to forecast the operation and maintenance of their electric or hydrogen fuel cell buses and autonomous intelligent vehicles.



Flanders Make

Flanders Make is the strategic research centre for the manufacturing industry. We stimulate open innovation through excellent research. "Green and smart mobility" is one of our main research topics. We also offer an extensive testing and validation infrastructure for your products or production.



FORTH

Forth is a non-profit trade association for the promotion of intelligent solutions for the more efficient and ecological transport of people and goods. Forth focuses on highlighting new mobility offers, accelerating market acceptance, strengthening the industry network and supporting transport policy.



Innovation Norway

Innovation Norway is the Norwegian government's main national and international trade and business representative. The organisation supports Norwegian companies and start-ups in entering new markets and promotes the development of a sustainable and future-oriented economy. In addition, the organisation offers an extensive network to help foreign companies establish and run their businesses in Norway. The [Explorer](#) presents green and sustainable solutions from Norway and brings them together with international companies.



Lombardy Mobility Cluster

The Lombardy Mobility Cluster promotes and supports the competitiveness of the mobility industry in Lombardy through pre-competitive research and innovation (with appropriate specialisation in smart technologies) and by identifying the most promising global companies (scenarios, trends, business opportunities). It is certified with the ESCA Silver Label and is part of MOVE ESCP.



NextMove

NextMove (Mov'eo) is a non-profit competitive cluster dedicated to the automotive and mobility industry since March 2006. NextMove drives innovation in these sectors and promotes the funding of R&I projects and collaboration between its more than 600 members. In doing so, it contributes to the development of companies in Normandy and Greater Paris, where 70 % of French automotive R&D takes place, and strengthens the international competitiveness of French companies on the continent and overseas. Our goal: to build the "Mobility Valley", a European and international reference for innovative and responsible mobility of the future.



Smarter Mobility

Smarter Mobility is a private network organisation that provides smarter acceleration and business opportunities in the field of mobility. The organisation is based in the southern Swedish province of Skåne at IDEON Science Park, which is operated by Castellum AB in Lund. The approximately 50 members in Skåne are Tier X companies from the automotive and mobility industry and supply OEM customers throughout Europe. Smarter Mobility supports entrepreneurs and companies with active and tailored management support, financial, technical, and commercial networks, test arenas both in Skåne and in virtual reality, and a creative growth environment with associated business office services.

Competence Field Index

Components
Drivetrain: chemical storage
ads-tec Energy GmbH
Alzner Automotive GmbH
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
Centre for Solar Energy and Hydrogen Research Baden-Wuerttemberg (ZSW)
Coperion GmbH
DODUCO Solutions GmbH
EDAG Engineering GmbH
EringKlinger AG
Festo SE & Co. KG
Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)
Fraunhofer Institute for Solar Energy Systems (ISE)
Furtwangen University – Innovation and Research Centre Tuttlingen
FutureE GmbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Konzelmann GmbH
Lippok & Wolf Prüfautomation
LR Pure Systems GmbH
MAHLE Group
Mehrer Compression GmbH
Mesa Parts GmbH
MicroNova AG
Mission Hydrogen GmbH
Offenburg University – Institute of Energy Systems Technology
polatek SL-Laminiertechnik GmbH
PROMESS Montage- und Prüfsysteme GmbH
QuinTech
Robert Bosch GmbH
Scherzinger Pumpen GmbH
Stäubli Tec-Systems GmbH Connectors
Unicorn Engineering GmbH
Wenger Engineering GmbH
Wiferion GmbH

