



nh-technology.de

PRODUCT RANGE



SYSTEM SUPPLIER FOR INPUT DEVICES

CONSTRUCTION | PRODUCTION | LOGISTICS

MODULES & SYSTEM SOLUTIONS

KEYPADS & SWITCHES

CABLE ASSEMBLY & CONNECTORS

ELECTRONIC COMPONENTS

MOULDED PARTS & TOOLING

 **N&H Technology GmbH**



QUICK FACTS

2001

N&H Technology GmbH founded by Dipl. Ing. Yine Zhang in Krefeld Germany with 3 employees

2002



Certification according to DIN ISO 9001

2007

Moving to a new headquarter in Willich with 15 employees

2012

Own company built in the industrial area „Stahlwerk Becker“ in Willich
Company expanded to 22 employees

2013

N&H Office opened in Shanghai China

2016



General Manager
Dipl. Ing. Yine Zhang awarded “Manager of the Year”

2017



Award from the TÜV Rheinland for 15 years DIN ISO 9001 certification

2018

Storage area significantly extended

2022

N&H expanded to 45 employees (22 with graduation, including 16 engineers)



Headquarter in the industrial area
„Stahlwerk Becker“ in Willich

ABOUT

We are a full-service supplier with a focus on customer-specific operating units and offer the production of electromechanical assemblies and the procurement of all necessary components.

STRENGTHEN

We see ourselves as a link between production plants in Asia and our customers in Europe. On the one hand, our strengths lie in the technical advice and support of our customers projects and on the other hand in professional procurement, quality assurance and logistics. Through highly qualified German and Chinese engineers in our company, we communicate excellently with our customers and supplier, even about complex technical issues. On customer demand, we also can take over entire development and design tasks. A creative and dynamic way of working, as well as tolerance and honesty, characterize our cooperation.

PRODUCTION & QUALITY

Our production takes place through our extensive supplier network in East Asia. Our manufacturing partners, some of whom have been with us for many years, are constantly checked by us on the basis of defined technical and economic criteria and selected on a project-specific basis. Sector-specific quality requirements are taken into account. In addition to DIN ISO 9001 and DIN ISO 14001 certification, we can select a large number of specialized suppliers who, for example, meet IATF 16949 or DIN ISO 13845 standard requirements.

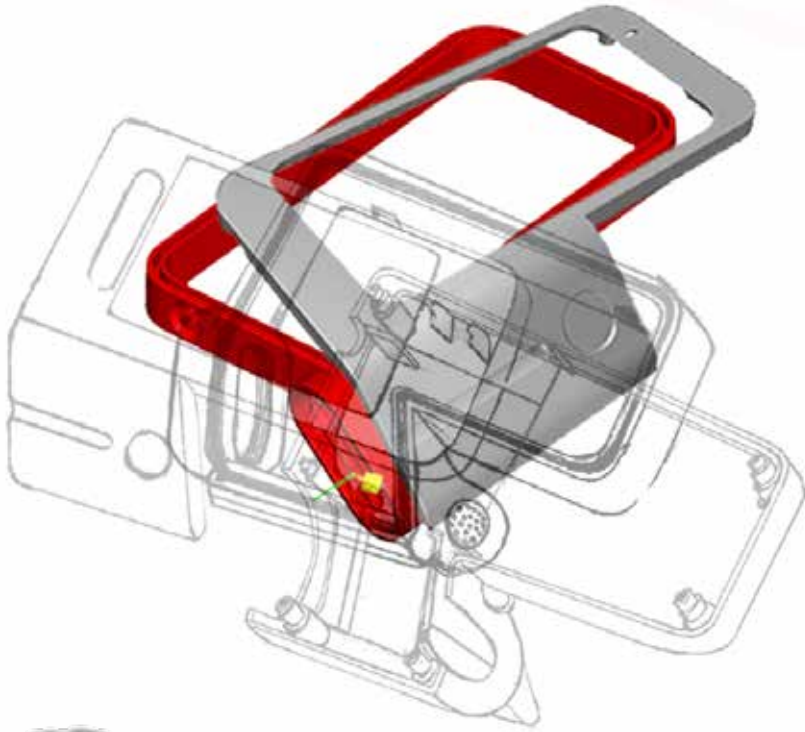
With the help of a comprehensive quality management system in-house and in the production plants on site by our second N&H location in China (Shanghai), we can ensure European quality standards for our products.



