

INNOVATION

HOFFMANN + KRIPPNER'S CUSTOMER NEWSLETTER

How Visions Become Reality

Backstage in Buchen



**Innovative and
customized**

Modern engineering and
customer-oriented development

Expertise on all levels

Membrane keypads to complex
control units

**40 years of experience
and finest quality**

Continuous advancements and
improvements

Our advantage: "Made in Germany"

Dear valued business partners,

Just a few days ago I purchased a Polo Shirt manufactured by a famous label. My purchase decision was certainly influenced by the large tag indicating the European Flag and the slogan "Made in Europe". I came to find the actual origin of manufacture in very fine print located on the label inside of the shirt: "Made in Moldova". This comes too close to fraudulent labeling for my taste.

Our statement provides absolute clarity: "Made in Germany" – manufactured in



Buchen/Odenwald. The advantages of "Made in Germany" should be apparent: our sales representatives and inside sales contacts in Buchen are available to you during regular business hours - also after business hours for high priority cases - with technical expertise and profound market knowledge.

Just a few desks further, Research & Development and Design take place. While initial samples are constructed, the designer in charge of the development personally inspects the product's progress and becomes an active part in producing optimal results. If deadlines are fast approaching, the sales department will work closely together with the procurement and production departments to do everything

possible for timely deliveries. In urgent cases, sales representatives will occasionally deliver the order personally.

We also focus on providing flexible customer service – if products are returned for repair, the sales person will personally walk over to the production department in order to quickly provide a solution. You require safety stock levels or are interested in incorporating Hoffmann + Krippner into your Kanban-System or consignment warehouse? - We work closely with our customers to meet individual requirements.

Electronic components and touch screens are primarily supplied from the Far East. With a frame order placed by our customers, we will keep necessary supplies in stock in order to ensure timely deliveries. The value added lies with our production in Germany. Thus, no issues will arise during export.

Each product is influenced by our decades of experience, thoroughness and German efficiency. However, it does not have to be more expensive than comparable products manufactured in China, featuring the same high-quality standards as Hoffmann + Krippner control systems.



Get to know the scope of our product portfolio and capabilities on the following pages. You are welcome to visit us in Buchen, where we will gladly give you a personal tour of our production facility.

Yours
Ralf Krippner

Upcoming Trade Show Dates for 2012

09/04/2012 - 09/06/2012	SINDEX	Bern, Switzerland
09/25/2012 - 09/27/2012	Medtech Forum	Luzern, Switzerland
10/02/2012 - 10/05/2012	Industrial Processing	Utrecht, Netherlands
11/06/2012 - 11/09/2012	Elmia Subcontractor	Jönköping, Sweden
11/14/2012 - 11/17/2012	Medica / Compamed	Düsseldorf, Germany
11/27/2012 - 11/29/2012	SPS/IPC/DRIVES	Nürnberg, Germany

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Finest quality data entry solution

40 years of experience and high quality standards constitute success

Merging markets and increasing international competition raise the competitive pressure for manufacturers of engineered systems and the necessity for product differentiation by form, function, design and quality increases. Continuous adjustment of important components to adapt to new trends and requirements, as well as emerging new product lines are logical consequences of this constant challenge.

Four decades of production know-how

At Hoffmann + Krippner GmbH we are well aware of the dynamics of today's market and have been investing for years in the expansion of our engineering and design departments. The development of control and input devices must be tailored towards the specific application requirements. Form, function, and design then become the I.D. of a technical product, with the input unit as the interface between man and machine. With the production know-how of 40 years and current technical knowledge, we accomplish the best possible data entry

solutions under consideration of exceptional quality standards.

Comprehensive consultation and support

Hoffmann + Krippner focuses on thorough consultations and support for the customer. Besides optimal mechanics and exceptional design, we have the capability to develop and manufacture the associated electronics and software due to extensive technical know-how. Thanks to our team of engineers, Hoffmann + Krippner provides

Individual consultation, technical due diligence and effective project management are the basis for high-end products.

solutions for a variety of interfaces, such as USB, Profibus and CAN. Evaluation of capacitive keys and functions is not a particularly challenging due to the excellent resources at our disposal. The integration of resistive and capacitive touch screens is also part of routine operations just as is the intelligence behind the display. At Hoffmann + Krippner we support integration of computer boards with solutions for Linux, Windows, and Windows Embedded.

