

# METROLOGY WORLD

THE WENZEL JOURNAL



## TOP TOPICS

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**METROLOGY 4.0 –**  
OUR SOLUTIONS WITH A  
FOCUS UPON DIGITALISATION

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**50 YEARS OF WENZEL**  
TRADITION AND INNOVATION

50 years  
**WENZEL**<sup>®</sup>  
1968-2018

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# 50 YEARS OF WENZEL TRADITION AND INNOVATION

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This year, **WENZEL** is celebrating its 50th anniversary and I am extremely proud and thankful that we are able to celebrate this milestone this year. Thanks goes of course in the first instance to our many customers and partners for their years of loyalty and affiliation with our company's products and solutions. I would also like to sincerely thank all of our more than 630 employees, some of whom are the second generation of their family to work at WENZEL, for their important contribution towards our success.

My parents founded our company in 1968 in Wiesthal as a small artisanal business and we have always remained loyal to this location. In the heart of the Spessart region, we research, develop and manufacture our products that are today used by many large and smaller customers around the world and help them to meet the increasingly demanding quality requirements of their products.

50 years is a reason to celebrate – but not a reason to rest on our laurels. Our customers and our company are faced with many challenges as a result of digitalisation: Metrology 4.0 is our answer and the basis for many innovations in our solution portfolio that we would like to introduce to you in this brochure, and of course in person at trade fairs or as part of individual presentations.

First and foremost, for us digitalisation means greater proximity: closer in production, closer to products and processes and also closer to our customers and users. This vision drives us forward and forms the basis for our new solutions in 2018: Our new shop floor machine has been developed specially for use in production and incorporates functions that set us apart significantly from the competition. We have analysed our previous automation solutions at many of our customers and have thus developed standardised modules that we can quickly and flexibly adapt to customer requirements. Besides the machines, software also plays an increasingly important

role for us. For this reason, over the last few months we have developed a brand new architecture for our software that considerably simplifies the interaction between our solutions: WENZEL Metrology – or WM I Software Solutions provides our customers with the right products and modules.

50 years is a reason to celebrate – but also a reason to work towards continual improvement. Growth in the different product areas has transformed us from a medium-sized business with a regional focus, to a globally active group. Not all structures grew at the same pace. Therefore, we are examining our observed weaknesses in order to be able to respond quickly and flexibly to customer requirements over the next 50 years. There will undoubtedly be a few changes, however I can ensure our employees, partners and customers of one thing: The **WENZEL** Group will remain the world's largest family-owned metrology equipment provider in future too. We are continuing to expand our expertise at all our locations and our competent personnel are on hand to support our customers.

I really look forward to shaping the exciting future of the WENZEL Group together with you.



**Dr. Heike Wenzel**



# METROLOGY 4.0 – OUR SOLUTIONS WITH A FOCUS UPON DIGITALISATION

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**We believe that digitalisation is a great opportunity for us to bring our products and services closer to the value-adding activities of our customers and with greater integration:**

**INTEGRATION INTO PRODUCTION** – with our new shop floor machine we are introducing a solution that can be integrated directly into production. Insensitivity to temperature and soiling, large measurement volumes with minimal footprint as well as good automation capacities due to loading on three sides – these are just some of the excellent product features.

**CLOSER TO THE PRODUCT** – with our WM|SYS Analyzer, we are offering a visually-attractive solution for monitoring and analysis of the measuring instruments used by the customer. Transparency of the machine status opens up new opportunities for better utilisation and maintenance of the machines.

**CLOSER TO THE USERS** – for us this means extensively realigning the development of our software with the needs of our users. Standardised interfaces and graphical user interface solutions minimise the application changeovers for different machine types or areas of use. The WM | Software Solutions logo represents an integrated software family that is quick and intuitive to use, even by occasional users.

**INTEGRATION INTO PROCESSES** – this relates to our many automation solutions. Integration into production workflows requires interaction with robots and pick-and-place systems as well as automated selection and execution of the right measuring program at the right time.



