



 **N&H Technology GmbH**

MAGNETIC CONNECTORS

System supplier for HMI Operating units

ENGINEERING | MANUFACTURING | DELIVERY

COMPLETE SOLUTIONS & ASSEMBLIES

KEYBOARDS, KEYPADS & BUTTONS

CABLE ASSEMBLY & CONNECTORS

MOLDED PARTS & TOOLMAKING



2001

Foundation of the N&H Technology GmbH with 4 employees in Krefeld

2012

New construction of a company building in Willich with its own test laboratory & logistics warehouse

2013

Opening of the N&H office in Shanghai

2021

Warehouse extension with 470 additional pallet spaces

2023

Majority interest SNT Technology Co.,Ltd. In-house design & production of input solutions

2025

Our N&H team comprises 51 employees - 13 of whom are *engineers**.



Your expert for input units since 2001



Over 5,000 realized customer projects



Long-standing partnerships with leading companies from a wide range of industries



In-house development & exclusive production for maximum flexibility



Certified processes for highest quality





WE AT N&H TECHNOLOGY

Since our foundation in 2001, we have established ourselves as a leading full-service provider of customized electromechanical assemblies, moulded parts and components for individual operating units (HMI).

We offer comprehensive manufacturing solutions through our established supplier network in Asia, which is coordinated on a project-specific basis in cooperation with our subsidiary in Shanghai.

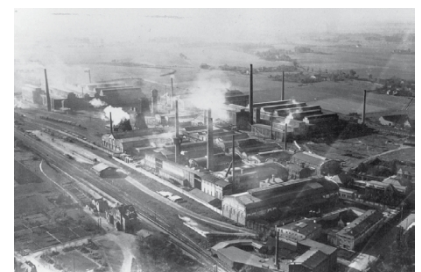
Our partners meet industry-specific standards such as DIN ISO 9001, ISO 14001, IATF 16949 and DIN ISO 13485, and our own test and inspection laboratory at our site in Willich complements our strict quality controls.

In 2023, we expanded our expertise in membrane switches by acquiring a majority stake in the highly specialized FoShan SNT Electronics Technology Co, Ltd. in China. This enables us to respond even more specifically to the individual requirements of our customers and offer high-quality solutions.

Our customer base includes leading companies from the automotive industry, medical technology, telecommunications, industrial automation, building control technology and other sectors. We are characterized by long-standing partnerships and a high level of customer satisfaction.

Our employees are the heart of N&H Technology and the key to our success. We support our international, family-like team and create an environment that encourages personal development, innovation and collaboration.

N&H Technology stands for innovation, quality and reliability - your trusted partner for electromechanical solutions.



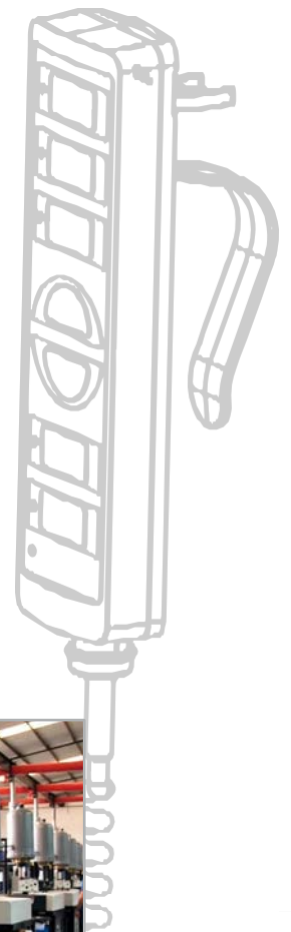
Modernity meets history

Since the turn of the millennium, the site of the former Becker steelworks has been transformed into a diverse industrial park, where carefully restored monuments alternate with modern architecture.

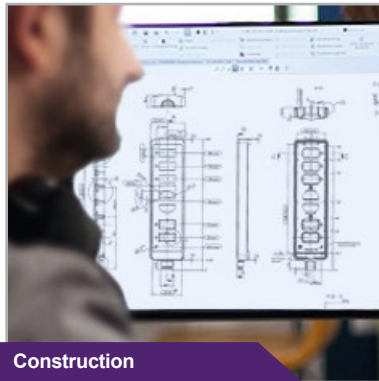
WHAT WE DO

We develop and manufacture customized products for various industries and provide our customers with comprehensive support from the initial idea through to series production. Our portfolio includes electromechanical input units and all components of electronic products, including housings, displays, keyboards and cable assemblies.

Our services range from advisory development and feasibility studies to cost estimates, prototype construction and material selection, right through to cost optimization and product design. We also create technical drawings and, if required, take on the complete design.