Technical accuracy and expertise

The technical accuracy and complex project management takes the pressure off your development project. The experts in Buchen recognize opportunities and assist with conception and implementation of your projects with trained expertise, always keeping a reasonable time-cost ratio in mind.

Our experts are very familiar with the requirements of various industries. Determining the application and implementation is key during the initial consultation. We create the production documents for a sophisticated and high-quality product, providing a competitive advantage in today's market with its uniqueness.

Hereinafter, we would like to take you on a tour through the production facility in Buchen/Odenwald.



Extensive, individual consultations are the basis for successful projects

Moving from specifications to design

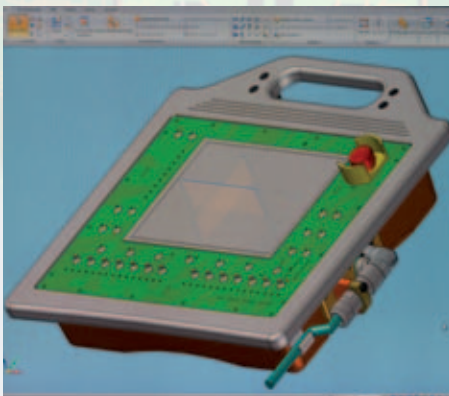
Our experienced development and design team transforms customer requirements into products



Integrating membrane sensors into keypads? No problem at Hoffmann + Krippner



Complex electronic circuits are developed using Pulsonix



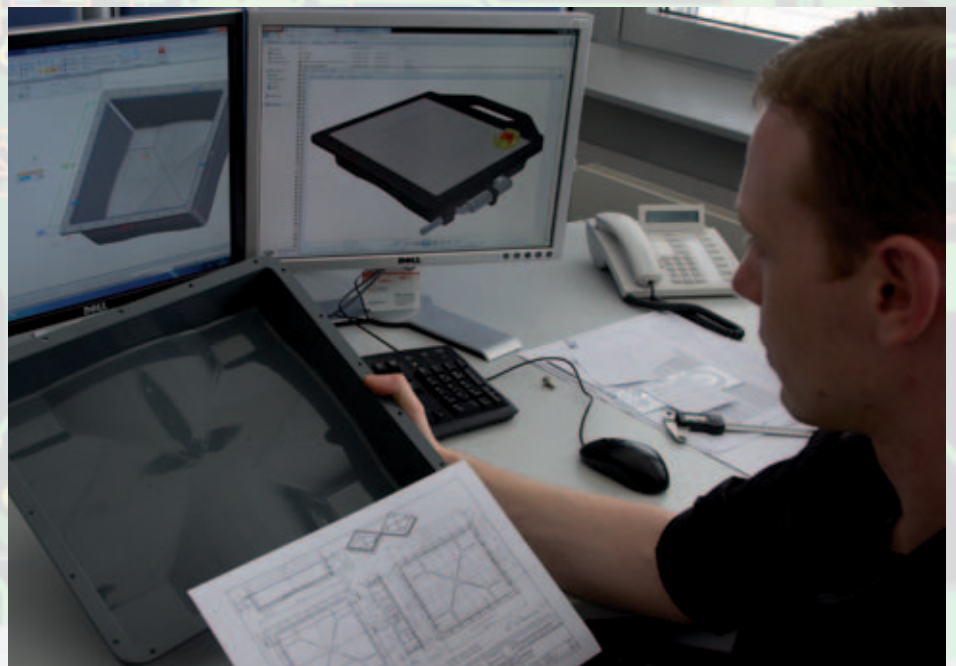
The concept design looks almost perfect, now the production process starts

Maximum value through advanced software used in the engineering design department

In the design department, all requirements are brought together, visualized and implemented for the subsequent production process. All relevant data retrieved from the customer is captured in a project checklist. The quality of the data is crucial for the implementation of the initial sample order. The technical feasibility of the product has been ensured at this point. Hoffmann + Krippner works with the latest software tools such as Solid Edge for the 3D mechanical design of

housing and assembly components, and with Pulsonix including the appropriate 3D interface to Solid Edge for the development of electronic circuits.

