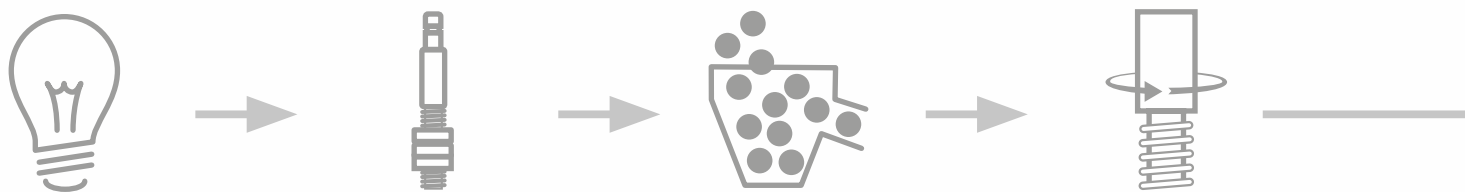






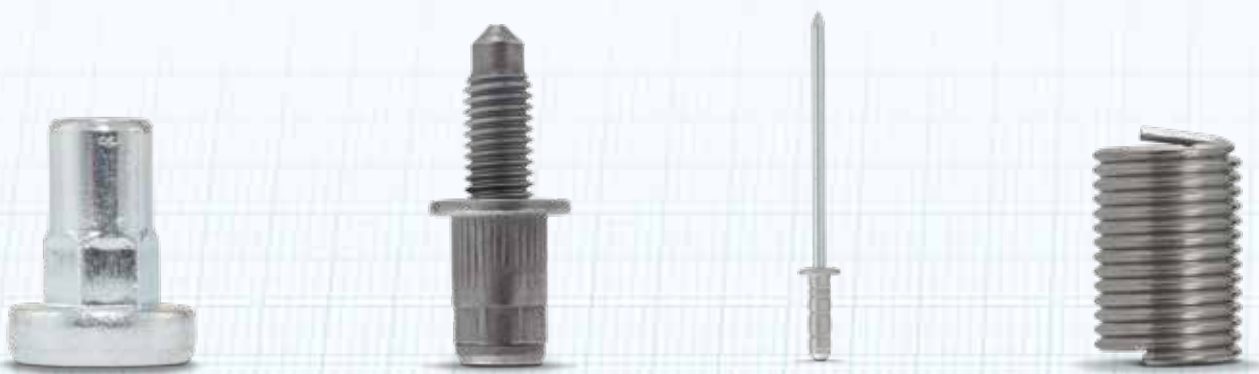
# Process Chain „Screwdriving and Riveting Technology „

## From idea to serial production



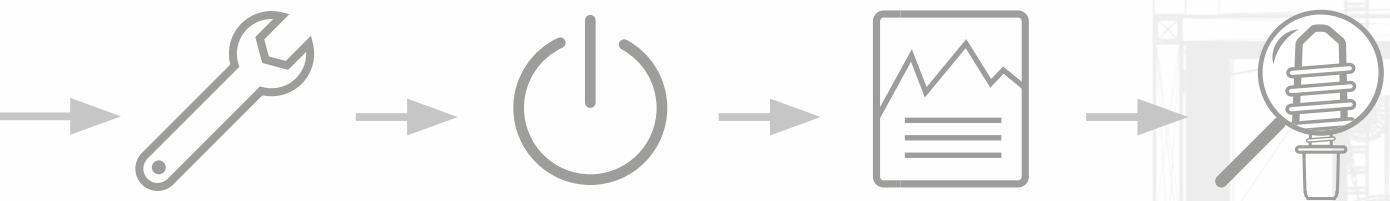
**HONSEL** Umformtechnik is a sought-after supplier of fasteners. However, the production of cold formed parts and wire thread inserts is only one part of industrial production. The process-monitored further processing of fasteners is as important. **HONSEL** recognized this early on and started business unit Automation years ago. Within this **HONSEL** business unit combines decades of experience in the production of fasteners with the knowledge of riveting, screwdriving and setting technology.

In many joint projects with suppliers, OEM's and special machine manufacturers, **HONSEL** Automation has since acquired unparalleled expertise. **HONSEL** customers benefit from this. The screwdriving and riveting components can be seamlessly integrated into any production process. Ultra-light hand-held setting tools, individually planned manual workstations, tailor-made modules for special mechanical engineering - solutions from **HONSEL** Automation are always the first choice.