Engineering support from A-Z



Construction



Procurement & Production



Buffer stock (optional)



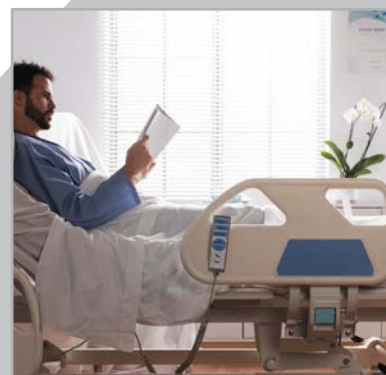
Logistical processing

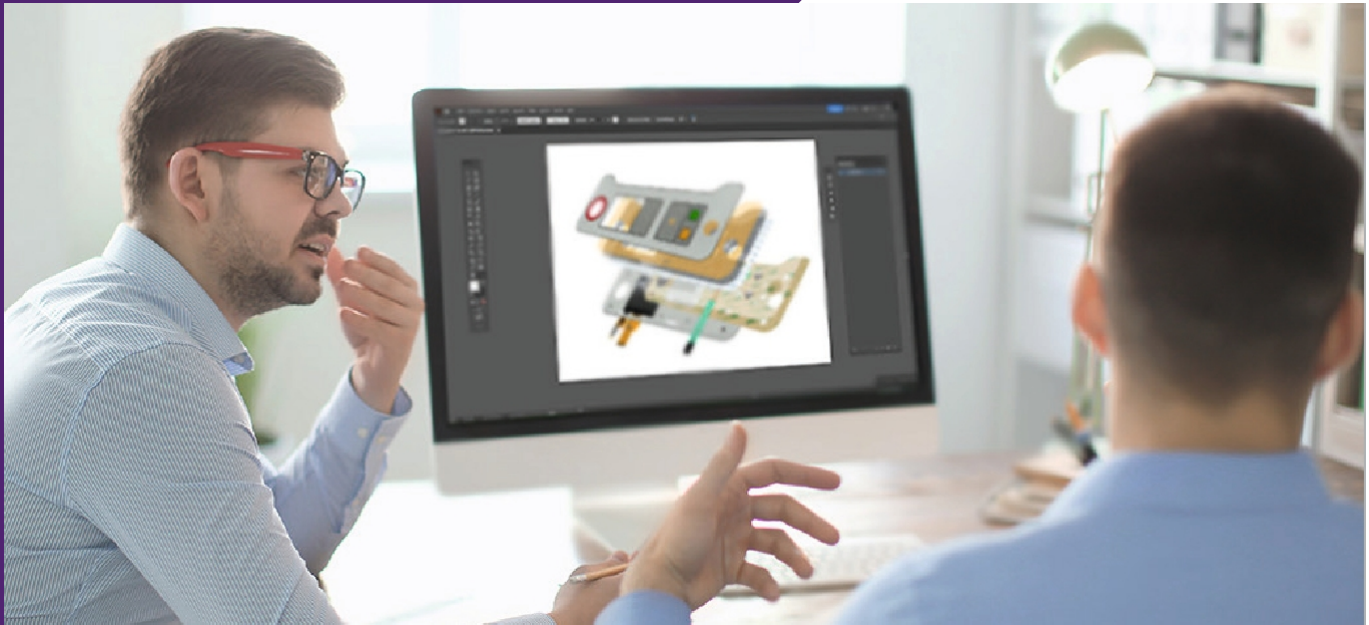


Assembly



Finished product





WHAT WE OFFER



Technical support

- Support from the concept phase to series development
- Feasibility studies
- Suggestions for improvement
- Advice on material selection and production methods
- Development of options to reduce costs



Development & Construction

- Development of components, molded parts, assemblies and complete solutions
- Sketching, conception and pre-construction
- Design in 3D CAD
- Optimization of existing customer templates
- Presentation of product views in the form of realistic 3D renderings
- Creation of production documents such as technical drawings and parts lists
- Prototype construction using 3D printing & silicone casting



N&H Laboratories

- Project-specific final inspection
- Electromechanical tests
- Optical / acoustic tests
- Material testing
- Measurements Surface resistance, Volume resistivity, conductivity
- Technical problem analysis, also for third-party products



Purchasing

- Outsourcing options for your supply chain
- Procurement of third-party components