**PRODUCT**

**PROCESS**

**METROLOGY**  
**4.0**

**PEOPLE**

**PRODUCTION**

# 50 YEARS OF WENZEL

## THE MILESTONES OF OUR DEVELOPMENT

AWARDS

1993 & 1996 | Bavarian State Prize for technical innovation performance

2002 | TOP 100 medium-sized enterprises in Germany



PRODUCTS

1968 | Manufacturing of test equipment and precision measuring instruments

1980 | Introduction of the first in-house-developed 3D coordinate measuring device

1999 | Entry into the measurement software segment

2003 | Introduction of the first WENZEL gear measuring machines



BUSINESS DEVELOPMENT

1968 | Foundation of WENZEL

1973 | Production hall with machinery

1983 | Extension Plant 1

2002 | New building Plant 2



1994 | Foundation USA & UK

1997 | Foundation France

1968

2003

2009 & 2012 | 'Bayerns Best 50' award and finalist for the Best Professional Supplier Award 2012

2016 | TOP 100 innovators among German medium-sized enterprises



2004 | In-house development of WENZEL sensors



2008 | Introduction of the first WENZEL computed tomography machine



2009 | Launch of optical high-speed measurement and digitalisation systems



2016 | WM I Software Solutions



2005 | Extension administration building Plant 1



2005 | Foundation Shanghai

2008 | Foundation South Asia

2010 | Foundation Italy

2004

2016



INTERVIEW WITH ROBERT NEUMANN – EMPLOYED AT WENZEL SINCE 1969

## 50 YEARS OF WENZEL MORE THAN JUST A JOB

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**Mr Neumann, this year we are celebrating our company's 50th anniversary – what a great reason to celebrate isn't it?**

Yes, definitely! As a WENZEL employee, I can look back at the great years throughout the company's history interspersed with a number challenges that were overcome along the way. The few employees who worked at the small company in the very beginning supported each other in their day to day work and formed a strong community. At the time, the company did not have its own paint shop, so in the production department, in addition to our daily operational duties, we took on further activities, such as the painting of cast parts.

**When did your career first begin at the company and what was it like back then?**

I joined the company after leaving secondary school in March 1969. I was employee number 6! I then went on to successfully complete my apprenticeship as a toolmaker, after which I had the flexibility to work in different areas of production. I spent a week at Deckel in Munich where I was trained as a machine operator to use the first CNC machine installed at Wenzel. Before moving to the grind-

ing department where I currently work, I spent many years as a Team Leader in the production of cast components.

**In what way has WENZEL had an impact upon your life?**

I can't even imagine my life without WENZEL. I have a really strong connection with my home town and my great relationship with the Wenzel family means that I have always had close ties with the company. I really value the atmosphere of a family-run business and fact that my place of work is close to my home. Helga and Werner Wenzel had a trusting relationship with their employees and were always ready to lend an ear – even if this meant listening to the employees' private concerns.

**What are your own personal WENZEL highlights?**

I still like to think back to the days when I first started. Every lunchtime we drove back home to eat, together with our boss. Werner Wenzel would drive us in his Opel Admiral and drop us off at the "Gasthaus zur frischen Quelle" in Heigenbrücken, where he picked us up again an hour later. And if we had to work on Saturdays, Helga Wenzel would bring sandwiches and chicken along to the production plant for



WENZEL workforce (1973),  
Robert Neumann (highlighted on photo)

us to eat. I can still clearly remember Werner Wenzel's innovative and creative spirit. After implementation and before commissioning his many construction projects, there was always a great party with the employees – and sometimes we would eat a regional BBQ dish called "Krombernbrode" around a large fire.

### **The company founder Werner Wenzel stuck by the guiding principle of optimism, which he passed onto his daughter Heike. What is your impression of her?**

Heike shares her father Werner's traits and she, too, is an optimistic person. She is loyal to WENZEL and wants to steer the company towards continued success in the future. When the company passed into the hands of the second generation of the family, she could have sold it to someone else and led a very "relaxed" life. But she didn't – which I'm delighted about!

### **What do you wish for in terms of your future and the future of the WENZEL Group?**

My greatest wish is to remain fit and healthy! I aim to complete 50 full years of employment at WENZEL. I'm not far off as my 50th anniversary will be in 2019! Even when I am retired I intend to come back to WENZEL every now and again to visit my old colleagues here at the plant in Wiesthal.