Components
Drivetrain: inverter (electrical/electrical)
Aalen University – Institute for drive technology (IAA)
ads-tec Energy GmbH
Alzner Automotive GmbH
Antech Polymertechnik GmbH
ARADEX AG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BorgWarner
BRUSA Elektronik AG
Dana/Victor Reinz
Dr.-Ing. S. Haußmann Industrieelektronik
Évolution Synergétique
Festo SE & Co. KG
Fraunhofer Institute for Solar Energy Systems (ISE)
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Handtmann Systemtechnik GmbH & Co. KG
Huber Automotive AG
Hugo Kern und Liebers GmbH & Co. KG
Interplex
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Krempel GmbH
Liebherr-Components-Biberach GmbH
Lippok & Wolf Prüfautomation
MAHLE Group
Marquardt GmbH
MicroNova AG
Offenburg University – Institute of Energy Systems Technology
Precitec GmbH & Co. KG
REFU Drive GmbH
Rheinmetall Automotive AG
Robert Bosch GmbH
Schaeffler Group
SCHÄFER Elektronik GmbH
Scherzinger Pumpen GmbH
SCHEUERMANN + HEILIG GmbH
Schnaithmann Maschinenbau GmbH
SciMo- Elektrische Hochleistungsantriebe GmbH
StandexMeder Electronics GmbH

Stäubli Tec-Systems GmbH Connectors
stoba e-Systems GmbH
Tamagawa Europe GmbH
teamtechnik Maschinen und Anlagen GmbH
TEKON Prüftechnik GmbH
Ulm University – Institute of Measurement, Control and Microtechnology
University of Stuttgart – Institute of Electrical Energy Conversion (iew)
Wenger Engineering GmbH
WITTENSTEIN
Würth Elektronik eiSos GmbH & Co. KG
ZIEHL-ABEGG AUTOMOTIVE GmbH & Co. KG

Components
Drivetrain: Electrical storage
Aalen University – Institute for drive technology (IAA)
ads-tec Energy GmbH
AKKA
Antech Polymertechnik GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
Boysen Gruppe
Centre for Solar Energy and Hydrogen Research Baden-Wuerttemberg (ZSW)
Coperion GmbH
Daimler AG
Dana/Victor Reinz
DODUCO Solutions GmbH
EDAG Engineering GmbH
EringKlinger AG
Évolution Synergétique
Festo SE & Co. KG
Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)
Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)
Fraunhofer Institute for Solar Energy Systems (ISE)
Furtwangen University – Innovation and Research Centre Tuttlingen
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Handtmann Systemtechnik GmbH & Co. KG
Huber Automotive AG
Hugo Benzinger GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
König Metall Group – GVI®
Konzelmann GmbH

Liebherr-Components-Biberach GmbH
Lippok & Wolf Prüfautomation
MAHLE Group
MANN+HUMMEL GmbH
MicroNova AG
polatek SL-Laminiertechnik GmbH
Precitec GmbH & Co. KG
PROMESS Montage- und Prüfsysteme GmbH
Rheinmetall Automotive AG
Robert Bosch GmbH
Scherzinger Pumpen GmbH
SCHEUERMANN + HEILIG GmbH
smk systeme metall kunststoff gmbh & co. kg
smopi®- Multi Chargepoint Solution GmbH
StandexMeder Electronics GmbH
STAR COOPERATION GmbH
Stäubli Tec-Systems GmbH Connectors
teamtechnik Maschinen und Anlagen GmbH
TEKON Prüftechnik GmbH
Ulm University – Institute of Measurement, Control and Microtechnology
Unicorn Engineering GmbH
WAFIOS AG
Wenger Engineering GmbH
Wiferion GmbH
Würth Elektronik eiSos GmbH & Co. KG

