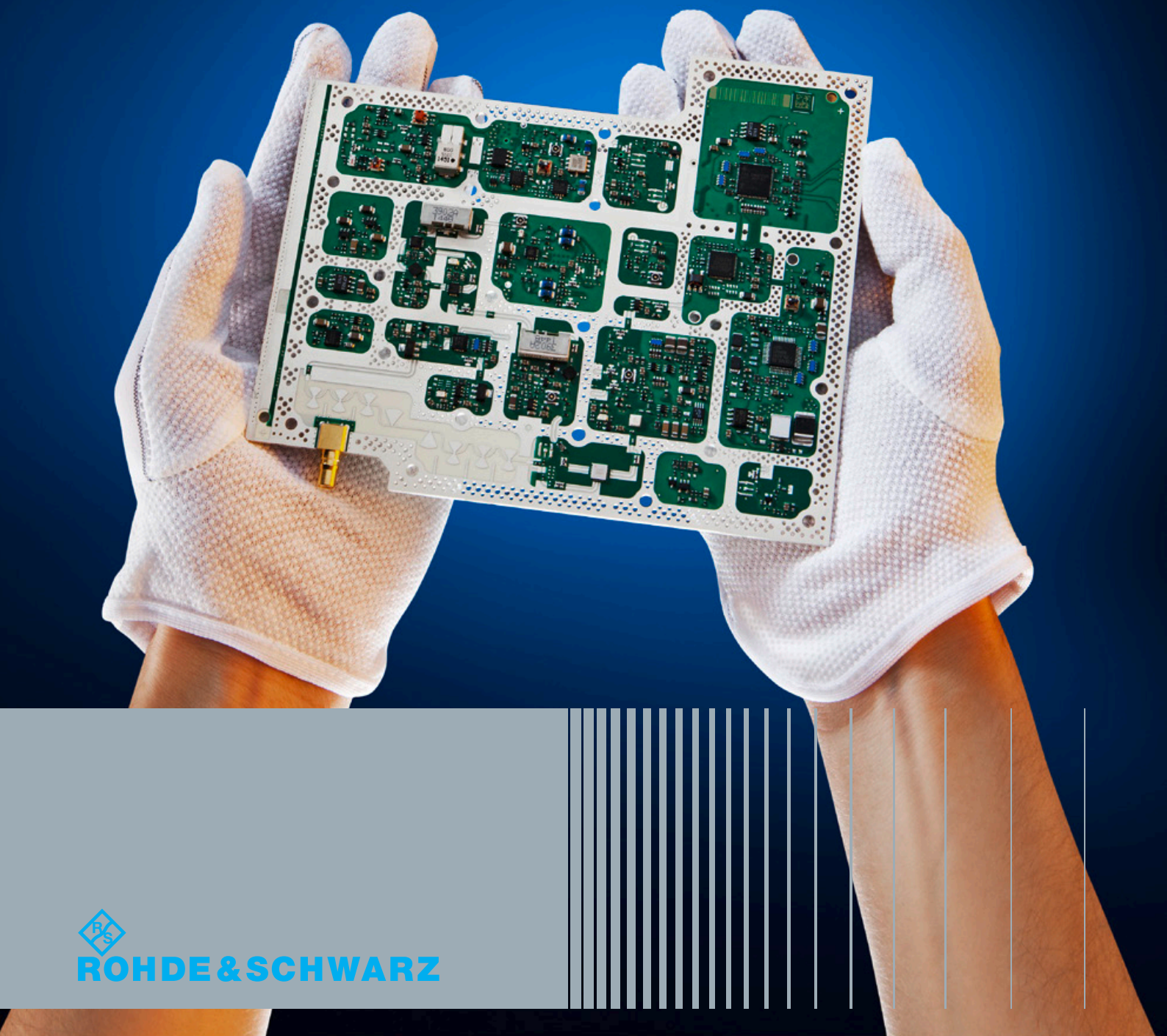
Your quality in safe hands

Electronics Manufacturing Services
from a world-leading RF specialist



ROHDE&SCHWARZ

See Rohde & Schwarz in a new light. As the manufacturer of your products.

