







**CUSTOMER BENEFITS** 

### RESPONSIBILITY FOR YOUR GOOD NAME

RAFI is a technology leader and a driver of innovation. We are the first choice for leading companies in the field of E<sup>2</sup>MS. With our in-depth understanding of the industry and our cumulative engineering expertise, we are able to reliably implement even complex projects flexibly and quickly. Whatever your required batch size or project, our international network of expertise provides the right location – in Germany, Hungary, or China.

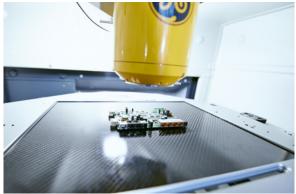
With state-of-the-art technologies, a high level of process reliability, and consulting as equal partners, we as a system supplier protect your good name – from development to life cycle management. Together we turn your ideas into reality.

PRE-PRODUCTION SERVICES

## TAILORED TO MEET YOUR REQUIREMENTS

As a competent partner, RAFI is with you every step of the way from the concept to serial production. We support you throughout the entire production chain, taking care of the development, design, testing strategies, materials and supply chain management. We maintain the overview. You retain cost control.





#### **DEVELOPMENT**

We will get your project rolling. With efficiency in the development process through highly developed technologies and flexible thought processes and implementation.

#### **DESIGN**

Our printed circuit board layouts are created in close collaboration with our customers. This is how we guarantee high standards in design for manufacturing, design for testability, and design for excellence. That ensures we provide you with cost-effective solutions.

#### **TESTING STRATEGY**

During the development phase, we devise an individual test concept for each product – complete with software and test equipment. Included here are modern optical and electronic testing methods.

#### **MATERIALS**

Our strategic global procurement department, which operates its own purchasing office in Asia, ensures internationally competitive prices. In addition, framework and quality assurance agreements as well as audits guarantee the success of the EMS process.

#### **SUPPLY CHAIN MANAGEMENT**

The efficiency and cost-effectiveness of the product development process depend on optimal component supply. We therefore procure your parts in the desired quality at the time requested – and, of course, at the best possible price.





MANUFACTURING EXPERTISE

## DELIVERS SATISFACTION IN SERIAL PRODUCTION

The production of your series is in the best possible hands – regardless of production quantity. Our expertise in all current technologies always ensures the excellent quality standards that you expect from RAFI. Satisfaction guaranteed: You benefit from our manufacturing know-how. We reduce your costs and time-to-market.







#### **SMT AND THT ASSEMBLY**

RAFI operates more than 15 fully automatic lines with nitrogen reflow and vapor phase technology for SMD high-speed and precision assembly. With 18 partially automated wave and selective soldering systems, we can supply the high RAFI quality you expect also for the assembly of THT components. This is how we meet both your requirements and ours – quickly and reliably.

We offer a wide range of Electronic Manufacturing Services and technologies, individually combined to accommodate your complex assembly needs on densely populated boards:

- Microelectronics production in cleanroom environments
- Chip on board, chip on flex, chip on chip (bonding) and flip chip
- Fully-automatic SMD high-speed and precision assembly
- THT assembly
- Flex, semi-flex and rigid-flex printed circuit board assembly
- Dip soldering
- Selective soldering
- Press fit technology
- Electronic/glass combinations
- Complete assemblies

#### **KEY FACTS**

- → Maximum board size: 534 x 610 mm
- → Component capacity of 3 million components/h

#### COMPONENT SPECTRUM

From the smallest resistor to large custom-made products – we have exactly the components that you need:

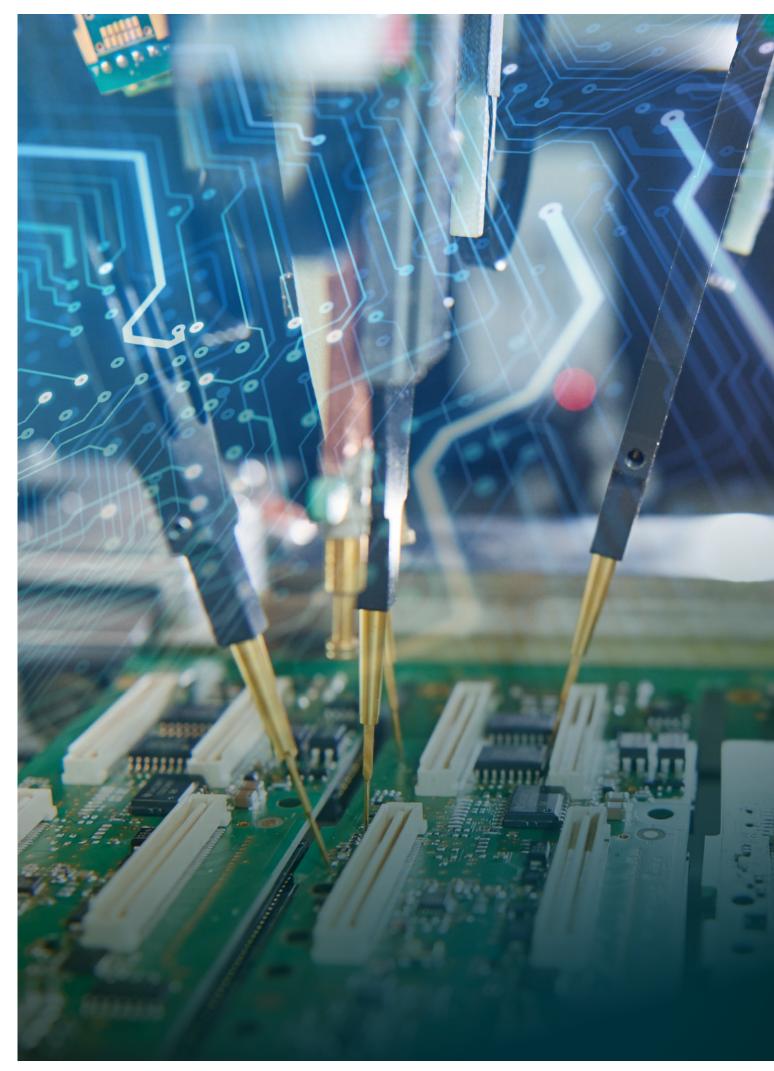
- ≥ 01005
- Chip Scale Package (CSP)
- Ball Grid Array (BGA)
- Quad Flat Package (QFP)
- Quad Flat No Leads Package (QFN)
- Package on Package
- Connectors
- Wide range of non-uniform components
- Pin-in-paste
- 3D assemblies