Components
Drivetrain: vehicle electrical system
AKKA
Alzner Automotive GmbH
Audi AG
BorgWarner
BrightTesting GmbH
BRUSA Elektronik AG
DODUCO Solutions GmbH
Dr.-Ing. S. Haußmann Industrieelektronik
ergo: elektronik GmbH & Co. KG
Eugen Forschner GmbH
Évolution Synergétique
Fraunhofer Institute for Solar Energy Systems (ISE)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
iinovis GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
MAHLE Group
Robert Bosch GmbH
SCHEUERMANN + HEILIG GmbH
SEG Automotive Germany GmbH
smk systeme metall kunststoff gmbh & co. kg
StandexMeder Electronics GmbH
STAR COOPERATION GmbH
Stäubli Electrical Connectors GmbH
Stäubli Tec-Systems GmbH Connectors
TE Connectivity KISSLING Products GmbH
Vector Informatik GmbH
Wölfle GmbH
Würth Elektronik eiSos GmbH & Co. KG
XTRONIC GmbH

Components
Drivetrain: motor/generator
AKKA
Alzner Automotive GmbH
Antech Polymertechnik GmbH
ARADDEX AG
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BorgWarner
BRIGHT Testing GmbH
BRUSA Elektronik AG
CellForm
Daimler AG
Dana/Victor Reinz
Dr.-Ing. S. Haußmann Industrieelektronik
ElingKlinger AG
ERDRICH Umformtechnik GmbH
ETO Magnetic GmbH
Évolution Synergétique
Feinwerktechnik Otto Harrant GmbH
Festo SE & Co. KG
FIFTY2 Technology GmbH
Fischer Elektromotoren GmbH
Gehring Gruppe (Gehring Technologies GmbH)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GLOBE Fuel Cell Systems GmbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
GROB-WERKE GmbH & Co. KG
Grohmann Aluworks GmbH & Co. KG
Hochschule Aalen – Institut für Antriebstechnik
Huber Automotive AG
Hugo Benzing GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
HWA AG
Interplex
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
KESSELER energy GmbH
Krempel GmbH
Liebherr-Components-Biberach GmbH

Lippok & Wolf Prüfautomation
MAG Industrial Automation Systems – MAG IAS GmbH
MAHLE Group
Mesa Parts GmbH
MicroNova AG
Offenburg University – Institute of Energy Systems Technology
Precitec GmbH & Co. KG
PROMESS Montage- und Prüfsysteme GmbH
PVS-Kunststofftechnik GmbH & Co. KG
QuinTech
RA Consulting GmbH
Rheinmetall Automotive AG
Robert Bosch GmbH
Schaeffler Group
SCHEUERMANN + HEILIG GmbH
Schnaithmann Maschinenbau GmbH
SciMo – Elektrische Hochleistungsantriebe GmbH
SEG Automotive Germany GmbH
smk systeme metall kunststoff gmbh & co. kg
STABIL GROUP International GmbH
Staiger GmbH & Co. KG
Stäubli Tec-Systems GmbH Connectors
stoba e-Systems GmbH
Tamagawa Europe GmbH
teamtechnik Maschinen und Anlagen GmbH
TEKON Prüftechnik GmbH
Ulm University – Institute of Measurement, Control and Microtechnology
University of Stuttgart – Institute of Electrical Energy Conversion (iew)
WAFIOS AG
Wenger Engineering GmbH
WITTENSTEIN
Würth Elektronik eiSos GmbH & Co. KG
ZIEHL-ABEGG AUTOMOTIVE GmbH & Co. KG

Components
Drivetrain: thermal management
Alzner Automotive GmbH
Antech Polymertechnik GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BorgWarner
Boysen Gruppe
Dana/Victor Reinz
DODUCO Solutions GmbH
Eberspächer Climate Control Systems GmbH & Co. KG
ERDRICH Umformtechnik GmbH
Erhardt GmbH Fahrzeug + Teile
ETO Magnetic GmbH
Évolution Synergétique
FIFTY2 Technology GmbH
Fraunhofer Institute for Solar Energy Systems (ISE)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Grohmann Aluworks GmbH & Co. KG
Handtmann Systemtechnik GmbH & Co. KG
Hochschule Aalen – Institut für Antriebstechnik
Hugo Kern und Liebers GmbH & Co. KG
Interplex
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
König Metall Group – GVI®
Krempel GmbH
LR Pure Systems GmbH
MAHLE Group
MS2 Engineering und Anlagenbau GmbH
Precitec GmbH & Co. KG
Rheinmetall Automotive AG
Robert Bosch GmbH
Schaeffler Group
Scherzinger Pumpen GmbH
SCHEUERMANN + HEILIG GmbH
Schnaithmann Maschinenbau GmbH
smk systeme metall kunststoff gmbh & co. kg
STABIL GROUP International GmbH