Corel Draw is used for the graphic representation of design. Of our approximate 200 employees, 25 work in research and development and engineering design. This is a remarkable rate, exclusively with the best possible customer value in mind.



Solid Edge is used to create 3D designs

Printing department – core competency

Four decades of experience in screen printing

The first station after design is the production of the film as a template for the screen preparation. The printed circuit foil of a simple flexible switch already consists of five print cycles. The design foil often consists of an additional 10-15 print cycles, depending on customer requirements. Using the screen printing process, each print cycle requires an individual film for the screen template.

After the screens have been coated in the printing department, the next challenge consists of the proper selection of colors according to customer requirements. The color measurement system Color-Eye 3100 produces objective results, without reliance on the human eye.

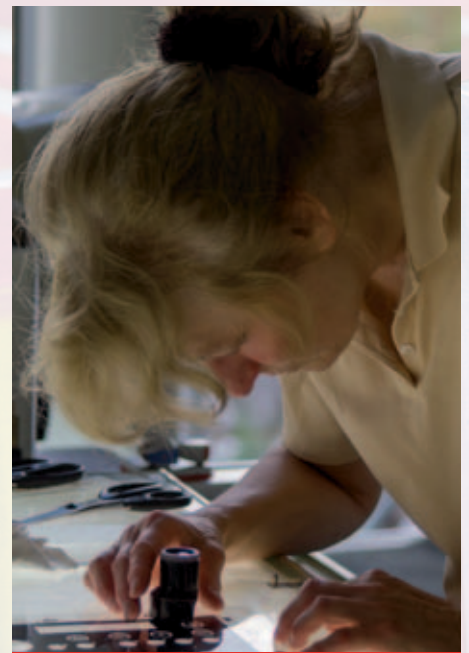
Printing experience since 1972

The printing process is Hoffmann + Krippner's core competency and the steam engine of the company's successful corporate development. Trained in the field, Fritz Krippner was able to recognize the possibilities of printed foil and screen printing in 1972 and implemented his ideas together with his partner Max Hoffmann. A computerized color mixing system

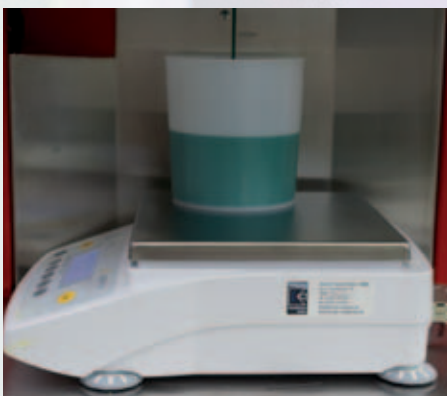
guarantees reproducibility of all colors used for serial production and provides continuous color fastness. Any color and informational content can be printed on the foil. Conductive silver ink is used for the circuit foil.



Better accuracy than the human eye: the colorimeter Colour Eye 3100



Electronic circuits require at least 5 print cycles – one film is created for each cycle



Color mixing by hand is a thing of the past



A computerized color-mixing system ensures precise repeatability of colors used in serial production

Printing with know-how

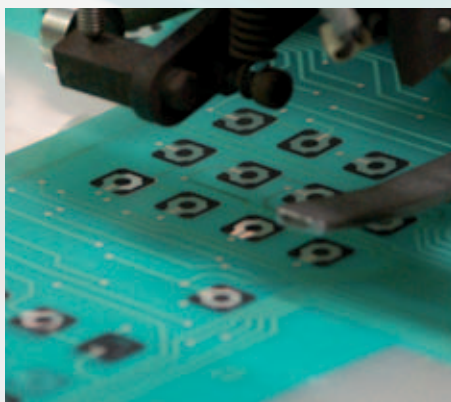
Experience and modern technology for best results



The cleaning of filters is carried out under strict ecological considerations



The process of screen printing works at high efficiency



The printed films move from the impression cylinder to the oven to dry

Steam engine and core competency of Hoffmann + Krippner: the printing department

Some of our products have been in production for over twenty years. The screen printing engineers in the print shop acquired the know-how for perfect color mixing before it became computerized.