For the WENZEL Group, I wish that the company will remain at this location and that over the next few years it will continue to grow thanks to new products.

Robert Neumann in the grinding department (2016)

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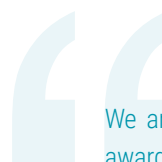
Heinrich Brüderle, WENZEL (Center) took the prize from Joachim Hachmeister, Chefredakteur inspect B2B (right) and Oliver Scheel, Commercial Manager (left).

## exaCT® U COMPUTERTOMOGRAPH AWARDED SEVERAL TIMES

### Global Customer Value Leadership and inspect Award Goes to WENZEL

The decision has been made: The readers of inspect and messtec drives Automation have voted throughout the summer 2017 on who should receive the coveted inspect awards 2018 in the categories Vision, Control and Automation. WENZEL made 1st place in the Control category with the universal exaCT® U Computed Tomography. – Thanks to everyone who voted for us!

The award ceremony took place on 28 November 2017 at the sps ipc drives in Nuremberg on the booth of Wiley. Heinrich Brüderle, Sales Manager Europe of the WENZEL Group (middle) proudly accepted the award from Joachim Hachmeister, Editor in Chief inspect B2B (right) und Oliver Scheel, Commercial Manager (left).



We are proud to have won first place of the inspect award 2018 in the category 'Control' with our universal computer tomograph the exaCT® U. We have set new standards in industrial computed tomography with the exaCT® U and are pleased with the recognition of the market. This shows us that we are on the right path with our development.

Heinrich Brüderle, WENZEL

### Best Practices Awards from Frost & Sullivan

Based on its recent analysis of the industrial computed tomography (CT) systems industry, Frost & Sullivan recognizes the WENZEL Group GmbH & Co. KG with the 2017 Global Customer Value Leadership Award for its recently launched next-gen exaCT® U system. The exaCT® U system offers a simplified, cost-effective, and fully automated workflow across the entire CT analysis process

The exaCT® U system is one of the most compact CT systems available in the market in its performance class and can provide precise 3-D data and automated inspection for complex inner and outer structural analysis of components. The CT control, data acquisition, and reconstruction software, developed in house by the WENZEL Group, have been specially developed to ensure high precision, fast scanning times, and unprecedented reconstruction speed for industrial applications. The system allows end users to conduct measurements and multiple evaluations with only one CT scan, further saving significant time and money.



Max Nätscher, WENZEL (left) took the price from Frost & Sullivan in Anaheim, California.