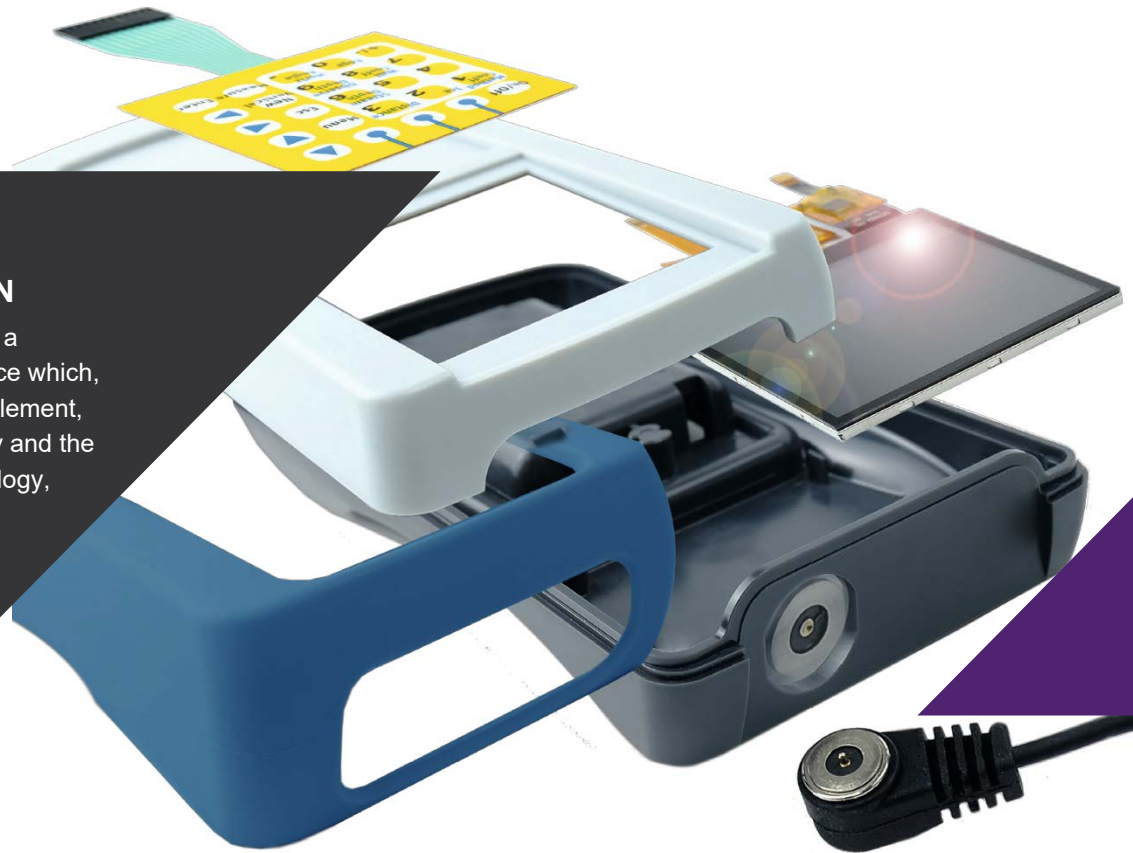


Logistics

- Complete logistical handling
- Buffer stock at N&H Technology in Willich possible

COMPLETE SOLUTION

A typical product example is a customer-specific input device which, in addition to the keyboard element, includes a housing, a display and the complete connection technology, including cable assembly.



Customized components

KEYBOARDS

- Silicone rubber keypads
- Membrane keypads
- Capacitive keyboards
- Touch input systems

BUTTONS & SWITCHES

- Pushbutton
- Piezo push-button
- Status/signal lamps
- Micro switch

CABLE ASSEMBLY

- Cable harnesses
- Data cable
- Coaxial cable
- Special cable
- Individual cables

CONNECTORS

- Magnetic plugs
- Spring contact plug
- Special plug

PCB

- Flex & Rigid circuits
- Single layer, double layer, multilayer

FURTHER

- Protective bags
- Battery contacts



We also offer a wide range of standard components, which you can select & request directly from our **online catalog!**

katalog.nh-technology.de

Standard components

- Spring contacts / Pogo pins
- Plug connector
- High-current connectors
- Stainless steel keyboards
- Hygienic keyboards
- Micro switches for SMT
- Pushbutton, piezo pushbutton
- Status lamps
- LC displays (TFT)
- Transducer, buzzer
- Microphones, loudspeakers

INTRODUCTION

08 - 09

SPECIFICATIONS

10 - 11

INSTALLATION

12 - 15

CONTACT TO N&H

16

Customized moulded parts

PLASTIC

- Precision & large parts
- Single and multiple spraying

ELASTOMER

- Protective covers
- O-rings, seals
- Precision parts

2K / 3K PARTS

METAL

- Heat sink
- Die-cast parts
- Stamped, turned and milled parts
- Deep-drawn parts
- Battery contacts

GLASS

- Front glasses
- Molded glass panes



MAGIC PLUGS

Our magnetic connectors with integrated spring contact probes combine maximum reliability with intuitive handling - ideal for applications with frequent plugging/unplugging, demanding environmental conditions or space-critical designs.