## Well begun is half done



### Far more than „off-the-peg“

It is the idea that leads to a good result. And ideas require experience and knowledge.

This is why **HONSEL** Automation engineers and technicians are well trained and have learned to think outside the box. They know their way around cold forming, know the properties of products and materials and are familiar with the processes involved in riveting, screwing and setting technology.

Only in this way customers can be advised and supported in the development of production concepts. Individual solutions are jointly defined and implemented.



# Coil screw system 2G

For automated and partially automated installation of wire thread inserts.

Due to the slim construction, screw systems can be placed close to each other. This leads to more efficient use of existing production areas and thus to greater economic efficiency in production. The electric linear motor is very fast at up to 3.2 m/s and enables cycle times in production to be optimized.

## Screwdriver Bosch BG2

Rotation angle and torque monitored screwdriving technology with measuring transducer, optional redundant. Screwdriving technology from Desoutter and AtlasCopco is also available. Other manufacturers on request.

## Floating screwdriver bearings

Specially matched bearing of the screwdriver with tolerance compensation directly on the application.

## Integrated coil transfer with rotary gripper

Specially matched gripping force and contour ensure process-reliable spindle mounting of the wire thread inserts.

### Technical data:

Length:	700 mm
Width:	142 mm
Height:	190 mm
Weight:	22,5 kg
Feed stroke:	to 500 mm
Mounting position:	Position-independent
Centre distance: (with 2 screw systems)	min. 60 mm

## Linear motor

- Freely programmable electric cantilever axis with repeat accuracy ( $\pm 0.05$  mm)
- Integrated position sensor ( $\pm 0.01$  mm)
- The available force range remains constant over the entire stroke and can be switched in motion in order to be able to adjust the contact pressure individually.
- Speed up to 3.2 m/s for short cycle times
- Feed stroke up to 500 mm

## Camera

Monitoring of the spindle for higher output rates.

### RIWO-System

Available as complete system „RIWO Coil 2G“: Feeding, screwing technology and control Siemens S7 incl. 3D visualization.

# VNG 950

## Technical data:

Length:	580 mm
Width:	80 mm
Weight:	6,9 kg
Tensile force: (at 6 bar compressed air)	58 kN
Stroke:	12 mm
Riveting time per setting operation:	<1 Sec.
Installation position:	Position- independent
Centre distance: (with 2 screwing systems)	min. 90 mm

Electric-hydraulic setting tool for stationary automated or hand-held processing of blind rivet nuts and studs.

Perfect combination of high setting force, slim design and low weight. The narrow design allows a small centre distance for modular design.

## Process monitoring DMSD 2G

- Displacement encoder with resolution 0.01 mm
- Sensor technology force measurement via hydraulic pressure

## Hydraulic connection for pressure intensifier

## Mechanical connection

## Tolerance compensation

- Position offset 1.5 mm
- Angular misalignment 8°

## RIWO-System

Available as complete system „RIWO VNG 950“: Feeding, screwdriving technology and process incl. 3D visualisation.

## Electric motor

Monitoring of torque and rotation angle during spindle mounting and dismounting.

## Hydraulic hollow piston cylinder

- stroke 12 mm
- setting force up to 58 kN

## Quick-change system

- For fast handling and low-maintenance operation
- Low tool costs by using DIN screws as mandrel (option)



# HONSEL Tools Coil

Designed for optimum results



## Thread former

- With reduced form fold
- Ideal for the insertion of wire thread inserts
- Less abrasion of the coil coating during the setting process
- Special dimensions and tool connection on customer request



## Installation mandrel

- Long service life
- Perfect surface finish
- Fixed stops from metal for better repeatability
- Special dimensions and tool connection on customer request



## Removal spindle



## Plug gauge



## Tang break-off tool

## Bosch

- Electric screwdriver
- Integrated torque and rotation angle sensor
- Torque and speed: product-dependent



## Desoutter

- electric screwdriver
- Integrated torque and rotation angle sensor
- Torque and speed: product-dependent

## Control Bosch

- Multiple control from two screwdrivers possible



## Control Desoutter





# Separation and conveyor technology

Feeding technology describes the process of feeding bulk materials into a installation process in the correct position. This technology has been standard in **HONSEL** Automation for years. Depending on the application and customer requirements, a fastener can be shot through via a hose or fed directly into the transfer unit of the processing device via a pick-and-place system without compressed air.