Stäubli Tec-Systems GmbH Connectors
stoba e-Systems GmbH
TheSys GmbH
University of Applied Sciences Esslingen – Faculty of Mechanical Engineering
WAFIOS AG
Wenger Engineering GmbH
Wölfle GmbH
Zeller+Gmelin GmbH & Co. KG

Components
Drivetrain: fuel cell system (chemical/electrical)
Alzner Automotive GmbH
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
Boysen Gruppe
cellcentric GmbH & Co.KG
CellForm
Christian Bauer GmbH + Co. KG
Daimler AG
Dana/Victor Reinz
Eberspächer Climate Control Systems GmbH & Co. KG
Electrochemical energy systems at Hahn-Schickard Freiburg
ElingKlinger AG
ERDRICH Umformtechnik GmbH
ETO Magnetic GmbH
Évolution Synergétique
Fraunhofer Institute for Solar Energy Systems (ISE)
Freudenberg Performance Materials
Furtwangen University – Innovation and Research Centre Tuttlingen
FutureE GmbH
German Aerospace Center (DLR) – Institute of Engineering Thermodynamics
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GLOBE Fuel Cell Systems GmbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
IHI Charging Systems International GmbH
iinovis GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Karlsruher Institut für Technologie (KIT) – Institut für angewandte Materialien – Werkstoffe der Elektrotechnik
Konzelmann GmbH
Krempel GmbH
Lifestyle-House GmbH
Lippok & Wolf Prüfautomation
LR Pure Systems GmbH
Magnet-Schultz GmbH & Co. KG
MAHLE Group
MANN+HUMMEL GmbH
Marquardt GmbH
Mesa Parts GmbH
MicroNova AG
Mission Hydrogen GmbH
MS2 Engineering und Anlagenbau GmbH

Offenburg University – Institute of Energy Systems Technology
Parcom Hydrasun GmbH
QuinTech
Robert Bosch GmbH
Schaeffler Group
Scherzinger Pumpen GmbH
SCHEUERMANN + HEILIG GmbH
Schuler Pressen GmbH
Staiger GmbH & Co. KG
Stäubli Tec-Systems GmbH Connectors
teamtechnik Maschinen und Anlagen GmbH
Ulm University – Institute of Measurement, Control and Microtechnology
Unicorn Engineering GmbH
University of Applied Sciences Esslingen – Faculty of Mechanical Engineering
University of Stuttgart – Institute for Materials Testing, Materials Science and Strength of Materials (IMWF)
Wenger Engineering GmbH
Würth Elektronik eiSos GmbH & Co. KG
Zeller+Gmelin GmbH & Co. KG

Components
Drivetrain: gearbox
Alzner Automotive GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
ASG- Allweier Systeme GmbH
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BorgWarner
BRIGHT Testing GmbH
CellForm
Christian Bauer GmbH + Co. KG
Daimler AG
Dr.-Ing. S. Haußmann Industrieelektronik
ElringKlinger AG
ERDRICH Umformtechnik GmbH
Évolution Synergétique
Festo SE & Co. KG
FIFTY2 Technology GmbH
Fraunhofer Institute for Solar Energy Systems (ISE)
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
Grohmann Aluworks GmbH & Co. KG
Hochschule Aalen – Institut für Antriebstechnik
Hugo Benzing GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
HWA AG
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Konzelmann GmbH
Liebherr-Components-Biberach GmbH
MAG Industrial Automation Systems – MAG IAS GmbH
MAHLE Group
MicroNova AG
PROMESS Montage- und Prüfsysteme GmbH
RA Consulting GmbH
Robert Bosch GmbH
Schaeffler Group
SCHEUERMANN + HEILIG GmbH
STABIL GROUP International GmbH
stoba e-Systems GmbH
teamtechnik Maschinen und Anlagen GmbH
TEKON Prüftechnik GmbH
WITTENSTEIN

