

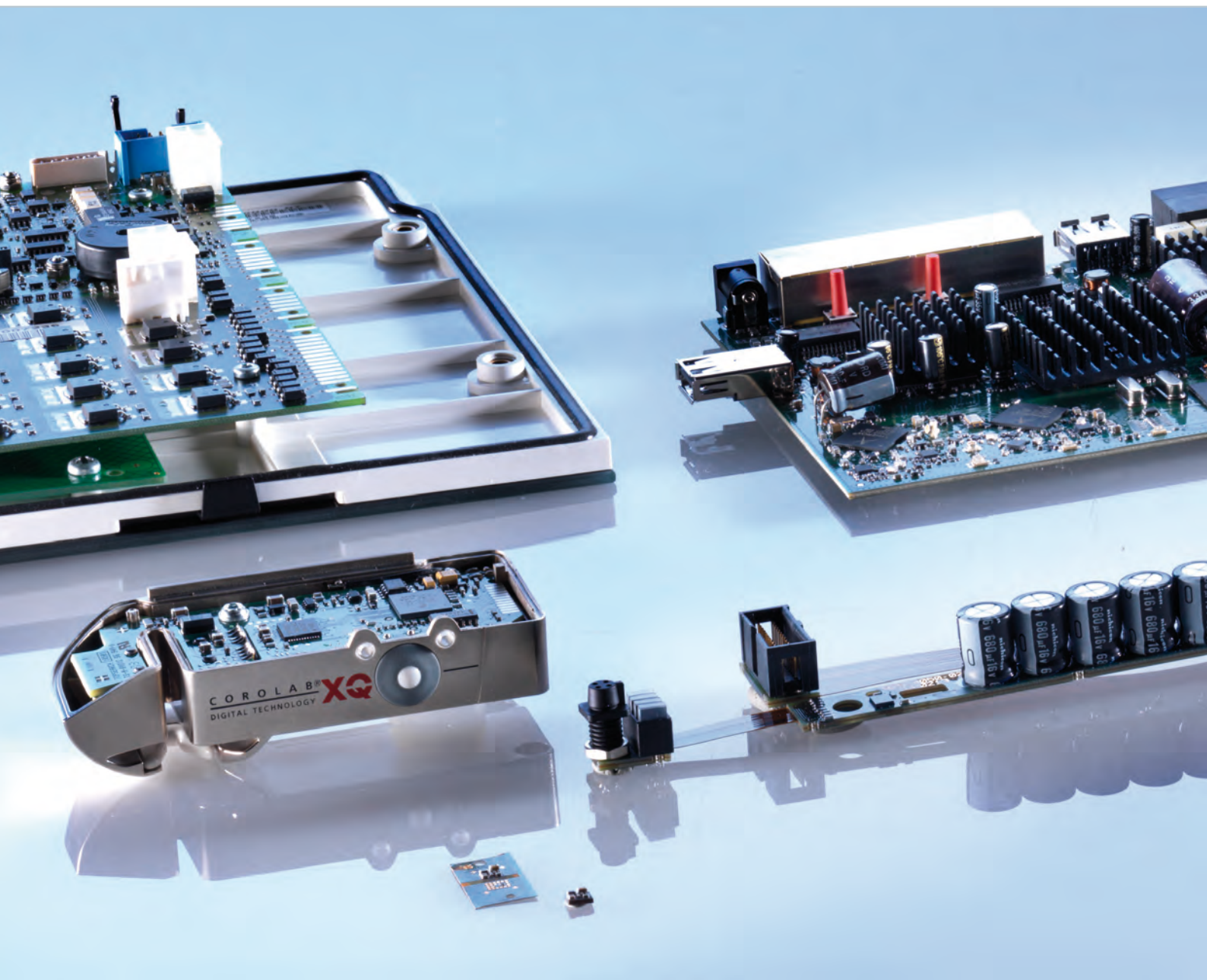


EMS-POWER

FLEXIBLE. RELIABLE. INNOVATIVE.

RAFI
SOLUTIONS WITH PASSION

» The RAFI locational advantages:
YOU SHOULD BE ABLE TO EXPECT A LITTLE EXTRA FR



reliable, quick and flexible « OM ANY TOP-CLASS BUSINESS



EFFICIENT The RAFI Group is one of Germany's ten leading electronics manufacturers with 15 SMT production lines and five plants. The highly efficient production network with sophisticated procedures and state-of-the-art systems engineering is the basis for quality and reliability of the highest standard.