### Customizable to address users' requirements

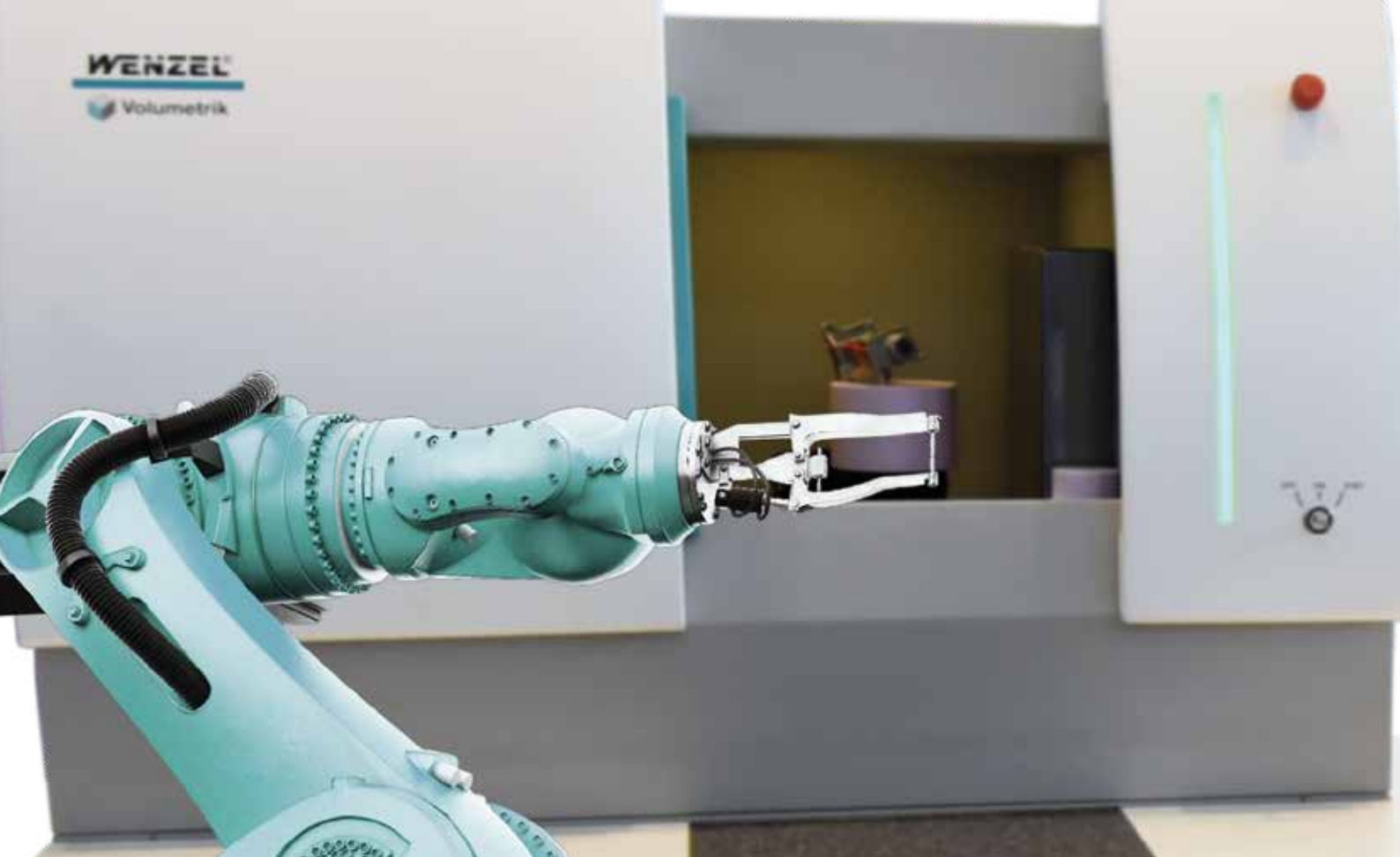
The exaCT® U is also flexible, as the company can customize its system to provide a solution based on user requirements. WENZEL designed the exaCT® U with advanced automated measurement parameters that allow customers to cut down

on training periods, which speeds up customers' return on investment. In addition, the exaCT® U makes the integration of hardware and software easy for optimized user control. The system is able to conduct multiple cavities, non-destructive, and non-contact scanning. The system's evaluation software provides a wide range of assessments, materials testing, reverse engineering, and compensation of shrinkage and warping within a very short time. Additionally, the exaCT® U has no general material restrictions regarding what can be scanned, allowing customers to use it for multiple purposes. "The exaCT® U industrial CT system is a powerful and universal CT solution that offers huge measuring volume, superior power potential, advanced resolution, and automated workflow in a compact size. Its customizable system is ideal for both integration into the production line and use in a research environment.



To address unmet customer needs in the global industrial CT systems market, WENZEL offers a portfolio of innovative, compact, and value-adding products under its exaCT line of computed tomography products.

Mariano Kimbara, Industry Analyst by Frost & Sullivan



AN INTERVIEW WITH FRED SCHÜTTER, HEAD OF COMPUTED TOMOGRAPHY (CT)

## INLINE CT: 100% INSPECTION OF WORKPIECES IN SYNC WITH SERIES PRODUCTION

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**Mr Schütter, what is the difference between Inline CT and classic CT in the measuring laboratory?**

For us, Inline CT stands for the 100% inspection and measurement of workpieces in sync with series production. Ideally 24 hours a day, 7 days a week. The operator enters the scanning parameters for a predefined measuring task, after which no further operator interaction is necessary. The components are, for example, loaded and unloaded using one or more robotic arms or a conveyor belt. Interconnective high-end IT solutions enable fast data processing resulting in the shortest process cycle time. The measurement and subsequent evaluation of the quality parameters are fully automated due to standardised procedures.