Components
Interior: Equipment
Alzner Automotive GmbH
Aalen University – Competence Center 'Vision Research'
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
CellForm
fischer automotive systems GmbH & Co. KG
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
Hugo Kern und Liebers GmbH & Co. KG
iinovis GmbH
IPT Technology GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Marquardt GmbH
MicroNova AG
Pininfarina Deutschland GmbH
PROFILMETALL-Gruppe
Scala Design Technische ProduktDevelopment GmbH
SCHEUERMANN + HEILIG GmbH
SELB Engineering GmbH
Silberform Aktiengesellschaft
STABIL GROUP International GmbH
vialytics GmbH

Components
Interior: electrics/electronics
AKKA
Alzner Automotive GmbH
Antech Polymertechnik GmbH
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BrightTesting GmbH
cantamen GmbH
CuroCon GmbH
DODUCO Solutions GmbH
ERDRICH Umformtechnik GmbH
ergo: elektronik GmbH & Co. KG
Erhardt GmbH Fahrzeug + Teile
Eugen Forschner GmbH
Évolution Synergétique
Festo SE & Co. KG
fischer automotive systems GmbH & Co. KG
Fischer Elektromotoren GmbH
Fraunhofer Institute for Solar Energy Systems (ISE)
Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB)
FZI Forschungszentrum Informatik
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
Huber Automotive AG
Hugo Kern und Liebers GmbH & Co. KG
iinovis GmbH
Interplex
IPT Technology GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Electrical Engineering (ETI)
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
MAHLE Group
Marquardt GmbH
MicroNova AG
Precitec GmbH & Co. KG
RA Consulting GmbH
Robert Bosch GmbH
Schaeffler Group
SCHÄFER Elektronik GmbH
SCHEUERMANN + HEILIG GmbH
Schnaithmann Maschinenbau GmbH
Silberform Aktiengesellschaft

smopi®- Multi Chargepoint Solution GmbH
STABIL GROUP International GmbH
StandexMeder Electronics GmbH
STAR COOPERATION GmbH
Stäubli Electrical Connectors GmbH
Tamagawa Europe GmbH
TE Connectivity KISSLING Products GmbH
TEKON Prüftechnik GmbH
Vector Informatik GmbH
vialytics GmbH
Wöflle GmbH
Würth Elektronik eiSos GmbH & Co. KG
XTRONIC GmbH

Components
Interior: thermal management
Alzner Automotive GmbH
Antech Polymertechnik GmbH
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
ERDRICH Umformtechnik GmbH
Erhardt GmbH Fahrzeug + Teile
ETO Magnetic GmbH
Évolution Synergétique
fischer automotive systems GmbH & Co. KG
Fraunhofer Institute for Solar Energy Systems (ISE)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
Handtmann Systemtechnik GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
IHI Charging Systems International GmbH
Interplex
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
Konzelmann GmbH
Lifestyle-House GmbH
MAHLE Group
Precitec GmbH & Co. KG
Rheinmetall Automotive AG
Robert Bosch GmbH
Schaeffler Group
SCHEUERMANN + HEILIG GmbH
STABIL GROUP International GmbH
Stäubli Tec-Systems GmbH Connectors
TheSys GmbH
University of Applied Sciences Esslingen – Faculty of Mechanical Engineering
Wenger Engineering GmbH
Wölfle GmbH