Modern meets History

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

ABOUT N&H



STARTING A NEW PRODUCT?

Planning a new product is a complex process. Problems frequently come up even at the early stage, relating the feasibility of the project or the procurement of required components.

We offer a comprehensive full service – from consulting and developing your early concepts to producing and logistic handling series and mass production.

We focus on customer-specific operating units and offer the production of electromechanical assemblies and the procurement of all necessary components. Of course, we gladly assist you in the development of individual components – as our purpose goes: Single Source Supply.

We constantly expand our portfolio with new products and technologies for being an attractive, long term business partner.



SERVICE

With our service profile, all processes of product development and product manufacturing can be covered.

Each project is individually managed by one of our engineers.

- Development and construction of molded parts, assemblies and complete solutions by our in-house product designers
- Prototype construction with 3D printer
- Production according to European quality standards at our long-standing and exclusive supplier network
- Complete assembly and pre-assembly
- Procurement of external components / outsourcing options
- Complete logistic processing
- Buffer storage at the company location in Willich



CONSTRUCTION SUPPORT

Our product designers accompany you from the concept stage to series development. We can construct individual components as well as the entire product according to your ideas. We also offer the design revision of existing products.

You decide whether you want to take advantage of the development and design work as an individual service or whether we accompany you up to series delivery.

- Sketching, conception, planning and pre-construction
- Construction in 3D / 2D CAD
- Display of product views in the form of realistic 3D renderings
- Creation of production documents such as technical drawings and parts lists
- Creation of prototypes using 3D printing & silicone casting



N&H LABORATORY

We carry out technical tests and analysis in our laboratory. Measurements for our customers on our own products are free of charge.

Upon request, we also perform technical analysis for third-party products.



ELECTROMECHANICAL TESTING

- Force-Travel performance
- Life Cycle
- Abrasion Test of coated and printed surfaces
- 2D / 3D measuring microscope
- Pressure / Pull Force measurements for checking the strength of
 - Material connections
 - Operating forces on control elements (buttons, switches)
 - Pull-off performance of films

OPTICAL TESTING

- Light density
- Color coordinates
- Dominant wave lengths
- Brightness control (homogeneity) of displays, backlights, backlit keyboards and pictograms, etc.



MATERIAL TESTING

- Resistivity and volume resistivity of surfaces
- Powder Resistivity Tests

FURTHER TESTINGS

- Climatic test cabinet
 - Temperature -70°C bis +180°C
 - Humidity 10% bis 98%
- Cable Test
- Sound level measurements (frequency diagram)
- Prototyping with 3D printer
- Device construction with CNC engraving and milling machine



N&H QUALITY MANAGEMENT

We offer high-quality products and service. Our well-trained and experienced staff makes decisive contribution to it. We consider quality essential to all activities and strive for continuously improving our working processes in detail.

All of our production plants are audited by our skilled technical engineers from Germany and China. With technical analysis and tests in our laboratories, we support our customers and suppliers with our quality assurance.

Our Quality Assurance Management is performed in four sections:

1 N&H in Willich / Germany

DIN ISO 9001 certified in the area of sales, logistics and technical processing and development. Projects for automotive industry are conducted under the VDA standards.

2 Manufacturing Partners, Asia

DIN ISO 9001, DIN ISO 14001, IATF 16949 / DIN ISO 13485

3 N&H Office in Shanghai, China

Onsite inspection and quality controls of manufacturing plants.

