



User Report

# Measuring Technology

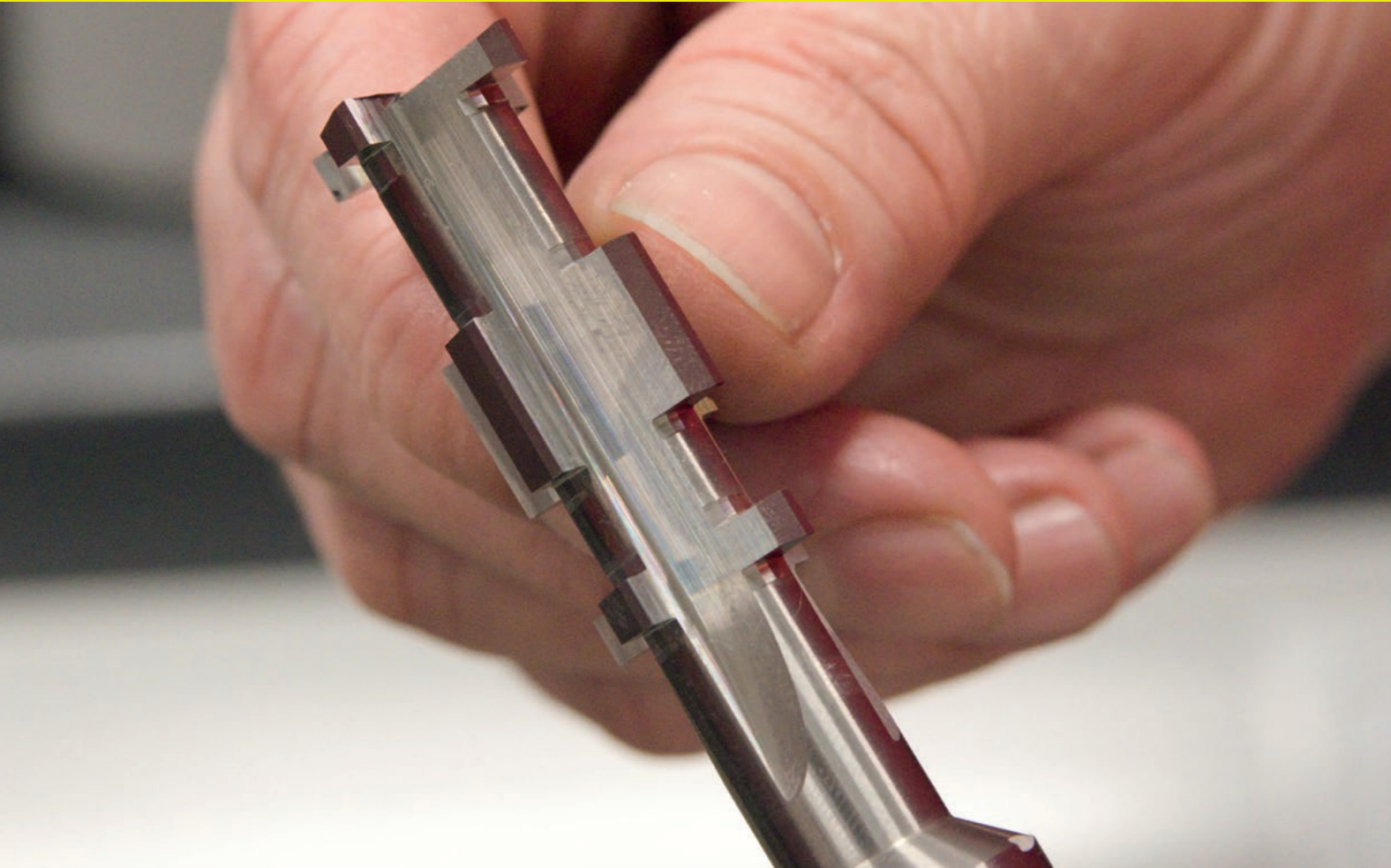
**ZOLLER**  
expect great measures

Nikolaus Grinding Tech GmbH & Co. KG

## Reliable and Fast to the Perfect Special Tool

Nikolaus Relies on Precise ZOLLER Measuring Technology





Specialists for special tools: The tool grinders at Nikolaus develop and grind special tool geometries that make a decisive contribution to significantly more economical production in the metal, plastics and woodworking industries.