KNOW-HOW As a "global player," RAFI not only supplies perfectly printed and tested circuit board assemblies but also offers all of the other advantages of an internationally operating company. From layout consultation and international procurement to after-sales-service.

CAPACITY RAFI has a number of different production sites in Europe and the Far East and is therefore able to offer the most suitable manufacturing capacity for any number of units.

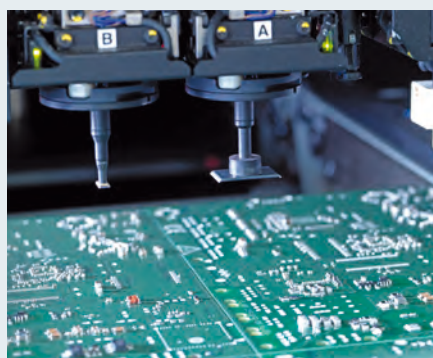
EXPERTISE Besides PCB assembly, RAFI is also able to provide any of the following: injection molding, metal machining, screen, pad and digital printing as well as die sinking and hot embossing: perfect production facilities for highly complex components and complete products.

QUALITY The quality of the production is ensured by regular, continuous inspections across all stages. RAFI currently holds the following certificates:

- DIN EN ISO 13485: 2003 + AC:2007
- DIN EN ISO 9001: 2008 (DQS GmbH and IQNET)
- DIN EN ISO 9001: 2008 with StVR (DQS GmbH)
- ISO/TS 16949: 2009 (DQS GmbH and IATF)
- ISO 14001: 2004 + Cor 1: 2009 (DQS GmbH and IQNET)



» 5 fully automatic production lines A WINNING TICKET FOR EVERY CUSTOMER



SMT ASSEMBLY The RAFI EMS Group has 15 fully automatic high-speed production lines with nitrogen reflow and vapor-phase technology in use. The capacity for installed parts is 2.3 million pieces per hour. Even your high volume production is in good hands with us - quick and efficient.



THT ASSEMBLY With ten wave soldering machines as well as two production lines for the automatic assembly of THT components, you can again expect excellent quality from RAFI.

QUALITY CONTROL Traceability with 2D laser barcode on the printed circuit board, AOI, 3D paste AOI, X-ray, inline test procedures.

Maximum product quality due to reliable production processes. Your advantage:

- reliability
- traceability
- quality

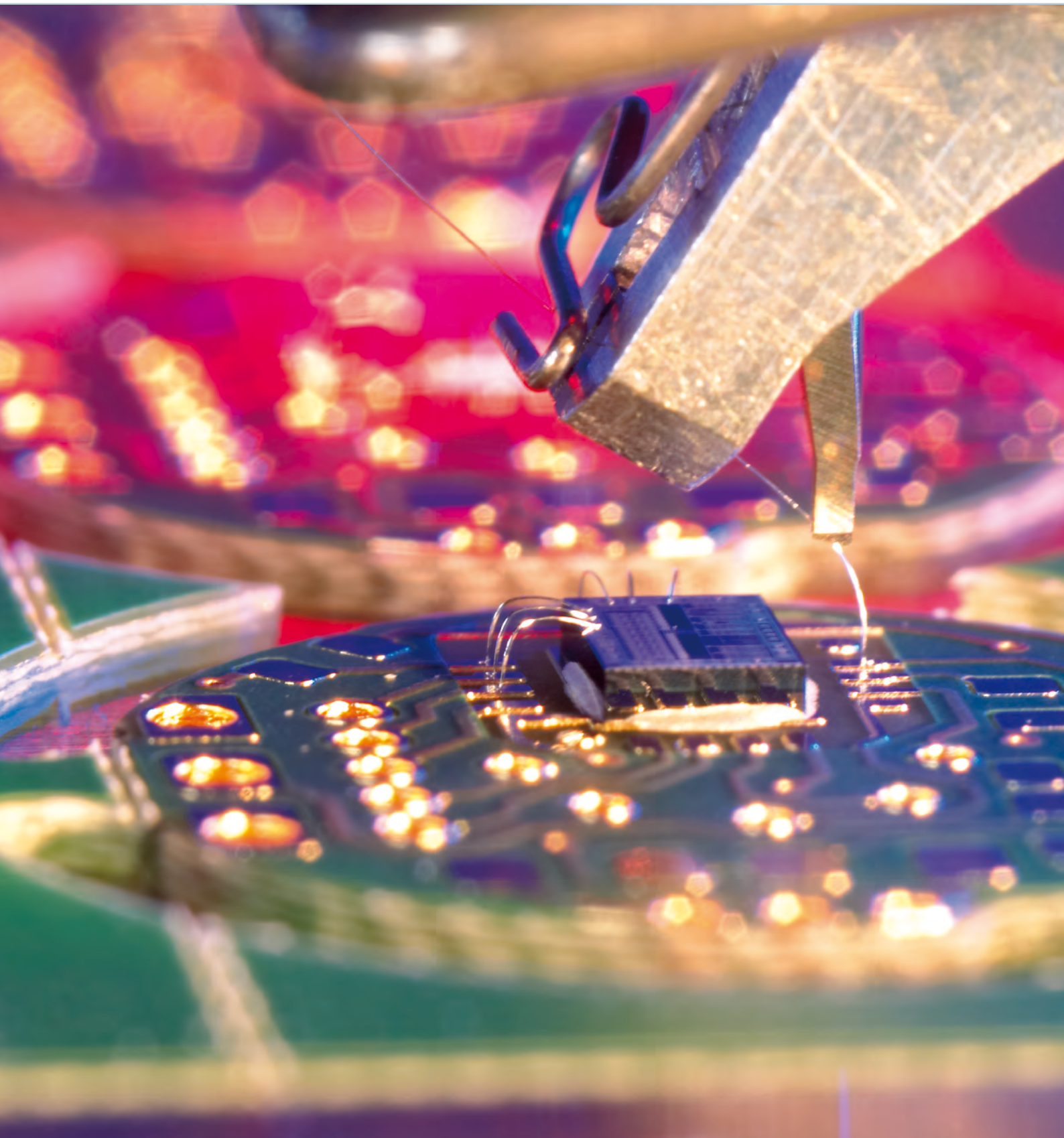
TECHNICAL SPECIFICATIONS

- smallest PCB edge length 50 x 50 mm
- largest PCB edge length 534 x 610 mm
- component capacity 2.3 million/h

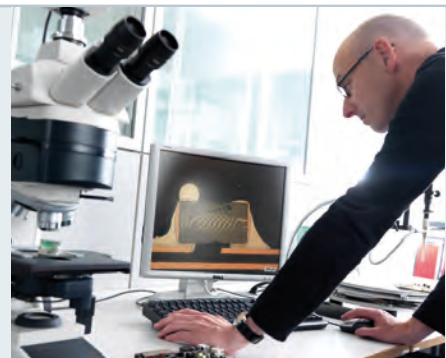
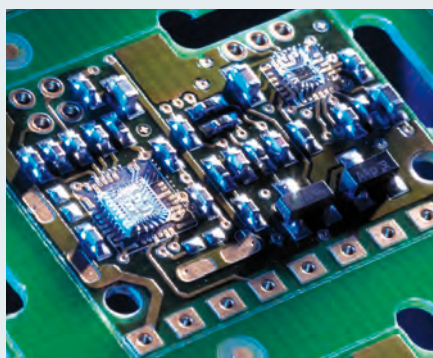
COMPONENT SPECTRUM

- ≥ 01005
- Flip-Chip
- CSP
- BGA
- QFP
- QFN
- connectors
- large specialist components
- pin-in-paste
- 3D assemblies package on package

» Chip on Board, Chip on Flex, Chi
WITH OUR TECHNOLOGY, YOU WILL SCORE HIGH POINT



Chip on Board, Flip-Chip « TECHNOLOGIES ON THE MARKET



CORE TECHNOLOGIES To realize complex assemblies on a tight space, we are also able to offer to you the following technologies:

- chip on board, chip on flex, chip on chip (wire bonding)
- fully automatic SMD high-speed and fine assembly
- flip-chip, CSP, BGA
- THT assembly
- selective soldering
- press fit technology
- microelectronic production in clean-rooms
- flexible PCB assembly
- electronics-glass combinations
- complete assemblies

This enables you to reduce your time-to-market times. You save production costs because all technologies are coordinated with a partner.

QUALITY ASSURANCE

This begins long before the completed assemblies are inspected. We optimize the PCB layout in collaboration with our customers and are therefore able to ensure optimum assembly and function.

PRODUCTION Regular inspections throughout the production process ensure consistent quality.