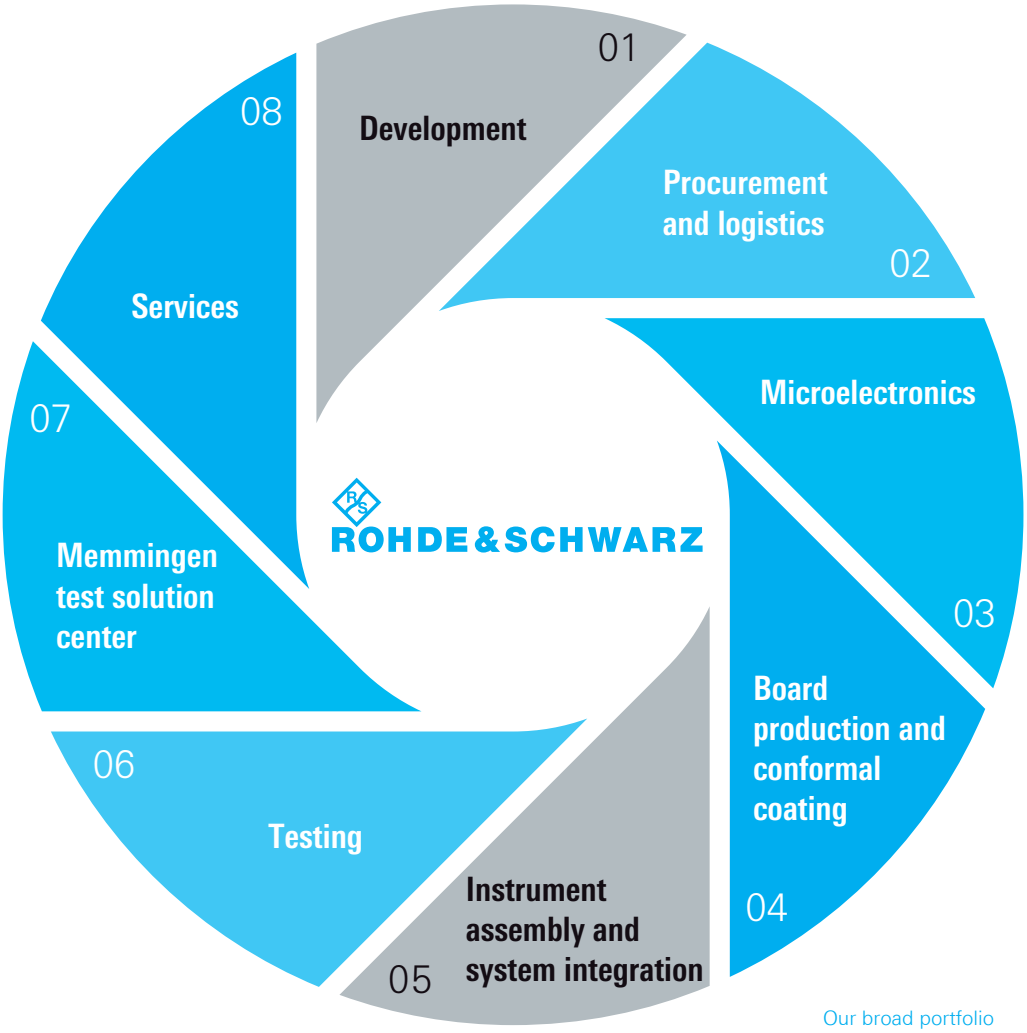
Rohde & Schwarz is well-known throughout the world as a manufacturer of quality Test & Measurement equipment. But our Memmingen plant has something more to offer: comprehensive support for anyone who manufactures their own electronics products.

Particularly for organizations in the aviation and automotive sectors, in basic research and in medical engineering, we offer an ideal setup for smooth and efficient contract manufacturing.