Integration into the production line does of course require a considerable amount of effort. Once set up, the computed tomography machine is bound to a particular location.

A new CT device is required for a new production line or another production step, where necessary.

However, classic computed tomography in the measurement laboratory offers maximum flexibility for the scanning and evaluating of any parts and material compositions. Our customers include service providers, research and development departments, prototype and pre-series development. The user is able to set individual parameters for any measuring tasks. Depending on space requirements and costs, our exaCT series is available in different sizes, from a desktop system to the universal XXL system.

Loading and unloading is done manually. Data processing can exceed the scanning time. Usually there is no interconnectivity in this respect, rather there are insular IT solutions. The scan results are evaluated manually.

### **How can Inline CT be integrated into the production process and what are the restrictions?**

Inline CT must be integrated in sync with the production line, i.e. the components must be scanned without interrupting production. We're talking about a cycle time of less than one minute for the complete inspection of parts. In practice, the material density fundamentally determines the cycle time for the scan. The management of the data volume per scan is also a major challenge.

The speed at which the computed tomography machine works is determined by the recording technology. In this respect, the sensitivity of the detector, the tube power, the data transfer speed and the algorithms, for example, all play a major role in automation.

It is also important that the high clock rates of the current production processes and the claim for 100% inspection through quality assurance are not simply harmonised in the short term. Very short production cycle times in particular represent a major challenge for all metrology solutions to "keep pace" and to quickly take corrective action in the event of quality problems. We help our customers to optimise their processes and we have developed a solution approach that determines the test batches taking into consideration the production clock cycle and the measuring time.

### **How can both the speed and the precision be further increased?**

Faster scanning speeds are enabled, even for parts with a higher material density, through the use of more sensitive detectors and more luminous X-ray tubes. A more accurately reproduced image is achieved through higher resolution detectors and through smaller focal spot sizes. In combination – a technological challenge. Furthermore, the faster the data transfer speed and the processing of data the better. Each new generation of processors and graphics processors (computing power) from large manufacturers drives forward computed tomography even further. Considerable time savings can also be achieved through fully-automated pallet measurements that benefit from the transfer and processing of data.

### **What does the future marketplace look like for Inline CT?**

In the industrial production of workpieces and assemblies, quality assurance using computed tomography plays an increasingly important role. Rejects or even defective parts that are released for sale generate considerable costs and damage the manufacturer's image. With Inline CT it is now possible, for example, to carry out automatic non-destructive testing for adherence to certain characteristics and to categorise parts made of synthetic material or lightweight metal in minute-cycles (OK / not OK / rework required).

Inline CT will replace other measuring technologies where savings in the process cycle times justify the investment.



Fred Schütter, Product Line Director Computed Tomography  
Operating wheel for vehicle ventilation

An increasing number of CT systems will lead to lower production prices and in the near future will result in more attractive systems. Our new computed tomography machine exaCT® U offers improved performance thanks to impressive speeds. Lots of evaluations can be generated with just one scan. Thanks to its high level of efficiency, low space requirements and low operating costs, it is the ideal solution for automation and could be directly integrated into the manufacturer's process chain and used for the 100% inspection.

We predict that more inline solutions than measurement laboratory solutions will be used in the next 10 years or so. Industrial computed tomography machines will play an important role in this respect.

FOR THE PRODUCTION ENVIRONMENT

# THE NEW WENZEL SF 87 SHOP FLOOR CMM

## NEW COORDINATE MEASURING MACHINE

**With the new SF 87 Shop Floor Coordinate Measuring Machine, WENZEL has expanded its product portfolio with an entry-level system for the production environment. WENZEL's brand new SF 87 has all the attributes needed for a shop floor CMM, but benefits from an optimum measuring volume for this type of construction in relation to its footprint. Further efficiency gains can be achieved by using more powerful probes and optical sensors.**

A measuring volume of 800 x 700 x 700 [mm] was chosen to be aligned with common sizes of metal cutting and forming machines. Thus, this new cantilever measuring machine offers an excellent price-performance ratio with a small footprint. High travel speeds and accelerations ensure high productivity. The SF 87 CMM can be used flexibly and can be easily repositioned with a pallet truck.