Three, fully-automatic impression cylinders with ovens and three, semi-automatic printers provide a continuous output of printed

films. The print results are randomly selected for visual inspection in order to immediately address small errors and the screens are cleaned under strict environmental considerations. The certification according to DIN ISO 14001 proves compliance with applicable regulations. The environmental impact of production at Hoffmann + Krippner is minimal.



Permanent inspections during the printing process ensure high quality

Film surfaces based on individual requirements

Varying methods – always the same quality

After printing, the films are further processed. Various methods exist in order to create raised keys. During the embossing process, the front foil is molded according to customer requirements.

Key surfaces with optimal haptic

The GT method is a special technology developed and patented by Hoffmann + Krippner. During the complex manufacturing process, exact amounts of a plastic polymer are applied to the foil surface and become one with the foil after the curing process. The resulting key domes do not set limits in terms of shape and design. With the patent now expired, GT-technology is often copied by the competition but rarely achieved at such quality. The key domes increase the robustness of the entire keypad. Temperature and humidity are only a few examples of operating con-



The embossing process produces raised keys



The laser cutter operates with much more accuracy than die-cutting tools and is now the most commonly used method in the cutting room

ditions these control units are often exposed to. The deployed control units must be reliable and provide high mechanical resistance.

Laser technology in the cutting room

The cutting room is where our products are cut out of the large sheets of film. Depending on the requirements of the product, three different cutting methods can be selected: steel rule die, digital cutting and laser cutting. Laser-shuttle-tables provide for quick work flow and efficient operations.

Turn-key solutions from a single source

Competitive advantage of in-house electronics production



Visual inspections of the assembled components are carried out with great attention to detail



The soldering paste printer by MyData is the acquisition of machinery



Knowledgeable staff is essential for every machine

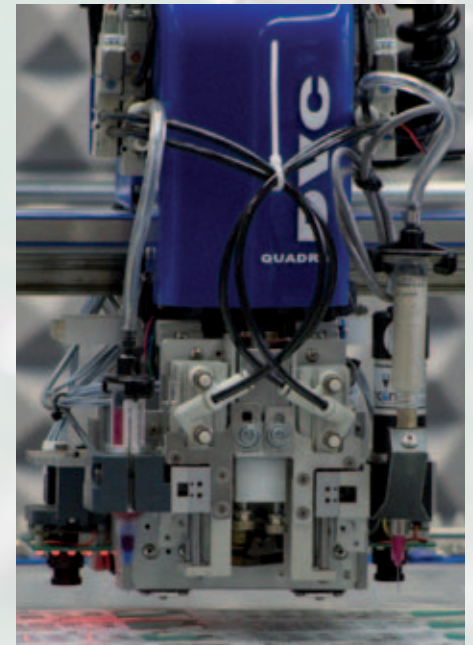
The clear differentiation to the competition and a source of pride at Hoffmann + Krippner is certainly the in-house electronics production with several automated manufacturing processes. Whether a complete PCB assembly with electronic components or the automatic snap disc assembly and automated placement of components on foil: we are always aware of the most advanced technological trends.

Always cutting-edge: sophisticated electronics production at Hoffmann + Krippner in Buchen

The latest member of our electronic production is a soldering paste printer by MyData. The printing process essentially determines quality of the soldering results. Given the high quality standard at Hoffmann + Krippner, certain steps must be done by hand. One very important aspect is constant inspection after each manufacturing step to keep the margin of error as low as possible.



Snap discs run on a wheel and are applied to the designated position



Automatic placement of electronic components on foil is precise and reliable

Precision and sound judgment

The perfect interaction between man and machine produces optimal results

Despite automated production methods: manual precision continues to play a central role

During the crimping process, layers of film are combined using an adhesive. Using the latest generation of precision machinery, Hoffmann + Krippner delivers reproducibility and highly accurate results. The panel production additionally provides a price advantage for the final product.