ALL-ROUND SERVICE

With our many years of experience in the field of magnetic connectors, we support you from the initial idea through to series production - with technical expertise, speed and efficiency.

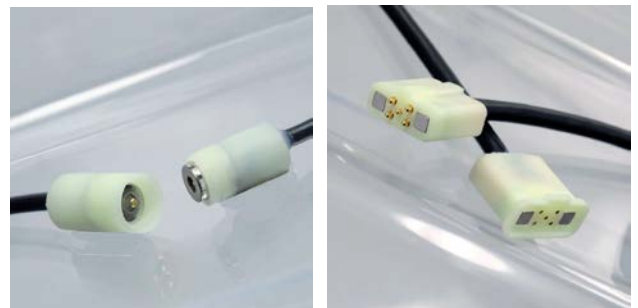
Your effort remains minimal:

All we need is information on the planned installation situation and the basic technical requirements (e.. current, number of pins, protection class). Based on this information, we take over for you:

- Design and construction of the plug-in system
- 3D modeling and visualization for design coordination
- Design of the magnetic force and spring contacts
- Cable assembly and integration into your module
- Prototyping via 3D printing
- Planning of series production incl. testing and logistics concept

This gives you a customized solution from a single source - tailored to your application, designed for easy installation and ready for series production.

PROTOTYPES

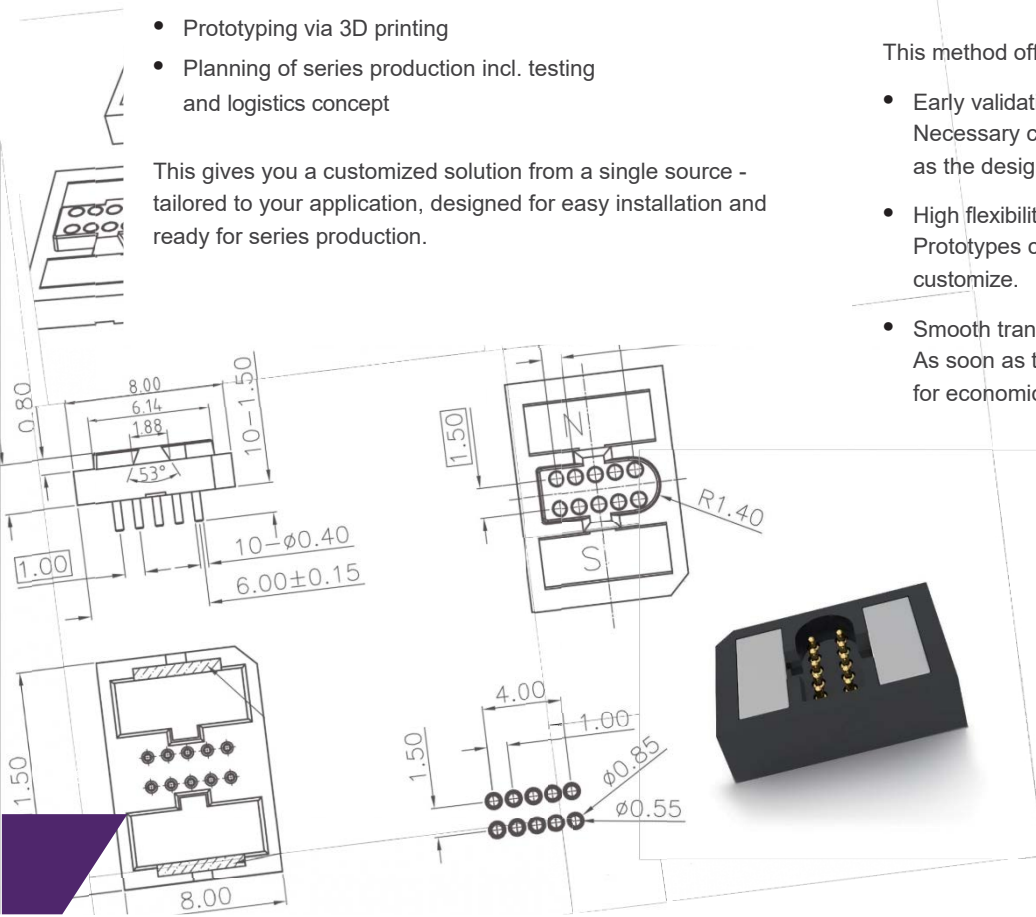


With the help of 3D printing and manual processing, we create individual magnetic connectors as prototypes for customer-specific applications.