Besides taking care of the actual manufacture of your products, we can provide support wherever you need across every phase in the process – from the initial idea to product delivery, including product development, component procurement and fulfillment.

In other words, we offer optimum support for organizations producing high-quality electronics aimed at demanding markets.

Find out more about our product program – we can implement your ideas efficiently and effectively using our broad EMS portfolio.



Our broad portfolio

Development

We support you in the implementation and industrialization of your product idea. Based on your requirements, we develop customized solutions in all phases of the product development cycle. From proof of concept to series production, you profit from the expertise and experience of our specialists. This of course also includes the verification of design and development outputs with respect to compliance with the relevant standards (e.g. CE) as well as environmental testing.

Hardware and software

- Complete hardware development
- Hardware architecture and circuit development
- Firmware and application software
- Mechanical 3D design
- System integration and verification

Layout

- EMC-compliant printed board design
- High-speed design up to 10 Gbit/s
- Radio frequency designs up to 80 GHz
- HDI and rigid-flex printed boards
- Routing of high-current lines on printed boards up to 60 A

DFM / DFT / NPI

- Optimization of hardware and software concerning manufacturing and test costs
- Rapid prototyping for early evaluation of designs and functions
- Production introduction and ramp-up of the products by experienced engineers

EMC advice

- Our specialists provide you with advice on EMC during the design of printed boards and systems
- Precompliance measurements in our in-house test chambers and open area test sites allow us to check the effect of modifications

Procurement and logistics

You will fully benefit from our leading market position in the EMS section. More than 60,000 active items with properly qualified suppliers are the basis for short component delivery times. We send your finished products anywhere in the world at any time, clarifying all necessary points.

Global procurement
The best possible prices are essential for your market success. We safeguard your success by means of strategic, worldwide sourcing via our subsidiaries.

Supplier management
In cooperation with qualified and audited partners, we offer outstanding material availability, delivery reliability and quality at competitive prices.

Logistics systems
- Demand-oriented, inventory-optimized warehousing to ensure availability
- Just-in-time delivery
- Vendor-managed inventory (VMI)
- KANBAN supply system

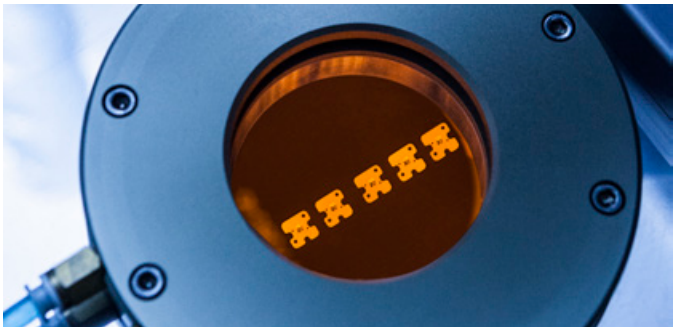
Global shipping
- From standard packaging to customer-specific returnable packaging – we find the optimum solution for your product
- Regional, national or international: you tell us where to deliver and we take care of the rest

Microelectronics

At Rohde & Schwarz, microelectronics assembly begins with technology consultation concerning the various manufacturing processes available. In addition to common methods, special processes such as vacuum soldering and thermocompression flip chip bonding with a positioning accuracy of up to ±1 µm are available.

Soldering and bonding processes

- Vacuum soldering (also GaN components)
- Hot-bar soldering
- Reflow soldering
- Electrically conductive and nonconductive adhesives (isotropic and anisotropic)
- Thermally conductive adhesives



Bonding and microwelding

- Wedge bonding and ball bonding method
- Processing of gold and aluminum wires with diameters from 12 µm to 50 µm
- Assembly of different gold and silver ribbons using microwelding

Microassembly and module assembly

- Manufacture of module housings
- Ultrafine assembly and microassembly under clean room conditions
- Assembly of individual substrates to form the complete electronic unit