## Reliable and Fast to the Perfect Special Tool

### Nikolaus Relies on Precise ZOLLER Measuring Technology

For measuring and optimizing special tools, presetting and inspection machines from ZOLLER are proving to be an ideal solution for tool grinder Nikolaus Grinding Tech GmbH & Co. KG in Kirkel in the Saarland. Founded in 1992, the tool grinder continues to follow its original mission statement and corporate concept to this day. The five specialists in Kirkel produce high-quality special tools as individual items and in small series of up to around 500 tools per order batch within a very short space of time. For the past three years, Katja Nikolaus – following the unexpected

death of the company founder – has been running the business with her sister Nathalie Schmieden and her mother Elisabeth Nikolaus with determination and energy. As she reports, the tool grinder is highly valued by medium-sized and larger manufacturing companies in the Saarland, Rhineland-Palatinate, Hesse and Baden-Württemberg regions for its flexibility, reliability and short response times. "The measuring, presetting and inspection machines from ZOLLER have made a significant contribution to the ongoing success of our company concept," explains Katja Nikolaus.

As Katja Nikolaus explains, the tool grinders invested in a measuring machine »genius« back in 2008. At the time, the main reasons why the specialists opted for this technology were above all the simple operation with the software »pilot« and the graphic, self-explanatory user interface.

#### Profitable Quality Assurance

Another criterion was that numerous customers from the region were also already working with ZOLLER presetting and measuring machines. "This allows us to tailor our

quality assurance to the customer's incoming inspections. In addition, customers trust us much more quickly in the knowledge that we measure and inspect our tools according to the same criteria as they do and also on the same measuring and inspection machines," explains Katja Nikolaus. Due to the positive experience with the measuring machine »genius« the tool grinder in Kirkel invested in a universal inspection and measuring device »smartCheck« in 2016. This made it possible to measure much larger tools. The specialists also appreciate the particularly simple operation of this device. It also proves

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Katja Nikolaus,  
Management



The cooperation with ZOLLER has proved to be not only technically but also economically especially profitable.

Appreciated for its simple operation: the universal measuring machine »genius« has proven itself for many years in the verification of ground special tools (left: **Dirk Arenz**, Sales at E. ZOLLER GmbH & Co. KG for Rhineland-Palatinate, Saarland, Hesse, Baden-Württemberg, right: **Günther Rheinheimer**, tool grinder at Nikolaus Grinding Tech).



to be very flexible. The software »pilot« contains measuring cycles for a variety of geometries. The operator simply selects these by touching the appropriate icon on the large touchscreen. The measuring cycle then runs fully automatically. The measuring

device displays the geometry to be measured on the enlarging screen, for example a cutting edge, and then records the data. This data is saved as a data record and optionally documented in a log.

### Individual and Flexible

The tool grinders use the measuring device »smartCheck« to optimize the grinding of special tools. They measure individual geometries, immediately detect deviations from the specified drawing geometry and adjust the setting parameters on the grinding machines. As Dirk Forster, tool grinder in Kirkel, reports, this enables him to grind the special tool exactly according to the specifications in just a few steps. This is crucial for short throughput times and maximum flexibility, especially for single pieces and small series of individual tools. "Thanks to the fast measurements and fully automated processes, we receive reliable, concrete data within a very short time. We use this data to optimize

**Dirk Forster**, tool grinder at Nikolaus Grinding Tech GmbH & Co. KG in Kirkel, appreciates the simple operation and the automatic measuring sequence of the inspection and measuring device »smartCheck«.



the grinding programs and grind at short notice tool geometries that correspond exactly to the drawing data," reports Dirk Forster.

### Working Efficiently

For quality assurance purposes, the measurement technicians at ZOLLER have integrated additional protocols for the tool grinders at Nikolaus into the software of the inspection device »smartCheck«. The tool grinders in Kirkel appreciate this personal cooperation, which is tailored to individual requirements. Katja Nikolaus says: "In order to be recognized as a medium-sized supplier for individual, selected products such as special tools in large companies, you have to adapt flexibly to different conditions and meet the respective requirements. This includes, for example, supplying a measurement protocol for tools that meets the customer's specifications. ZOLLER provided us with exemplary support. The specialists in Pleidelsheim implemented individual functions, such as outputting specific reports or exporting measurement data to an Excel table, without any problems."