4 N&H Laboratories, Germany

Project-specific quality measurement and assurance



Management System
ISO 9001:2015
www.tuv.com
ID 9105016435



MODULES & SYSTEM SOLUTIONS

- Complete solutions for HMI devices
- Production and delivery of components
- Design and development of components and systems:
 - Housing Parts / Moulded Parts
 - Keypads, Keyboards, Switches
 - LCD- / LED-Displays
 - Printed circuit board assembly
 - Cable assembly
- Tool construction
- Procurement of special components
- Complete assembly and preassembly in Asia
- Project-specific final testings



Reference:
Handset with Magnetic
Connector Cable

KEYPADS

SILICONE RUBBER KEYPADS

- Different coating and surfaces
- Plastic caps (laser engraving for night-design)
- Integrated light guides, EL or LED backlight
- Switch foil with poly-dome or metal-dome
- Carbon and metal contacts



MEMBRANE SWITCHES

- Different key embossing
- Epoxy buttons
- Silicone rubber as overlay
- Diverse options on windows
- Integrated LEDs, Light Guide Film (LGF), Buzzer
- Integrated solution with touch panel
- EMV and IP protection



VANDAL RESISTANT KEYBOARDS

- Selection of standard stainless steel keyboards
- Front and rear panel installation, desktop variants
- Different language layouts, also customized
- Optional: trackball, touchpad, LED backlight
- Protection degree up to IP68



TOUCH PANEL

- Film to film or film to glass
- Matrix, analog-resistive or analog-capacitive
- 4-, 5- or 8-wire
- Integrated solutions with membrane switch



MICROSWITCHES

- Tact switch, Slide switch, Multi function switch
- Rotary switch



PUSH BUTTONS / CAPACITIVE BUTTONS

- Different mounting diameters
- Protection degree up to IP68
- Different housing colors
- LED lighting in several colors
- Different button shapes
- Individual printing of button keys
- Customized developments



Silicone Rubber Keypad

Silicone rubber keypads have always been part of our core competencies and we support and advise you in detail on the equipment and material selection. We can also take over the complete development and construction of a suitable silicone rubber keypad for your application.

In many keyboards, the silicone rubber keypad is the central switching component. It triggers a direct switching function on the printed circuit board underneath. It determines the feel, the visual and tactile impression, and the electrical behavior. In addition, the silicone rubber keypad has a sealing function on the circuit board.

- A silicone rubber keypad adapts to your construction and is extremely flexible. Different key shapes and individual key colors, as well as multi-colored keyboard lighting, can be easily implemented.
- Force-Travel ratio can be easily adapted between 20g – 500g to meet customer-specific demands for a particular application.
- Key stroke from 0.3mm to 5.0mm.
- Various solutions for electrical contacts – from low-cost carbon pills to superior-quality metal domes with a current capacity of up to 2A.
- High mechanical lifetime with up to 10 million cycles.
- Resistance to moisture, dirt, chemicals and thermal influences.
- Excellent resistance to high or low temperatures
- Due to their elastic contact structure, the noise development is minimal.
- Design flexibility: Various key shapes and individual key colors, as well as multi-colored background lights are realizable.
- Available with a large diversity of coatings, including Epoxy, PU, PET, PC and other chemical-resistant and UV-resistant surfaces, to increase resistance to abrasion.
- High-end keypads with quality keys can be assembled with metal or plastic caps. The design potential of plastic caps is significantly increased through diverse coatings or chrome-plating.



Membrane Switch



For over 20 years we have been realizing customer-specific membrane keyboards and decorative foils for all industries and applications. We advise you comprehensively on the equipment requirements, the technical features and offer active support in the construction. In addition to the single membrane keyboard, we also manufacture complete input solutions with touch displays and carrier plates or suitable plastic housings.

Due to the extraordinary variety of design options, membrane switches can be used in almost every type of electronic device. There are nearly no limits to the ergonomic and design requirements. Membrane switches are used in areas, where dirt and water resistance or easy cleanability are required. They are also used when a compact design or a small number of items is required, due to comparatively low tool costs. You can choose from a variety of constructions of varying tactility and a wide range of viewing windows, screens and lighting options. In addition, we offer the patented Duraswitch technology.

ADVANTAGES

- Low weight, space saving
- Backprinting of the film for a robust, individual design
- Individual tactility
- Easy integration of LEDs, buzzers, sliders, controllers, rotary encoders
- Integration of viewing windows for combination with displays
- Dustproof and water resistant, resistant to chemicals (solvents)
- Easy to clean, hygienically closed user interface
- Over 1 million life-time cycles
- EMC shielding possible



CABLE ASSEMBLY

Due to our many years of experience, our steadily increasing know-how and specialized supplier network, we manufacture any type of cable for all kind of applications.