Test procedures

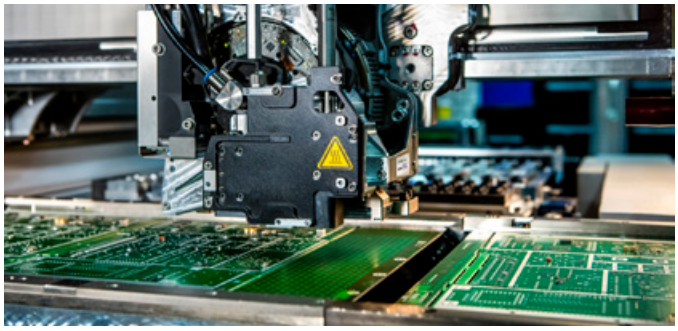
- From automated optical inspection (bond wire AOI and auto-measuring microscope) to electrical testing of microelectronic circuits with frequencies above 110 GHz
- Pull and shear tests to verify assembly and joining techniques

Board production and conformal coating

State-of-the-art production equipment for maximum flexibility with all batch sizes are the basis for our production. We manufacture your prototypes under series production conditions in order to ensure that your products are launched smoothly. Control of the entire production processes at our plants with a high level of in-house production ensures a fast turnaround time. Quality requirements as defined in IPC-A-610 Class 2 and 3, as well as the manufacturing of aviation and military products are our standard.

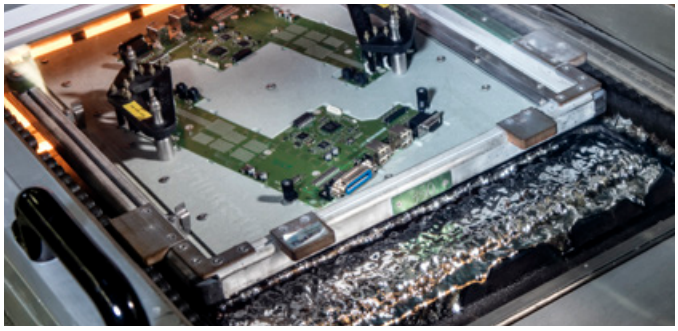
SMT production

- High-performance SMT lines with miniaturization up to 01005
- 3D solder paste inspection
- Lead-free or leaded soldering
- Reflow soldering with controlled nitrogen atmosphere
- Inline AOI on every production line



THT production

- Manual component placement based on the latest, paperless production documentation
- Lead-free or leaded wave soldering
- Manual soldering with nitrogen flooding
- Stereo microscope workstations in all production areas



Board assembly

- Assembly of mechanical components with torque monitoring up to automated fixing by screwdriving robots
- Process-monitored press-fit technology
- Assembly and gluing of optical components and displays

Conformal coating

- Cleaning and conformal coating processes in line with aeronautical and military standards
- Large number of qualified lacquers
- Manual coating and processing on the fully automatic conformal coating system with coating thickness measurement

Instrument assembly and system integration

If a wide variety of different boards are used in instruments or if complex system integration is planned, not only the very latest technical equipment but also a sound command of the various production steps are indispensable. This ensures low-waste, reliable production processes with outstanding manufacturing quality, low warehousing costs, short turnaround times and a high level of economic efficiency.

Lean manufacturing

- Transparent and reliable processes
- Low storage costs thanks to process linking and demand-oriented supplier integration
- Make-to-order in one-piece flow
- Well-established continuous improvement process (CIP) culture

Vehicle integration

- Certified installation of measurement and radio technology at the plant and on the customer's premises
- Vehicle turntable for testing and calibrating antennas
- EMC studies and risk assessments

Instrument assembly

- Complex assemblies for technologically sophisticated instruments – also for extreme environmental conditions
- Product-specific assembly concepts in linked lines or standalone workstations
- Prototype production and industrialization of engineering samples
- RF expertise for communications and radar components (up to 100 GHz)

System integration

- Prototypes, one-piece and high-volume production as well as industrialization of systems and installations
- Flexible, customer-specific design and manufacturing of additional system components and adaptations
- System acceptance testing at the plant or on the customer's premises