### **Ergonomic and user friendly**

The intelligent machine concept was designed for high ergonomics and ease of use. This is reflected in many details, such as the variably adjustable working height of the operator station (optional), the compact integration of the computer and controller, the table height and design of the machine covers. This facilitates a pleasant and safe work environment in a limited production space.

Due to its temperature stable structure and dirt resistant guides and scales, this new measuring machine is optimally equipped for use in a production environment. Equipped with active temperature compensation, the SF 87 measures precisely in three different specified temperature ranges. Optionally, active damping provides enhanced stability in more demanding environments.

### **Powerful optical and tactile sensors**

This new universal device is multi-sensor capable and supports both optical and tactile sensors. With the PH10 motorized head, measurements can be made on difficult to access workpiece features from different angles. The PH10MQ PLUS can be equipped with extensions and powerful scanning probes, such as the SP25M.

In combination with WENZEL optical sensors SHAPETRACER and PHOENIX, components can be digitized quickly and with high resolution. The SF 87 can be equipped with tool change racks to switch probes and extensions automatically, simply and quickly without the need for time consuming requalification.

### **Easy integration into automation solutions**

The SF 87 is already prepared for use in production lines and automation solutions and can be easily integrated via the optional WENZEL Automation Interface (WAI). The accessibility of the measuring volume from three sides is optimal for robot integration and can be flexibly adapted for complex tasks with customer specific environments. WENZEL's WM|SYS Analyzer also provides an intelligent machine monitoring solution. This offers full control of the measuring machine and optimizes maintenance and service planning through various error reading and analysis options.

The high dynamics of the machine and the low weight were achieved by bionic machine structures and a unique weight balancing system. These guarantee high productivity and insensitivity to vibration on the shop floor. The SF 87 does not require compressed air and which ensures low operating costs. The new, attractively priced WENZEL SF 87 Shop Floor CMM can be combined with WENZEL's unique Power Full Service concept for maximum reliability and predictability.



## AUTOMATED MEASUREMENT IN THE PRODUCTION ENVIRONMENT

# WENZEL SENSOR FAMILY FOR HIGH-SPEED SCANNING



**CORE is the optical high-speed scanning system from WENZEL that measures components at very high speeds. It is extremely compact and robust, therefore it is suitable for use in the production environment. The measuring system can be combined with three different sensors. WENZEL showcased the new hybrid sensor for the very first time at Control in Stuttgart. This sensor combines the benefits of optical and tactile measuring technologies.**

In the basic system, CORE is used with the double eye sensor for capturing points. It records the point data and/or scans it. PHOENIX also enables digitalisation of the full surface with its measuring field of 30 to 40 mm. For data capture the sensor uses the phase shift measuring principle of structured light projection, i. e. the triangulation of several points, whereas the measuring principle of the double eye sensor is based upon the triangulation of a single point. Both systems can record suitable surfaces quickly and with precision.

Due to its ability to switch automatically between the tactile TP20 and the in-built optical sensor, the new hybrid sensor can be used for complex measuring tasks. The combination of optical high-speed measurement and micro-precise switching measurement using the TP20 guarantees quick and precise results for quality control. The new development is designed for use in production environments and is supplied with the WENZEL magnetic fixture that ensures greater safety and improved process stability (see table).

The latest sensor from WENZEL combines optical tactile measurement on the CORE optical high-speed scanning system.

The **double eye sensor**, which is based on triangulation technology, enables maximum productivity, in particular with long components with small radii, such as turbine blades.

**PHOENIX** is a stripe light project and image processing sensor. It enables surface recording of components in order to be able to perform a quick analysis in production control.