CABLE

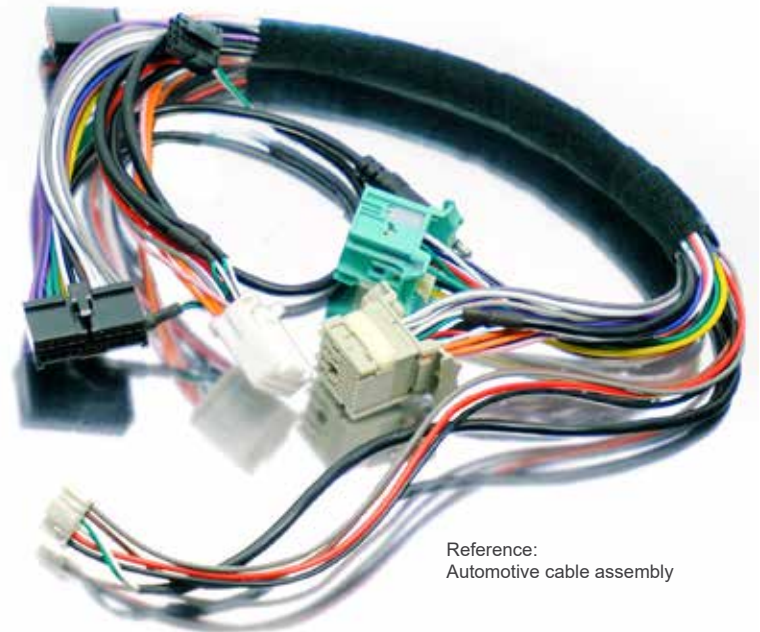
- Cable harnesses and wire sets
- Data communication cables
- Cable with integrated assembly
- Connection cables for LCD and flat screens
- Coax cables
- Spiral cables
- Single cables, etc.



Reference:
Automotive assembly with
cable harnessing

CONNECTORS / POGO PINS

- Pogo Pins
 - Flat Types for SMT
 - Plug-in Types for THT
 - Right Angle Types
 - Rolling Pins for 360° movings
 - Screw Pins
 - Fitting caps for automated PCB assembly
 - Pogo Pin Connectors (customized)
 - Waterproof Connectors up to IP68
- Male and Female Connectors



Reference:
Automotive cable assembly



PRODUCT RANGE



MAGNETIC CONNECTORS

We realize your magnetic connector including cable assembly and support you in the construction of a suitable magnetic solution for your system.

The trend towards an ever narrower and design-oriented construction of communication devices makes the integration of standard connectors difficult. Our customer-specific, magnetic connectors consist of spring contact pins and a magnetic connection system. Pogo Pins are available in very small designs. Not only charging current but also all other types of signals can be transmitted. Depending on the material and internal structure of the pogo pin, currents of up to 15A per pin are possible. This is a decisive advantage, especially for the charging time of high-performance batteries.

The implementation of magnets ensures a self-guiding, shock, and vibration-resistant connection between plug and device. This means that even very small plugs and sockets can be connected relatively easily in difficult installation situations.

Incorrect connections can also be excluded due to the polarity of the magnets. The magnetic force can be adjusted customer-specifically using various magnets. Examples include: charging cables for smartwatches or e-bikes.

For more demanding installation situations in which protection classes of IPx7 and higher are required, we offer various connector designs. On the one hand, the pins can be supplemented with an O-ring seal, on the other hand, there is the possibility of direct overmoulding with plastic and/or sealing with elastomer materials.

Magnetic cable solutions can be easily integrated into existing operating systems using customer-specific plug-in adapters. In this way, tried and tested input devices can be relaunched without any complications. We design and supply such magnetic cable solutions with plugs based on spring contacts as a complete system.



Pogo Pins

In the connectors' world, the Pogo-pin connector is a special type of contact technology. In the past few years, this reliable technology has been accepted by many world-class customers and applied for a hundred different kinds of electronic products, such as mobile phones, GPS devices, car stereos, notebooks, TV game peripherals, LED road lamps, hearing aids, mobile radios, etc.