This mini-series with up to 20 samples enables initial installation trials and tests of the magnetic force.

This method offers the following advantages:

- **Early validation:**
Necessary changes can be identified and implemented as early as the design phase.
- **High flexibility:**
Prototypes can be produced quickly and cost-effectively. customize.
- **Smooth transition to series production:**
As soon as the prototype the requirements, the tool is created for economical and reliable production.





ADVANTAGES

- Self-centering connection**
 Thanks to integrated magnets, they are automatically plugged in in the correct position - incorrect polarity is impossible.
- Durable and robust**
 More than 10,000 mating cycles, vibration and shock resistant - ideal for demanding applications.
- Customized and scalable**
 The number of pins, housing shape and pitch are individually adapted to your requirements.
- High current carrying capacity**
 Up to 15 A per pin thanks to the use of power-optimized spring contact probes.
- Hygienic design**
 No latching mechanism, no unnecessary joints - easy to clean and ideal for medical applications.
- Safe separation under load**
 The connection disconnects automatically when tension or force is applied - protects against cable and appliance damage.
- Variety of materials for industry-specific requirements** By specifically selecting the housing plastic, the connector can be tailored precisely to the requirements of your industry - e.g. chemical-resistant for medical technology or flame-retardant for industrial applications Applications.
- Protection class up to IPx7**
 Waterproof versions with O-rings, potting or overmolding - suitable for harsh environments

TYPICAL AREAS OF APPLICATION

- Medical technology**
 Patient monitors, infusion systems, prostheses, mobile diagnostic devices, bed controls
- Industrial automation & robotics**
 modular gripper systems, interchangeable sensor/actuator modules
- Measurement technology & laboratory equipment**
 Modular test systems, mobile measuring devices
- Military and security technology** Communication equipment, tactical devices, field systems (robust, shock-resistant, easy to clean)
- Communication technology**
 Radios, charging and data connections for mobile devices
- Consumer and wearable electronics**
 Charging ports for headsets, medical wearables



IPx7 construction with O-ring

MAGNETIC PLUGS

SPECIFICATIONS

TECHNICAL SPECIFICATIONS

- Service life: at least 10,000 reattachments.
- Protection class: up to IPx7
- The magnetic force can be by different magnets can be customized.

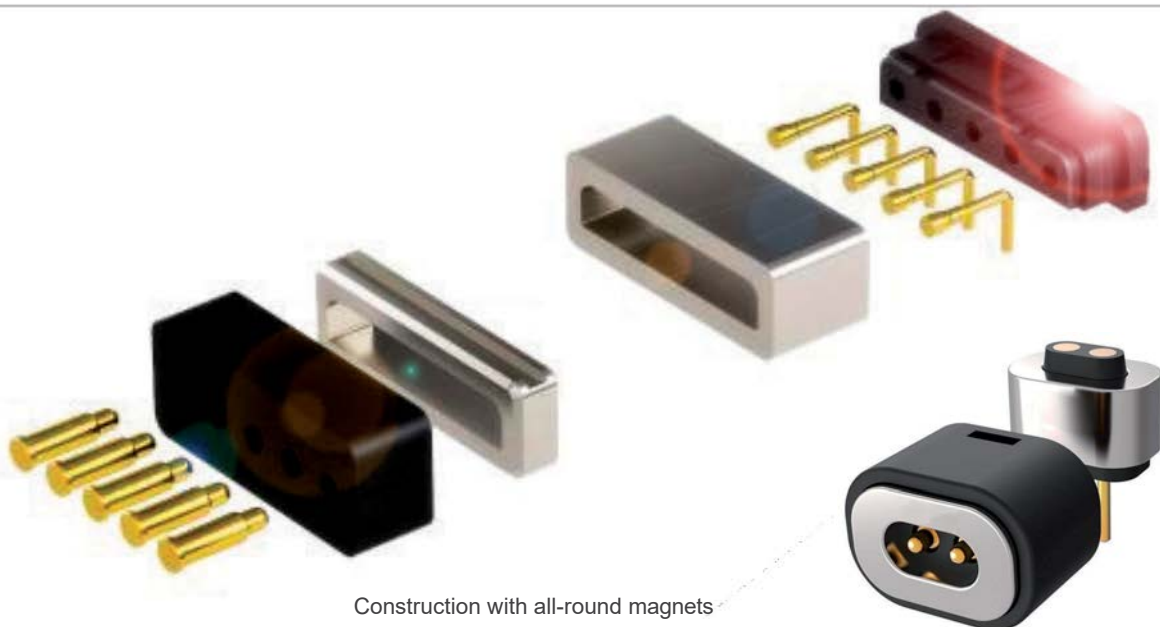
Typical magnetic force ranges of magnetic connectors:

Configuration	Holding force (approx.)	Magnetic flux density (approx.)	Typical application
Small connectors (1-3 pins)	0.5 - 2.5 kg	150 - 300 mT	Wearables, small mobile devices
Medium plug (4-8 pins)	2 - 6 kg	250 - 400 mT	Medical technology, HMI, consumer devices
Large plugs (>8 pins)	5 - 10+ kg	350 - 600 mT	Industrial applications, vehicle technology



Notes:

- The actual flux density depends on the magnet type (e.g. neodymium N35-N52)
- The holding force is relevant in practice and is taken into account in the mechanical design (e.g. for manual separation).
- For sensitive applications, we check additionally the field strengths in relation to EMC and surrounding electronics.



Construction with all-round magnets



SPRING CONTACTS

We select the right spring contact for our magnetic connectors precisely according to your technical requirements. We take into account parameters such as current carrying capacity, spring force, installation situation and surface coating.

Rated current: up to 15 A per pin

Contact resistance: <100 mΩ

Spring force: 25-400 g

Materials: Brass, beryllium copper, stainless steel

Coatings: Gold, Super-AP, nickel, palladium Very good performance in high-frequency applications RoHS-compliant and halogen-free

Individual adjustments are possible at any time, including

Adjustment of rated current and spring force:

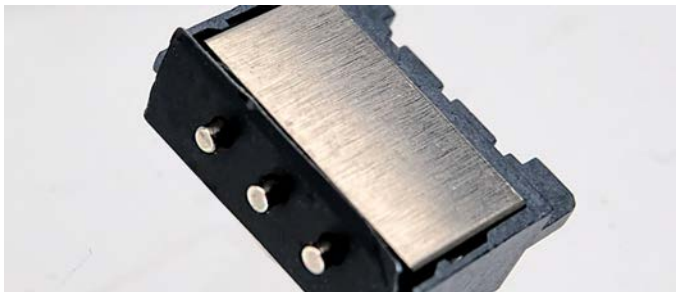
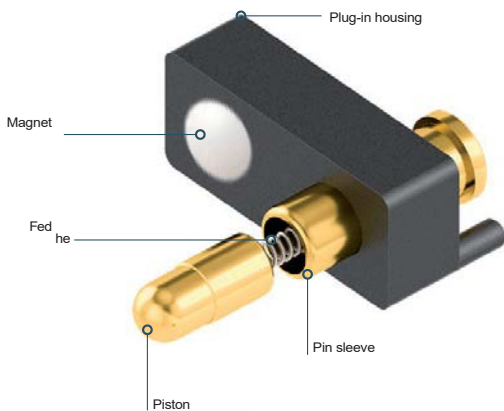
We optimize rated current and spring force exactly to your requirements. Spring contacts can be designed for currents from a few milliamperes up to 15A, while the spring force can be customized from a light 20g up to 900g.

This ensures a reliable electrical connection and the optimum balance between contact stability and mechanical load.

Adaptation of the surface coating:

By selecting suitable coatings, we can optimally adapt the protection and electrical conductivity of your spring contacts.

In addition to standard coatings, we also offer special coatings such as Super-AP for improved corrosion resistance and conductivity. Partial coatings are also possible in order to optimize specific contact areas.



Contacts with Super-AP coating (silver)



TIP

More about spring contacts

The catalog is a comprehensive technical documentation on spring contacts. It provides detailed information on various types of spring contacts, their applications, technical specifications and customization options.

Download on our website.



MAGNETIC PLUGS

INSTALLATION

Flexible installation options for every application

Our magnetic connectors can be efficiently integrated into a wide variety of system environments for specific applications. All variants are equipped with our high-performance spring contact probes and can be customized in terms of the number of pins, housing material, magnetic force and degree of protection (up to IPx7).

Various installation variants are available depending on the project requirements:



Magnetic adapters for existing systems

We design customer-specific adapter solutions with magnetic connections for existing devices or interfaces. These enable simple retrofitting or product optimization without having to make fundamental changes to the existing device design.

We also produce magnetic USB adapters, for example for USB-A, USB-C or micro-USB, with integrated cable assembly or as adapter plugs.

This means that conventional connections can be converted to a hygienic, easy-to-touch and easily detachable magnetic connection.

Application example:

Adapter for existing patient monitors, handsets or testing devices.