Every day is a wedding: the individual elements are bonded with each other

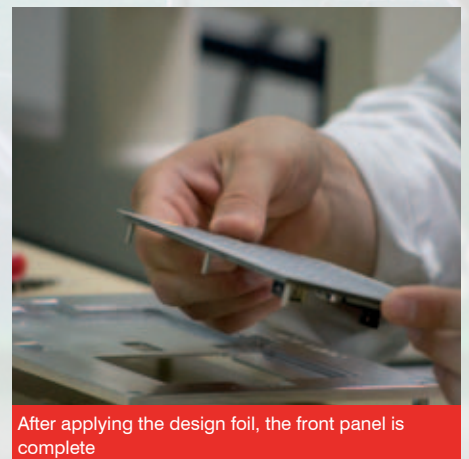


The employees work with absolute concentration during crimping of film and adhesive



The snap domes are fixated using a placement layer

In order to bond the film with the electronics, manual work is essential once again. The full-surface bonding of touch screens is supported by special machines and occurs under cleanroom conditions. A highly transparent adhesive is used to bond the touch screen with the overlay.



After applying the design foil, the front panel is complete

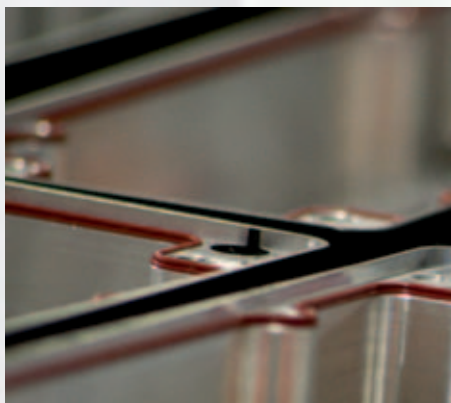
Sealant and final inspection

Protection and security for best results

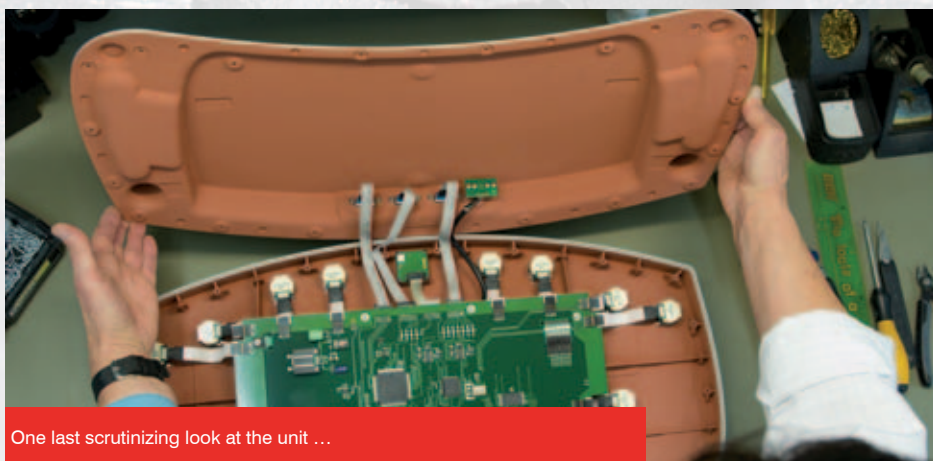
Silicone or silicone-free sealant compounds, as required, are dispensed in-house at Hoffmann + Krippner. Conductive ESD gaskets can be integrated in order to provide electromagnetic shielding of the components. Machine dispensing allows not only for very thin, but also narrow and tall sealants when applying several layers.

At the end of the production line, a complex solution has been produced, subject to one more final, thorough inspection.