#### **QUALITY ASSURANCE**

Long before completed assemblies are tested, we collaborate with you to optimize the printed circuit board layout to ensure optimum assembly and function. Testing at all production process stages guarantees the desired quality.

To secure our quality standards, we offer a wide range of testing and inspection services through multiple platforms:

- 3D soldering paste inspection
- Automatic optical inspection (3D-AOI)
- X-ray inspection
- In-circuit testing
- · Boundary scan testing
- Flying probe
- Functional testing
- Pull-test for chip on board
- Shock test
- Climatic testing
- Run-in test
- Cross-section analysis



**VERTICAL INTEGRATION** 

# MAKING GOOD PRODUCTS EVEN BETTER

RAFI is more than just a typical EMS supplier. As our partner, you are also able to benefit from our many years of experience in electromechanical components and complex operating systems. We produce your project just as you visualized it – with quality "made in Germany".





#### **TOOL CONSTRUCTION**

From simple jigs to highly complex automated configurations. We develop, design and manufacture everything in-house.

#### **PLASTIC**

The majority of the processed plastic parts are produced with our modern injection molding equipment. This makes us fast and flexible.

#### METAL

Our metalworking department is equipped with CNC machining centers, stud press fit technology and CNC automatic stud welding machines. Ultrasonic welding is also used for metal as well as other materials.

#### PRINTING TECHNOLOGY

In our clean rooms, we produce your overlays with modern screen and foil printing machines, laser cutting plotters, and embossing presses. We also manufacture customized input systems under film or glass.

#### **TESTING PROCEDURES**

To ensure optimum standards, we utilize state-of-the-art EMS testing procedures including Flying-Probe Testing, Boundary Scan Testing, Burn-In Testing and In-Circuit Testing.

#### **BOX-BUILD ASSEMBLY**

As part of our comprehensive service, we manage your complete product assembly – up to and including custom packaging, to save you both time and money.

#### **VARNISHING AND FINISHING**

Protective coatings for assemblies are standard procedure for us. This also applies to your product finishing and cleaning of electronic serial assemblies.

#### **AUTOMATED ENCAPSULATION**

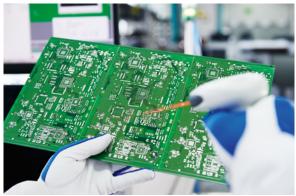
At RAFI, we also apply our expertise to encapsulate electronic components – fully automated, process-integrated and efficiently. With state-of-the-art technology, we are well-prepared to face the challenges of the future.

POST-PRODUCTION SERVICES

## YOUR COMPREHENSIVE CAREFREE PACKAGE

RAFI understands E<sup>2</sup>MS literally – as a service. For this reason, we aim to ensure that our partners' products reach their intended destination safely and in full working order.





#### **STORAGE**

Our incoming and outgoing storage processes are route-optimized due to state-of-the-art warehouse technology and software. Material handling on our shop floor is automated by inter-floor tray storage systems and sophisticated conveyor technology. This includes an integrated control system to ensure comprehensive batch and component identification.

#### LOGISTICS

RAFI Logistics deals with the optimization of all transport shipments by road, sea, or by air. In addition, we attend to the freight and customs formalities for transport to our customers around the world.

#### **CERTIFICATES**

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

#### **TRACEABILITY**

Traceability is crucial at RAFI and we achieve it by using 2D laser-inscribed barcodes on the printed circuit boards. The result: totally transparent, locking, and traceable process steps in:

- Purchasing
- Incoming goods
- SMT assembly
- AOI testing
- THT assembly
- Testing
- Software
- Assembly
- Final assembly

#### **AFTER-SALES SERVICES**

We offer you reliable spare parts availability, swift repair services and a comprehensive end-of-life service. You can count on us as dedicated EMS partner even after delivery.



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