Components
Exterior: electrics/electronics
AKKA
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BrightTesting GmbH
CuroCon GmbH
DODUCO Solutions GmbH
Dr.-Ing. S. Haußmann Industrieelektronik
Erhardt GmbH Fahrzeug + Teile
Eugen Forschner GmbH
Évolution Synergétique
Fischer Elektromotoren GmbH
Fraunhofer Institute for Solar Energy Systems (ISE)
Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
Heidelberger Druckmaschinen AG
HELDELE GmbH
Huber Automotive AG
Hugo Kern und Liebers GmbH & Co. KG
Interplex
IPT Technology GmbH
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
Lapp Mobility GmbH
MAHLE Group
Marquardt GmbH
MicroNova AG
Precitec GmbH & Co. KG
RA Consulting GmbH
Robert Bosch GmbH
SCHEUERMANN + HEILIG GmbH
SELB Engineering GmbH
smopi®- Multi Chargepoint Solution GmbH
STABIL GROUP International GmbH
StandexMeder Electronics GmbH
STAR COOPERATION GmbH
Stäubli Electrical Connectors GmbH
Tamagawa Europe GmbH
TE Connectivity KISSLING Products GmbH
TEKON Prüftechnik GmbH
Unicorn Engineering GmbH
WAFIOS AG
Wölfle GmbH
Würth Elektronik eiSos GmbH & Co. KG

Components
Exterior: chassis
AKKA
Alzner Automotive GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
BRIGHT Testing GmbH
Daimler AG
ERDRICH Umformtechnik GmbH
ETO Magnetic GmbH
Festo SE & Co. KG
Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
Handtmann Systemtechnik GmbH & Co. KG
HWA AG
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
MicroNova AG
Pininfarina Deutschland GmbH
PROFILMETALL-Gruppe
Robert Bosch GmbH
Scala Design Technische ProduktDevelopment GmbH
Schaeffler Group
SCHEUERMANN + HEILIG GmbH
SELB Engineering GmbH
Zeller+Gmelin GmbH & Co. KG

Components
Exterior: vehicle body
Alzner Automotive GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
C.F. Maier Europlast GmbH & Co. KG
CellForm
Daimler AG
Dürr Systems AG
Erhardt GmbH Fahrzeug + Teile
Festo SE & Co. KG
Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
iinovis GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Production Science (wbk)
Pininfarina Deutschland GmbH
PROFILMETALL-Gruppe
Scala Design Technische ProduktDevelopment GmbH
SCHEUERMANN + HEILIG GmbH
SELB Engineering GmbH
Silberform Aktiengesellschaft
Zeller+Gmelin GmbH & Co. KG

Components
System integration/system manufacturer: Automobile
AKKA
Aalen University – Competence Center 'Vision Research'
Alzner Automotive GmbH
ARADDEX AG
arco-concept GmbH
ARNOLD UMFORMTECHNIK GmbH & Co. KG
ASAP Gruppe
AtTrack GmbH Gesellschaft für Mobilität
Audi AG
AVL Deutschland GmbH
Baden-Wuerttemberg Cooperative State University (DHBW) Mannheim Research Cluster for Electrochemistry
Bertrandt AG
BorgWarner
Boysen Gruppe
BRIGHT Testing GmbH
BRUSA Elektronik AG
BWS Anlagenbau & Service GmbH
cantamen GmbH
Carl Zeiss Industrielle Messtechnik GmbH
CarMedialab GmbH
Competence & Design Center for Mobility Innovations
CSM Computer-Systeme-Messtechnik GmbH
CuroCon GmbH
Daimler AG
Dana/Victor Reinz
Dr. Ing. h.c. F. Porsche AG
Dürr Systems AG
Dürr Technik GmbH & Co. KG
EDAG Engineering GmbH
effisma.group GmbH & Co. KG
ELABO GmbH
ElringKlinger AG
encontec GmbH
Erhardt GmbH Fahrzeug + Teile
Eugen Forschner GmbH
Évolution Synergétique
Feinwerktechnik Otto Harrandt GmbH
Festo SE & Co. KG
FIFTY2 Technology GmbH
Fischer Elektromotoren GmbH
Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)
Fraunhofer Institute for Industrial Engineering (IAO)
Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)