Direct integration into the housing

We develop and manufacture complete plug-in solutions including matching housings or device units. The magnetic connector is optimally integrated into the assembly both mechanically and electrically.

This variant is particularly suitable for new developments and series products with a high degree of integration.

Application example:

Charging and interface plugs for hand-held medical devices or Diagnostic units with plastic housing.



MAGNETIC PLUGS

INSTALLATION

Screw-in magnetic plugs with thread

Our connectors can also be designed with a screw thread so that they can be screwed directly into front panels or housing walls.

Mechanical fastening is carried out using metric or customer-specific thread forms - for secure, form-fit installation with a defined fit.

This version is particularly suitable for use in demanding industrial environments with increased mechanical loads and for retrofitting or near-series integration in standard and existing enclosures.

The screw threads can easily be supplemented with seals to meet protection classes up to IPx7.



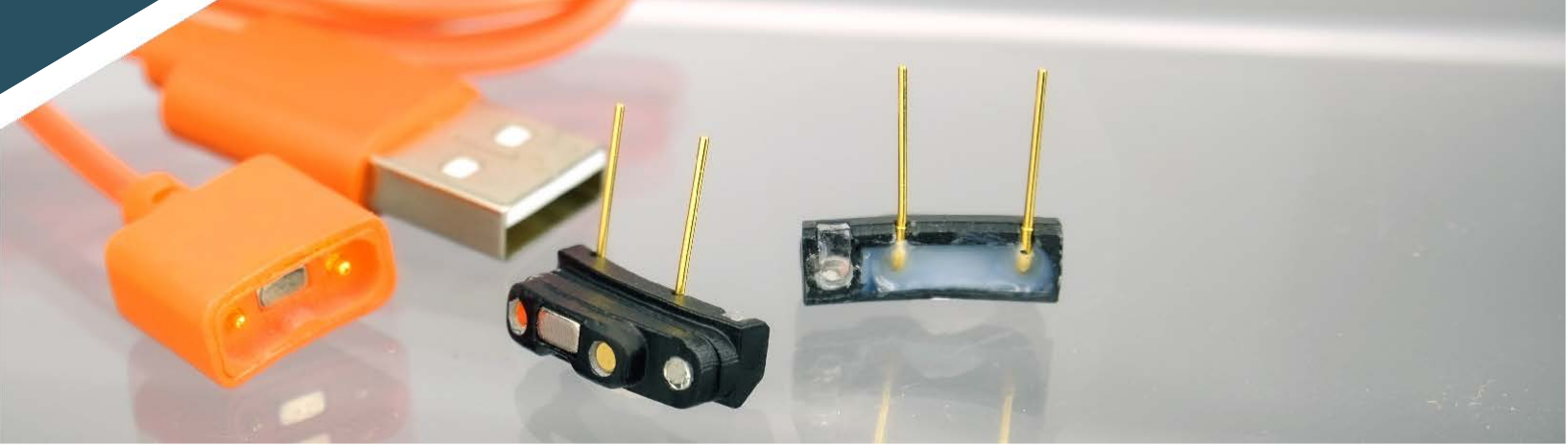
Printed circuit board assembly (SMD/THT)

Our magnetic connectors can also be designed for direct mounting on printed circuit boards - using both SMT and THT processes. This solution is particularly suitable for series products with a high degree of integration and direct connection to the electronics.

Example:

Magnetic PCB connectors for control units, sensors or interface modules.