### Complex Geometries

As Katja Nikolaus emphasizes, the collaboration with ZOLLER has resulted not only in technical but also in outstanding economic benefits. "We received a request from an internationally active tool manufacturer from Japan to regrind its drilling tools throughout Europe. However, these tools have extremely complex tip and cutting edge geometries that are difficult to grind. On the recommendation of Dieter Müller, Sales at ZOLLER, we procured the inspection machine »pomBasicMicro« for this purpose and installed it in our tool grinding shop." This »pomBasicMicro« is specially designed to optically inspect small tools and measure the tool geometries at the same time. With its high-quality monochrome video camera and self-adjusting lighting, it automatically finds edges in the

automatic measuring sequence. The user interface of its software guides the operator through the measuring sequences.

### Joint Training

With this measuring device, the tool grinders in Kirkel were able to easily adapt the reground tip and cutting geometries to the original geometry requested from Japan and derive the appropriate NC programs for regrinding from the data. Dieter Müller, Sales Measuring Technology at E. ZOLLER GmbH & Co. KG: "To enable the operators at Nikolaus Grinding Tech to benefit from the advantages of the »pomBasicMicro« inspection device within a very short space of time, we trained and documented a measuring sequence together. Using these instructions, the tool grinders can now reliably and accurately inspect every ground tool." This can be done in a very short time, as the robust inspection device is located directly next to the grinding machines. Katja Nikolaus says: "If necessary, our specialists can immediately take the tool from the grinding machine to the measuring device after each individual geometry has been ground in order to verify the regrinding. This allows them to work flexibly and avoid incorrectly ground tools. This significantly shortens throughput times.

### Reliable and Accurate

As Dirk Forster confirms, measuring on the »pomBasicMicro« is significantly better than working with the microscope previously used. "We work reliably and accurately, regardless of the skill and care of the personnel. We can also measure with high precision. This was not possible with the microscope," explains Dirk Forster.

### Evaluating Microgeometries

An additional advantage of the inspection device »pomBasicMicro« is the optical inspection of the ground surfaces. This applies not only to tips and cutting edges, but also

On the inspection device »pomBasicMicro« all tool geometries and surfaces of the smallest tools can be measured with high precision and optically verified in one automatic process. (In the picture: **Dieter Müller**, Sales Measuring Technology at E. ZOLLER GmbH & Co. KG.)

to chamfers and grooves of small drills and milling cutters. Dieter Müller says: "On the measuring device, you can rotate and swivel the clamped tools almost at will and focus on the different positions of the tool. This means that almost all surfaces and individual geometries can be viewed on the enlarging screen. You can also see grooves,

nicks and chipping caused by inadequately dressed grinding wheels or unsuitable abrasives." At Nikolaus Grinding Tech in Kirkel, the tool grinders use these functions of the inspection device to optimize for example the groove path across the steps and the angle at the step on step drills with diameters of just 0.3 and 1 mm.



## Develop, Grind and Optimize

The tool grinder Nikolaus Grinding Tech from Kirkel, which currently consists of five tool grinders under the management of Katja Nikolaus, Nathalie Schmieden and Elisabeth Nikolaus, is a highly qualified partner to the regional manufacturing industry. The specialists use 3D CAD/CAM systems to develop sophisticated special tools (between 0.1 and around 32 mm in diameter) and grind them on high-quality 5-axis tool grinding machines (Anca). In order to optimize grinding processes in advance, these are dynamically simulated on the CAD/CAM systems. When grinding and regrinding special tools, the specialists in Kirkel support their customers with extensive technical service. For example, they use their expertise and experience to suggest various improvements to cutting edges, chamfers and groove geometries in order to extend the service life of special tools and optimize their process reliability. They also help to improve entire production processes, for example by integrating additional production steps into a stepped tool or by adapting tip and cutting edge geometries to minimize burr formation during drilling and milling.



For efficient, productive and economical manufacturing: The specialists at Nikolaus develop and grind sophisticated special tools from 0.1 to around 32 mm in diameter.



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E. ZOLLER GmbH & Co. KG  
Tool presetter and measuring machines  
Gottlieb-Daimler-Straße 19 | D-74385 Pleidelsheim  
Phone: +49 7144 8970-0 | Fax: +49 7144 8970-70191  
post@zoller.info | [www.zoller.info](http://www.zoller.info)

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