TEST PROCEDURES

- Automatic Optical Inspection (AOI)
- X-Ray
- in circuit test
- boundary scan test
- flying probe
- functional tests
- pull test for chip on board
- shock test
- climatic test
- run-in test
- microsection analysis

» From microelectronics to comp

OUR FLEXIBILITY WILL ENSURE YOUR SUCCESS



Latest assembly technology



High capacity injection welding



Screen printing machines to print on foil



CNC sheet metal processing center

lete systems in cabinet size «



DIMENSIONS We produce micro-electronics from the smallest hearing aid to the largest products for the power current sector, such as inverters for solar power systems.

VERTICAL RANGE OF MANUFACTURE RAFI offers more than other EMS suppliers. Many years of experience in the electro-mechanical component sector and complex operating systems are at your disposal as a RAFI customer.

The majority of the plastic parts used in production are made in-house by state-of-the-art injection welding.

The metal processing sector is equipped with metal-cutting and chipless CNC machining centers, stud pressing technology and CNC stud welding machines.

Customized decorative foil for keyboards and input systems are made in clean-rooms. For this we use state-of-the-art foil printing machines as well as laser cutting plotter and embossing presses.

Input systems covered by foil or a glass surface can be customized by RAFI according to your individual requirements.

SOLUTIONS As a driving force of innovation in HMI (Human Machine Interface) we provide new, intelligent solutions to cover the complex requirements on the functionality of machine and system controls. You will also get this:

- hardware solutions for WLAN, ZigBee and proprietary wireless solutions
- metering solutions for heating, water and electricity
- energy technologies from energy harvesting to solar inverters

- innovative lighting technology
- HMI solutions for medical equipment and applications

SCM: A STRONG CHAI

Efficiency and cost effectiveness of the EMS process are determined largely by the components supplied. Our supply chain management (SCM) specialists have many years of experience in sourcing and purchasing all parts needed at the required level of quality, within the time frame specified and at the best possible price.

Our strategic, international purchasing department with our own purchasing office in Asia ensures that prices remain internationally competitive. Framework and quality assurance agreements as well as audits make sure the required quality is delivered.

We have a direct, close relationship with global manufacturers of electronic components due to the large quantity of components we use for our production. A global purchasing power which also benefits our customers.

TRACEABILITY All stages of the process are completely transparent and traceable.

- purchasing
- incoming goods
- SMT assembly
- AOI inspections
- THT assembly
- inspections
- software
- assembly
- system configuration



Machine Tools

» AN ALL-ROUND SERVICE FOR
RAFI SOLUTIONS ALLOW YOU TO SIT BACK AND RELAX



Automotive Servus transport system

OUTSTANDING PRODUCTS «

DEVELOPMENT This sets the course for an efficient and cost-effective production of your components. Together with you, we will identify and develop all processes and procedures from design and functional specification to the logistics concept.

Our development expertise stretches across the entire product life cycle: From mechanical, electronic and software design, a successful product realization, necessary test equipment, resources to support serial production.

An efficient development process, state-of-the-art technologies as well as simulation tools are the basis on which RAFI development teams will take your product from an idea all the way to serial production.

DESIGN In close collaboration with our customers, we generate PCB designs that are suitable for production while adhering to DFM and DFT criteria.

TEST We produce an individual test concept as well as test software for each project during initial development. The tests are carried out according to specified parameters across the whole production process. For this we use all available optical and electronic test procedures.

MATERIAL As an internationally operating business, we have access to global markets. The procurement market analysis conducted by our lead buyers ensures consistently competitive prices. Qualified engineers ensure that all quality assurance agreements are adhered to by conducting regular audits.

PRODUCTION Our production methods are based on economic as well as ecological standards. It is RAFI's aim to achieve a defined standard of quality at optimal economic efficiency as well as economical use of natural resources and a high standard of environmental compatibility.

We use CIP principles to create and optimize our production processes. This is the basis for the use of all resources and activities to achieve optimum customer satisfaction. The latest production process technology ensures the future of your products.

LOGISTICS We use the latest storage technology and software. All storage activity is based on optimized routes. Multi-story tray warehouse systems and sophisticated materials handling automate the materials flow within pro-

duction. An integrated logistics information system identifies every batch and component. RAFI logistics optimizes all transport across land, water and air and manages cargo and customs handling for our customers around the world.

AFTER-SALES-SERVICES

We remain your reliable partner even after the delivery is complete. We offer:

- reliable supply of spare parts
- repair services
- end-of-life service



Tray Warehouse System

» The EMS Service Providers « OF THE RAFI GROUP



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