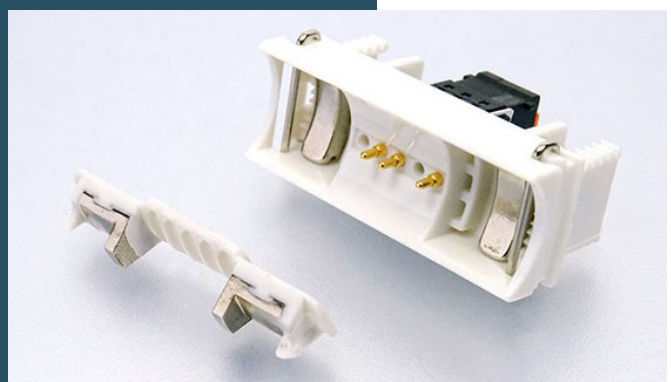
YOUR IDEA

We realize what is possible

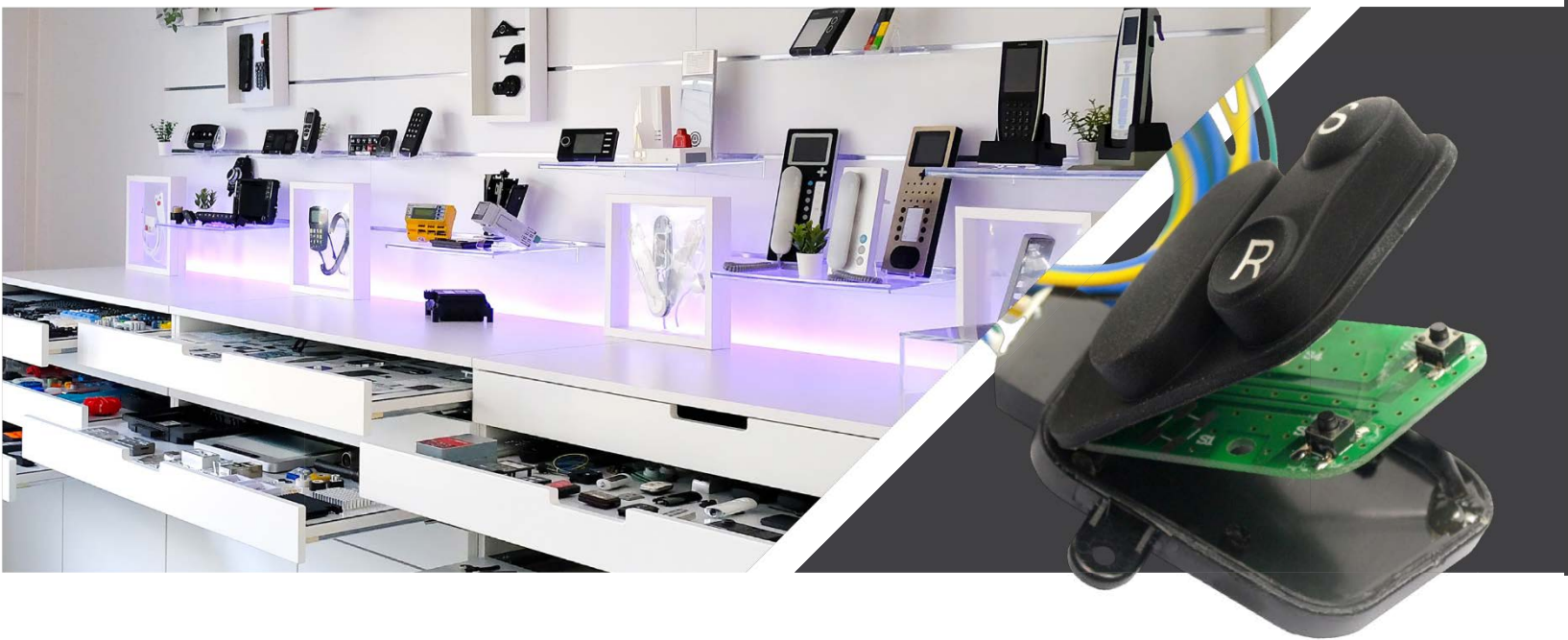
Do you have a special installation situation or a specific idea?

Our design team examines your requirements in detail and develops a customized solution - with a high degree of technical flexibility and a focus on feasibility.

We only need information on the planned installation situation and the basic technical requirements (e.g. current, number of pins, protection class).



YOUR PROJECT



We are your reliable partner in every phase of your project - from the initial design to series production.

Our aim is to provide you with comprehensive support and ensure the success of your project.

Your request

We would be happy to provide you with a non-binding quote tailored to your individual project. We need the following information:

- Technical drawings, sketches or samples
- Technical specifications
- Details of the desired equipment extras
- Required quantity, annual requirement or term

As soon as we have received this information, one of our experienced engineers will contact you as soon as possible.

To protect your sensitive data, it goes without saying that we sign a non-disclosure agreement (NDA).

Personal advice and meetings

We are always available for technical advice - by phone, online in person by appointment. A face-to-face meeting is often particularly valuable for complex or new projects in order to precisely understand your requirements and needs and offer you the best solution.

Our showroom

In our showroom, you also have the opportunity to see the quality and functionality of our products for yourself, receive individual advice and try out the various models.

Together to success

We look forward to supporting you in the implementation of your projects - let's be successful together!

 **N&H Technology GmbH**

MORE THAN PLASTIC

Your full-service supplier for HMI operating units



We design and manufacture all components and molded parts for individual input units. Do you need a customized membrane keypad or silicone keypad, an injection-moulded housing or cable assembly?

Get in touch with us!

As a full-service supplier for HMI operating units, we develop and manufacture customized input solutions - from the initial idea to series production, precisely tailored to your technical and industry-specific requirements.

SERVICE

Our catalogs offer technical details and design information for optimal product selection - as a print version on request or conveniently available as
Download at www.nh-technology.de





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