Testing

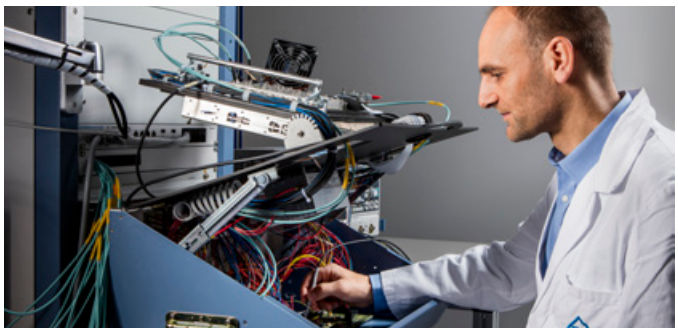
Our vision: cost-optimized development of test equipment based on the optimum testing strategy. Individual test procedures or a customized combination ensure that you reliably meet your quality requirements and achieve the required test depth.

Strategy

- Determination of the optimum testing strategy through selective combination of the individual test procedures
- Product optimization through definition of optimum test-ability (design for testing)

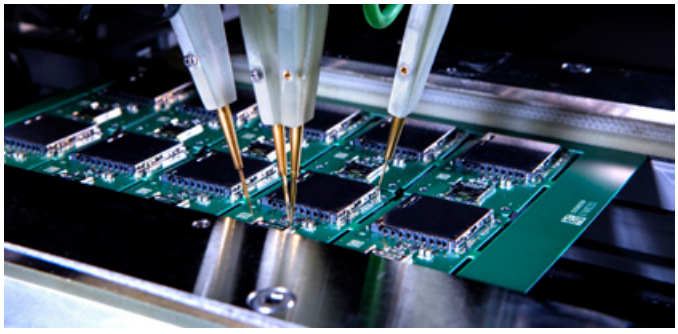
Development and implementation

- Application-optimized test fixtures
- Design and production of test systems
- Test software and test routines for optimum automation of the test sequence



Test procedures

- Flying probe test
- Functional test
- In-circuit test
- Boundary scan
- X-ray analysis



Temperature and climatic test

- Environmental stress screening
- Burn-in, run-in with customer-specific temperature profile
- Temperature forcing test

Memmingen test solution center

If you and your customers place great importance on quality and functionality, then test equipment that is optimally adapted to your product is an essential part of production. True to the motto "one-stop shop" – an expert partner for all questions concerning the testing of your products. The tried and tested, flexible testing systems from Rohde & Schwarz allow us to find the most cost-effective solution for you.

Development
We develop your specific test system either completely independently according to your requirements or in close cooperation with your specialists.

Configuration
Each test system is configured according to your needs using the tried and tested Test & Measurement equipment from Rohde & Schwarz. Individual customer requirements are taken into consideration.

Implementation
At Rohde & Schwarz you will receive a turnkey solution, delivered worldwide. We are happy to take on all challenges and tasks that this solution entails.

Education and training
We will commission your system and train your employees on site anywhere in the world. In this way, we ensure that you have safe control of the hardware and software of your test system.

Services

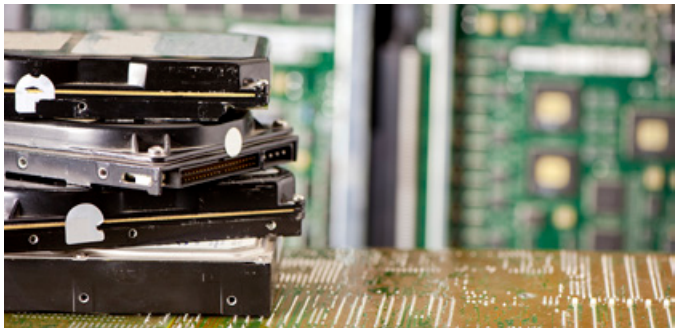
Even when your product is long established on the market, we as a reliable partner will always be at your side. Reworks, updates or modifications through to BGA replacement are a standard part of our after-sales support. We also offer a multitude of other services.