Fraunhofer Institute for Solar Energy Systems (ISE)
Fraunhofer Institute for Systems and Innovation Research (ISI)
Furtwangen University – Innovation and Research Centre Tuttlingen
FZI Forschungszentrum Informatik
Gehring Gruppe (Gehring Technologies GmbH)
German Aerospace Center (DLR) – Institute of Vehicle Concepts
GOTECH FahrzeugDevelopments- und Konstruktionsgesellschaft mbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
GROB-WERKE GmbH & Co. KG
Handtmann Systemtechnik GmbH & Co. KG
Heidelberger Druckmaschinen AG
Hochschule Aalen – Institut für Antriebstechnik
Huber Automotive AG
Hugo Benzing GmbH & Co. KG
Hugo Kern und Liebers GmbH & Co. KG
HWA AG
IHI Charging Systems International GmbH
iinovis GmbH
IPG Automotive
Karlsruhe Institute of Technology (KIT) – Institute for Transport Studies (IfV)
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Karlsruhe Institute of Technology (KIT) – Institute of Vehicle System Technology, Chair of Vehicle Science (FAST)
Karlsruhe University of Applied Sciences – Technology and economy – Institute of Energy Efficient Mobility (IEEM)
KESSLER energy GmbH
König Metall Group – GVI®
Konzelmann GmbH
Lippok & Wolf Prüfautomation
Magnet-Schultz GmbH & Co. KG
MAHLE Group
Manz AG
MARPOSS GmbH
Mesa Parts GmbH
MicroNova AG
Mission Hydrogen GmbH
MR PLAN Group
MS2 Engineering und Anlagenbau GmbH
Offenburg University – Institute of Energy Systems Technology
Parcom Hydrasun GmbH
Pininfarina Deutschland GmbH

polatek SL-Laminiertechnik GmbH
Precitec GmbH & Co. KG
PROMESS Montage- und Prüfsysteme GmbH
QuinTech
RA Consulting GmbH
remoso GmbH
Research Institute of Automotive Engineering and Vehicle Engines Stuttgart (FKFS)
Robert Bosch GmbH
ruhlamat GmbH
Scala Design Technische ProduktDevelopment GmbH
Schaeffler Group
SCHÄFER Elektronik GmbH
SCHEUERMANN + HEILIG GmbH
Schnaithmann Maschinenbau GmbH
SEG Automotive Germany GmbH
SELB Engineering GmbH
smk systeme metall kunststoff gmbh & co. kg
STABIL GROUP International GmbH
Staiger GmbH & Co. KG
STAR COOPERATION GmbH
Stäubli Tec-Systems GmbH Connectors
Steinbeis Europa Zentrum
stoba e-Systems GmbH
straesser automotive testing GmbH
Supfina Grieshaber GmbH & Co. KG
Tamagawa Europe GmbH
TE Connectivity KISSLING Products GmbH
TEAMOBILITY GmbH
TheSys GmbH
Ulm University – Institute of Measurement, Control and Microtechnology
University of Applied Sciences Esslingen – Faculty of Mechanical Engineering
University of Stuttgart – Institute of Electrical Energy Conversion (iew)
VAF GmbH
vialytics GmbH
Weil Technology GmbH
Wenger Engineering GmbH
Wölfle GmbH
XTRONIC GmbH
ZIEHL-ABEGG AUTOMOTIVE GmbH & Co. KG