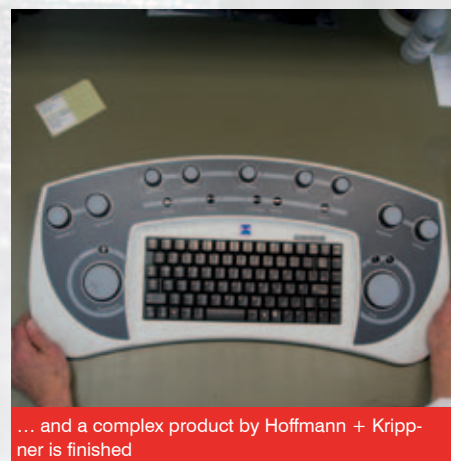
If the overlays are integrated into enclosures, the sealant is in most cases an essential element



By applying double layers, narrow and tall gaskets can be produced



One last scrutinizing look at the unit ...



... and a complex product by Hoffmann + Krippner is finished

Consistently high quality standards

Product features are durability and reliability

The lab is continuously working on quality improvements

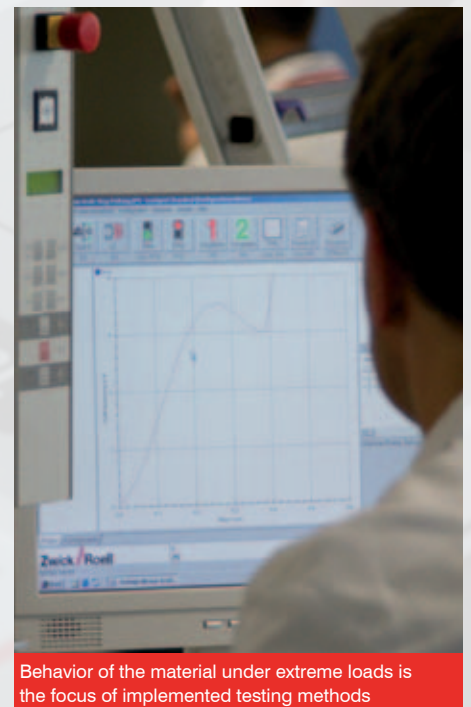
Our software division at Hoffmann + Krippner writes testing programs to query key function and report malfunctions. In general, the constant examination of materials, switching cycles and temperature behavior is a key element of our high quality standards. A large-scale lab and well-trained team form the basis for consistent quality assurance. Only then, the claim "Quality – Made in Germany" is feasible.



This is where the longevity of the product is put to the test



In-house software is used to test the function of each key during final inspection



Behavior of the material under extreme loads is the focus of implemented testing methods

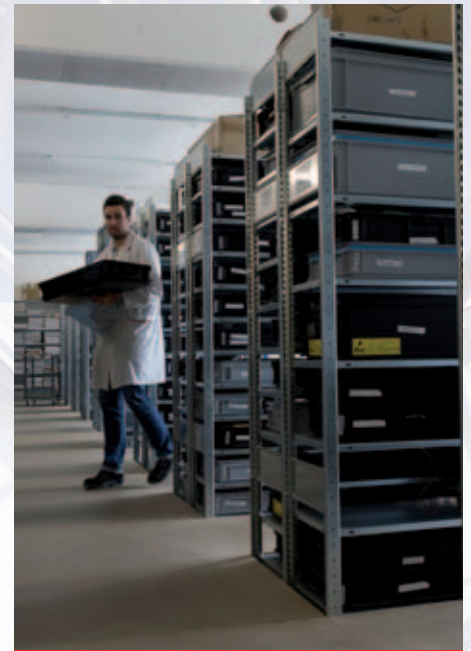
The customer is always at focus

Flexible warehousing and competent employees are the key to success

A large warehouse provides for flexible logistic processes according to customer requirements



Over 15,000 different products need plenty of product storage



The newly constructed warehouse by Hoffmann + Krippner extends over two levels

Apart from high quality demands, customer service has a special focus at Hoffmann + Krippner. A large warehouse ensures rapid availability of stored products. In any case, the customer's logistical demands can be achieved. Flexible handling of the KANBAN process is an option, as well as the establishment of consignment warehousing. Our courteous sales team provides all-around support and ensures comfort even in hectic times.

Comprehensive consultation, a full-service program even at small to medium volume projects, and a complete benefits package through the complex in-house production in Buchen with explicit software know-how – Hoffmann + Krippner is a central partner for innovative input devices.



With thorough technical experience, the sales department at Hoffmann + Krippner provides high quality consultations