ADVANTAGES

- Long life span
- Customized solutions
- Adjustable and measurable spring force
- Small grid size
- SMT assembly possible
- Good performance in high frequency applications
- RoHs compliant and halogen-free

ABOUT 500 POGO PIN TYPES

In our online catalog you will find an overview of our standard range of over 500 spring contact types. Customized developments are possible on request.

All spring contacts can be supplied with an assembly cap for automated PCB assembly.



CONNECTORS

Several spring contact pins can be assembled in a plastic housing to form a connector.

In addition to a number of standard solutions, we also offer you the production of customer-specific connectors.

The connectors can be customized with regard to pitch, number of pins and housing dimensions. Different connection types allow a variety of mounting options on SMD PCBs.

Various designs allow the connectors to meet IPx7 or IPx8 protection classes. The spring contacts are either molded directly over or supplemented or sealed with special seals.



STANDARD-TYPES

Flat Type (SMT)

Length: 1,6 - 21,5 mm
Spring Force: 25g - 400g



Plug-In Type (THT)

Length: 1,39 - 19,5 mm
Spring Force: 35g - 500g



Right Angle Type (SMT)

Length: 4,9 - 5,6 mm
Spring Force: 80g - 120g



High Current Design

For high current applications from 5A up to max. 13A, the 4P design with cap is used. The barrel is additionally reinforced. In addition, a special structure in the interior of the spring contact serves to increase the contact area.



SPECIAL TYPES

Double Ended Pin

Spring contact with two plunger for contacting e.g. two or more circuit boards.



Rolling Pin 360°

Keeping a stable connection to a moving target can be a challenge. The Ball-Point Connector solves this problem by a radically new 360° design that offers totally new engineering possibilities and a simplified assembly without cables.



Bending Type

The right-angled spring-contact connector with a bent end provides more space savings when mounted on a printed circuit board.



Screw Type

The design with an integrated screw thread can be integrated into all spring contacts with a plunger length of 3.5mm or more. In addition to its function as a screw, power and signal currents can also be transmitted.



MOULDED PARTS



PLASTIC

We realize all kinds of customer-specific plastic injection molded parts, even complex multi-component parts.

- Tool design with mold flow analysis
- Single and multiple syringes
- Big parts up to 20 tons (tool weight)
- Precision parts
- Materials:
 - Standard plastics PE, PS, ABS, PP ...
 - Technical plastics such as PA6, PET, PBT, PC ...
 - High-performance plastics such as PEI, PBI, PPS, PPE, LCP
- Surface treatment
 - Painting and lasers
 - IMD (in-mold decoration) technology
 - Galvanic surface finishing (matt and glossy)
 - EMC and PVD Coatings
 - Soft-touch finish
 - Special surfaces (eg burl wood decor)





RUBBER

- Protective covers for input devices
- Rubber seals and rings
- Grommets, flanges, bellows
- Form Tubes
- Rubber damper
- PU molded parts (e.g. wheels and rollers)

- Materials:
 - Standard: NR, NBR, BR, EPDM, CR, etc.
 - Elastomers: ACM, CSM, FPM, HNBR etc.
 - LSR – liquid silicone rubbers
 - TPE, TPU molded parts
 - Thermoplastics

MULTI-COMPONENT INJECTION MOLDING

Multi-component injection molding makes it possible to combine the positive properties of plastic and elastomer or metal in one component. This opens up a wide range of application examples.