## System properties

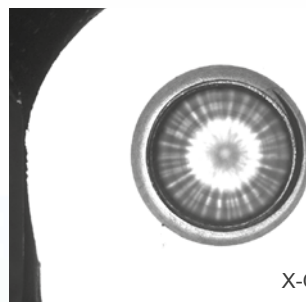
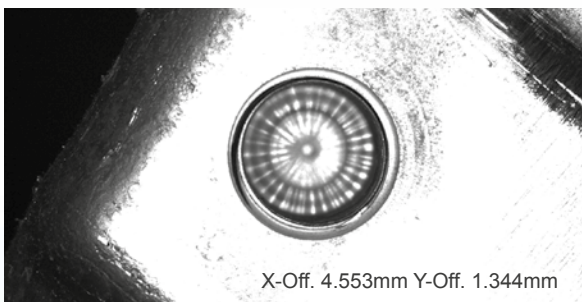
- Vibratory conveyor with automatic locating device
- Fast fault clearance for deformed fasteners or foreign parts
- Special coating of the feeding bowl for long service life
- Entire conveyor line monitored by sensors
- Parts in contact with fastener made of hardened tool steel
- Sensor technology for the detection of mixtures of different dimensions
- Pick & Place systems
- High output rates
- Noise reduction through coating and enclosure
- Multiple separations for screwdriving and setting systems
- Autarkic operation



## Camera technology – Position recognition

If fasteners are processed automatically, it is important for an efficient process to know the exact position of the mounting thread or mounting hole. This is the only way to optimize the process and increase the output rate. The experts at **HONSEL**

Automation have chosen an approach that works by means of camera technology and subsequent evaluation. If an offset in X or Y direction is detected, it can be readjusted in real time depending on the application (robot, rotary table, portal axis).

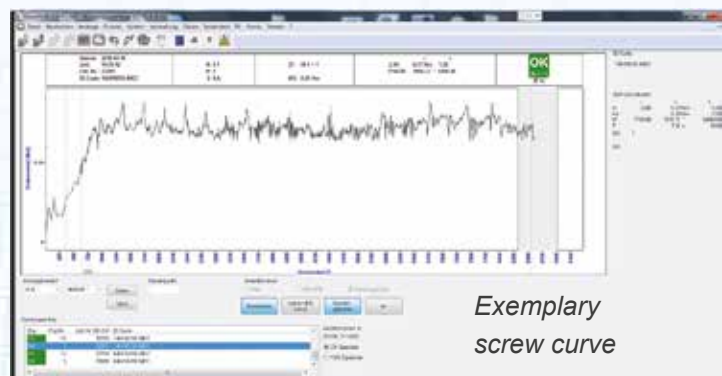


## Process monitored setting

The setting process for blind rivet nuts, studs and wire threads is comparable. A fastener is threaded and led to the component. Only the speed is different. If it takes less than 1 second for a blind rivet nut to complete the process.

The setting of a wire thread insert takes 2 to 7 seconds depending on the size. Both processes are monitored and documented.

The **RIWO Coil Screwdriving System 2G** documents torque, rotation angle and screw-in depth.



*Exemplary screw curve*





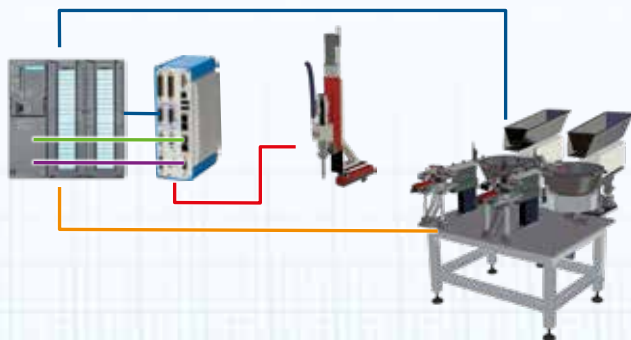
# Process monitoring DMSD 2G

## For more transparency in production

**HONSEL** has been using the second generation of the DMSD process monitoring system for years. All **HONSEL** components and modules such as manual setting devices and stationary systems can be combined with manual workstations and other automation applications.