Components
System integration/system manufacturer: Stationary systems
ads-tec Energy GmbH
AKKA
Alzner Automotive GmbH
arco-concept GmbH
Baden-Wuerttemberg Cooperative State University (DHBW) Mannheim Research Cluster for Electrochemistry
Boysen Gruppe
BrightTesting GmbH
BWS Anlagenbau & Service GmbH
Carl Zeiss Industrielle Messtechnik GmbH
CarMedialab GmbH
Centre for Solar Energy and Hydrogen Research Baden-Wuert- temberg (ZSW)
chargeIQ GmbH
comemso GmbH
Coperion GmbH
CuroCon GmbH
Dürr Systems AG
Dürr Technik GmbH & Co. KG
ELABO GmbH
eliso GmbH
ElringKlinger AG
Energydienst Holding AG
Évolution Synergétique
Fautronix GmbH
Feinwerktechnik Otto Harrandt GmbH
Fischer Elektromotoren GmbH
Fraunhofer Institute for Industrial Engineering (IAO)
Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)
Fraunhofer Institute for Systems and Innovation Research (ISI)
Furtwangen University – Innovation and Research Centre Tuttlingen
FutureE GmbH
FZI Forschungszentrum Informatik
Genthner Industrietechnik GmbH
GLOBE Fuel Cell Systems GmbH
GP Joule GmbH
GreenIng GmbH & Co. KG und GreenIng Technologies GmbH & Co. KG
GROB-WERKE GmbH & Co. KG
Halmosi GmbH
Heidelberger Druckmaschinen AG
HELDELE GmbH
Hugo Kern und Liebers GmbH & Co. KG
IHI Charging Systems International GmbH

IPT Technology GmbH
Karlsruhe Institute of Technology (KIT) – Institute of Product Engineering (IPEK)
Kellner Telecom GmbH
KESSELER energy GmbH
KMS Automation GmbH
König Metall Group – GVI®
Lifestyle-House GmbH
Lippok & Wolf Prüfautomation
LR Pure Systems GmbH
MAG Industrial Automation Systems – MAG IAS GmbH
Magnet-Schultz GmbH & Co. KG
Manz AG
MARPOSS GmbH
Maschinenfabrik Lauffer GmbH & Co. KG
Mission Hydrogen GmbH
MR PLAN Group
MS2 Engineering und Anlagenbau GmbH
MVV Enamic GmbH
Offenburg University – Institute of Energy Systems Technology
Parcom Hydrasun GmbH
polatek SL-Laminiertechnik GmbH
PROFILMETALL-Gruppe
PROMESS Montage- und Prüfsysteme GmbH
QuinTech
Robert Bosch GmbH
ruhlamat GmbH
Scala Design Technische ProduktDevelopment GmbH
SCHÄFER Elektronik GmbH
Schaffner Deutschland GmbH
SCHMIDLIN Labor & Service GmbH & Co. KG
SELB Engineering GmbH
smartGAS Mikrosensorik GmbH
smk systeme metall kunststoff gmbh & co. kg
smopi®- Multi Chargepoint Solution GmbH
Stadtwerke Karlsruhe GmbH
Staiger GmbH & Co. KG
Stationary systems
Stäubli Tec-Systems GmbH Connectors
Stöhr GmbH Metalltechnologie
SÜLZLE Gruppe
Supfina Grieshaber GmbH & Co. KG
TheSys GmbH
Unicorn Engineering GmbH
University of Applied Sciences Esslingen – Faculty of Mechanical Engineering

University of Stuttgart – Institute of Electrical Energy Conversion (iew)
VAF GmbH
WAFIOS AG
Weil Technology GmbH
Wenger Engineering GmbH
Wiferion GmbH
WS Reformer GmbH
ZEAG Energy AG

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e-mobil BW GmbH

State Agency for New Mobility Solutions and
Automotive Baden-Württemberg

Leuschnerstraße 45 | 70176 Stuttgart, Germany
Phone +49 711 892385-0 | Fax +49 711 892385-49
info@e-mobilbw.de | www.e-mobilbw.de/en