Training courses

- Theoretical and practical IPC training courses for both beginners and specialists, with corresponding certificate
- HR development and training in specialized and transferable skills

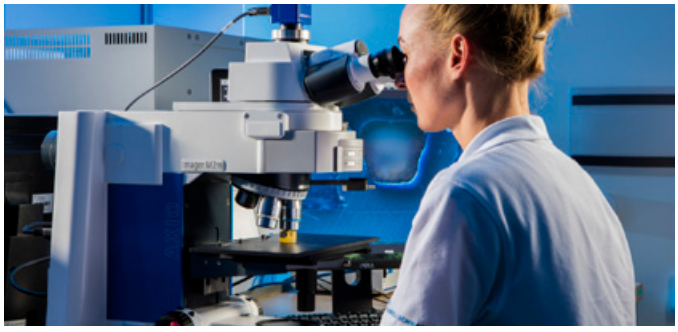
Obsolescence management

All boards and instruments we develop or manufacture for you are automatically subject to our internal obsolescence management.
In addition to researching substitute or replacement parts, our proactive obsolescence management program can also assess the future availability of components.



Quality analyses

- X-ray analyses
- Microsection examinations
- X-ray fluorescence analysis for determining material composition
- Determination of the ionic contamination of electronic assemblies by means of omegameter measurements



Calibration

- Calibration of antennas and measuring equipment in compliance with ISO and the German Accreditation Body (DAkkS)

Our full capabilities are at your service. Just tell us what you need.

Our strength as a contract manufacturer is more than just our high quality standards as a worldwide technology leader. It also lies in our completely customer-driven product and service portfolio.

This means you get the support you need from us when and where you need it. You can opt for a comprehensive package of services, or you can pick and choose exactly what you require. Either way, you benefit from a level of professional expertise and a dedication to quality that is hard to match. Trust is good, standards and certificates are better.

When you contract out the manufacturing of highly sensitive technology, you need a partner you can rely on completely. At Rohde & Schwarz in Memmingen, we work in line with standards that speak for themselves:

- DIN EN ISO 9001 and 14001
- DIN EN 9100 and 9110
- IPC A610 Class 3
- EU-VO 748/2012 Appendix (Part 21), EU-VO 1321/2014 Appendix II (Part 145)
- ISO 17025

We are also certified to AQAP 2110 and are an authorized components supplier for German Federal Armed Forces aircraft. So with us, even projects with rigorous security requirements are in the right hands.

Furthermore, our dedication and expertise has been acknowledged by renowned awards.

DIE FABRIK DES JAHRES
Global Excellence in Operations
Produktion ATKEARNEY
Excellence in Small Series Production 2015

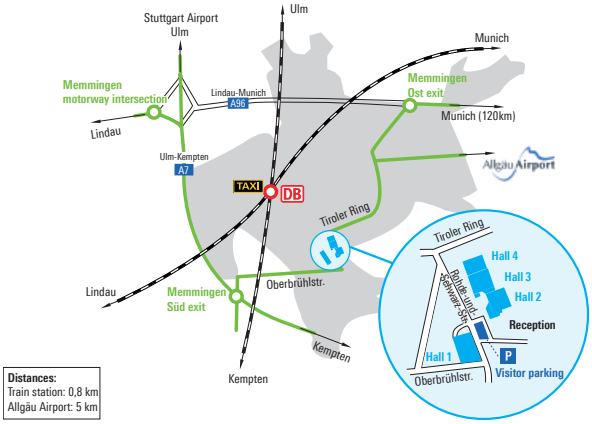
Logistics & Supply Chain
european supply chain excellence awards 2015
WINNER
Hi-Tech, Communications & Electronics

Logistics & Supply Chain
european supply chain excellence awards 2015
HIGHLY COMMENDED
Supply Chain Strategy & Design

Lean & Green Management Award 2016
Winner in the „General Manufacturing Industry OEM/Group“ category

Visit our website to find out more.

This is where you'll find us:



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