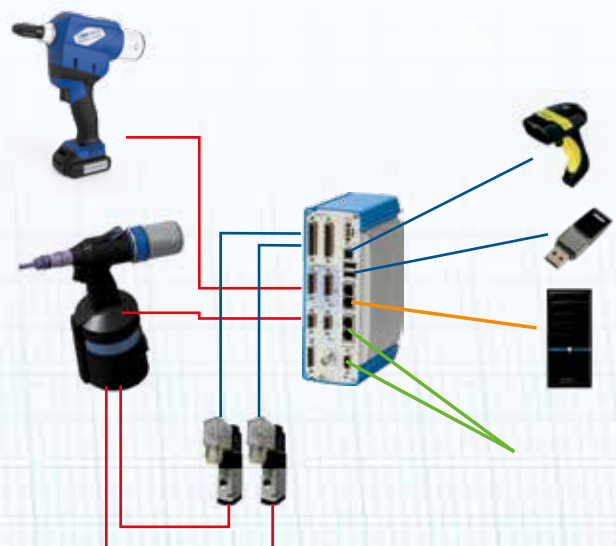


*The possibility of connection to higher-level control systems is given.*



### Advantages

- In-process monitoring of joining and assembly processes
- Easy integration into existing network structures
- Connection to customer control systems via digital inputs and outputs as well as via fieldbus possible.
- Early detection of quality deviations
- Traceable process results
- Minimization of the QA effort





# 100% control

## HONSEL Q-Gate



**HONSEL** Automation uses three different Q-Gate concepts for 100 % control.



The **VNG module** has an optional camera-based Q-gate. This uses an optical evaluation to determine whether a blind rivet nut or stud has been set correctly.

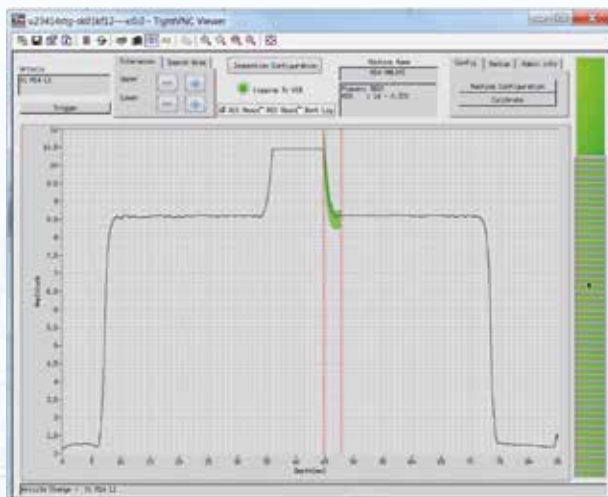


The **Coil Screwdriving System 2G** can be operated with two different Q-Gate variants:

**Sensor-based:** With evaluation of the measurement curve DMSD 2G



**Mechanical:** With verification of the displacement measurement and the use of a plug gauge.



*Exemplary measurement curve*



*Mechanical Q-gate*



## Commissioning and service

Developing and building automation solutions is one thing. Equally important are commissioning and service. Therefore, **HONSEL** developers work with the client to determine at an early stage the production environment in which the component must be integrated. But the reality on site sometimes looks different.

Therefore **HONSEL** attaches great importance to the support of the customer's employees. They are trained in the handling of screw and rivet components in advance at the Fröndenberg plant or at the customer's premises. Commissioning is carried out by **HONSEL** specialists. On request, they also accompany the customer until serial production starts.

**HONSEL** is also a sought-after partner for after-sales service.

Trained personnel take care of the exchange of wear parts or the necessary maintenance. Even older components can be restored to functional condition in the **HONSEL** factory – all in the interests of the customer.



# Automation solutions from **HONSEL**



## Hand-held setting tools

Since the introduction of the e-BZ series a few years ago, the **HONSEL** handheld devices have been convincing with outstanding performance data and a very good price-performance ratio.



## Riveting and screwing automation

The **HONSEL** components impress with their slim design and their performance. Suitable for all customers who want to integrate powerful and flexible modules into their automation concepts.



## Process monitoring

**HONSEL** DMSD 2G is the solution for companies that want to minimize their QA effort and at the same time document production processes transparently and reliably.



## Manual workstations

„Anything is possible.“ This core statement is suitable for all **HONSEL** manual workstations. Individually planned, from low cost to high end.



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