We offer:

- Combined rubber / plastic parts
- Combined metal / rubber parts
- Combined metal / plastic parts
- 3K parts



PRODUCT RANGE



MOULDED PARTS

GLASS

- Glass panes with various optical coatings
- Thermal tempered glass parts
- Chemically strengthened glass
- Glass panes for household appliances

METAL

- Die-cast parts
- Punched parts
- Deep-drawn parts
- Turned parts
- Milled parts
- Contact springs
- Combined metal / rubber parts



FURTHER COMPONENTS

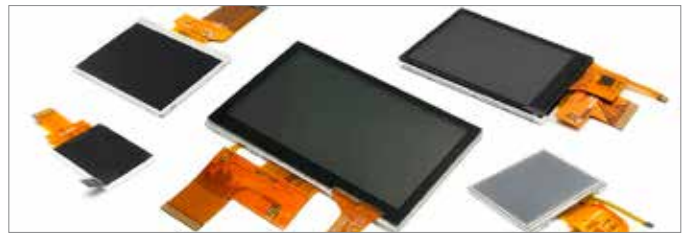
ACOUSTIC COMPONENTS

- Buzzer
 - piezoelectric / magnetic
 - for SMT / THT assembly
- Transducer
 - piezoelectric / magnetic
 - internal / external drive
 - for SMT / THT assembly
- Speaker and Sirens
- Microphones and Receivers



LCD & OPTO ELECTRONICS

- TFT-Displays from 0,96" up to 10,4"
- With integrated touch panel
- LC-Displays DSTN, FSTN and STN
- Alphanumeric and graphic
- EL, LED or CCFL backlight
- LED module



PCB ASSEMBLY

- flexible, rigid and rigid-flex circuits, also multilayer
- assembly according to customer specification



POWER SUPPLIES & BATTERIES

- Primary batteries - especially lithium button cells, also with customer-specific solder connections
- Battery contacts (gold / nickel plating)



CUSTOMIZED BAGS

- Customer-specific product bags
- Textile protective covers
- Waterproof protective covers



REFERENCES



Wall housing and handset with magnetic connector



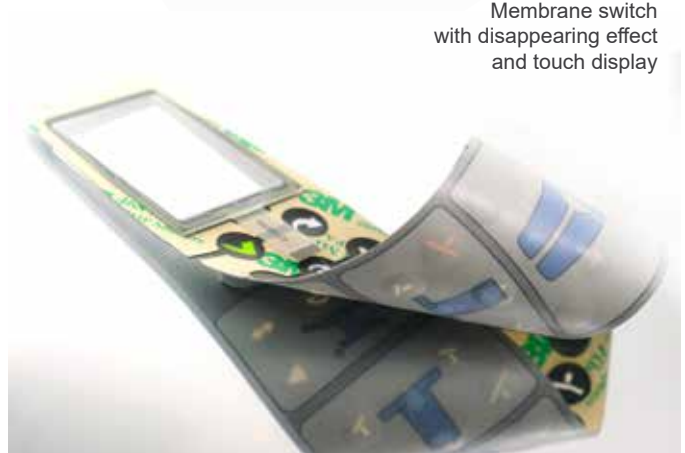
Plastic housing with magnetic connector cable



Waterproof input unit



Handset as complete solution



Membrane switch with disappearing effect and touch display

YOUR PROJECT

We are looking forward to your inquiries and we are always keen on submitting you an offer as quickly as possible.

CHECKLIST

For an individual offer we need:

- Technical drawing, sketch or sample
- Technical specifications
- Required quantity

Please send us the data to our email:

info@nh-technology.de

One of our engineers will contact you immediately.

For technical advice and all questions about our products and services, please contact us by phone:

+49 (0) 2154 – 81250

A first project meeting in our company is possible at any time. Especially complex projects can be discussed and determined with our engineers in such a straightforward way.



Reference:
customized plastic part with
cable assembly

N&H SERVICE

Each project is individually managed by one of our engineers.

We offer technical support in the following areas:

- Research and Analysis on product feasibility
- Recommendation and advice on technical improvements
- Evaluation and technical options for cost-cutting solutions
- Construction, development and design (CAD-Software/ ProEngineer)
- Prototype construction with 3D printer

N&H Technology GmbH

Gießerallee 21
D-47877 Willich

T. +49 (0)2154 - 8125 0

F. +49 (0)2154 - 8125 22

info@nh-technology.de

www.nh-technology.de



N&H Technology GmbH
Gießerallee 21
D-47877 Willich

T. +49 (0)2154 - 8125 0
F. +49 (0)2154 - 8125 22

info@nh-technology.de
www.nh-technology.de

© N&H Technology GmbH

Follow us



V01.22EN