<b>Type:</b>	2-in-1 triangulation sensor with tactile measurement probe
<b>Measurement probe:</b>	TP20 from Renishaw
<b>Technical data:</b>	Light: Broadband white light Point diameter: 40 µm Working distance: 80 mm
<b>Dimensions (L x W x H):</b>	Magnetic fixture with collision detection
<b>Dimensions (L x W x H):</b>	163 x 62 x 144 mm





### Continuous increased use in automation solutions

It is increasingly common for CORE to be integrated into automation solutions and it is ideal for the automated feeding of components onto the measuring machine. The perimeter protection of CORE offers a large opening area and guarantees excellent accessibility from all three sides. A successful automation project was implemented at Starrag AG in Rorschacherberg, Switzerland, for example. Two CORE systems were successfully integrated into a flexible production system. The production cell manufactures diverse complex turbine blade types made of high-precision forged blanks and incorporates four milling machines that produce the blades using a special clamping solution, as well as two cleaning systems and the two measuring machines. The individual stations are served by a robot. Communication with the CORE measuring machines is regulated via the cell controller.

CORE M is also ideally designed for the harsh conditions in the direct production environment. CORE M is distinguished by temperature stability, resistance to soiling and resistance to vibration. The ultra-dynamic linear motors and the robust basic machine of the 6-axis measuring system enable measurements to be taken at high speed. CORE M can measure components with a height of up to 2,200 mm.



“ The cooperation with WENZEL on this project is extremely positive. From our experience, the communication channels at WENZEL are short and there is a flat hierarchy structure. This allows us to respond very quickly to changing requirements as part of the project work.

Ivo Ritter, Project Manager at Starrag AG

# WENZEL SOFTWARE IS GROWING TOGETHER

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**In 2017, we harmonised software development in the WENZEL Group. The fundamental idea is that we can offer software solutions from WENZEL for all machines and applications that offer the same operating strategies but cover specialist functional scopes.**

The importance of software in machine engineering has also increased dramatically over the last few years. We recognised this many years ago and with the takeover of Metromec AG in Switzerland, we have established an in-house development centre for our core software. At the Swiss site and other sites, around 50 employees are working on our solutions that are installed at several thousand workstations.

It is not just the importance of software that is continually changing, so too are the type and intensity of use. Depending on the choice of machine, we offer the ideal software solution from our portfolio for every machine. However, customers now combine different measuring tasks on different machines, they also want toothed gears or turbine blades on classic coordinate measuring machines or they switch between tactile probes and optical sensors. This is where our specialisation reached its limits as the users had to adapt to different applications in the worse case scenario or the software was developed in such a way that the probes and sensors were integrated in all applications.

With the rapid development and short innovation cycles in metrology, competent and fast development teams also reach their limits, if the integration into different solutions takes place repeatedly and redundantly. This is where our new software architecture comes in as our solutions are all based on a common hardware abstraction layer upon which the different application solutions are built (see figure).

## **The basics – our WM | Core**

The WM | Core will in future be delivered in the background with all our solutions. The drivers to connect the probes and sensors as well as the different machine types are plugged into it. Via the I++ interfaces, numerous third-party products can also be integrated into the WENZEL landscape.

## **The all-rounder – our WM | Quartis**

The new version of our flagship – WM | Quartis – is presented once more in detail in this edition of Metrology World. Even at first glance, it is clear that there is a significant difference. The interface now follows the new Group-wide style guide and has a fresh, modern design.

## **The skyscraper – our WM | PointMaster**

Our WM | PointMaster is distinguished by the processing of large data volumes of point clouds, polymeshes and voxels as well as a high degree of application flexibility. In 2018, the new interface solution was implemented along with a number of additional functions. PointMaster offers a wide range of modules that enable the user to process point clouds, model polymeshes, perform reverse engineering and create CAD models. Furthermore, WM | PointMaster forms the basis for our special solutions in computed topography and styling.

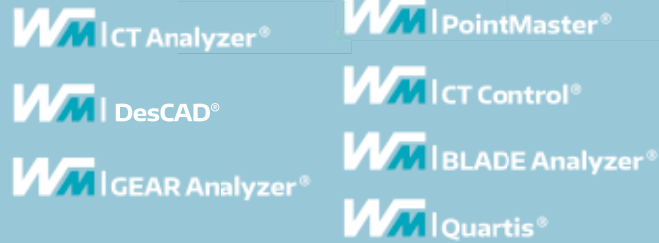
## **The specialist – our WM | GEAR Analyzer**

Requirements for evaluating gear wheels have increased dramatically. The WM | GEAR Analyzer solution that is based upon the open GDE standard offers the customer considerably more opportunities for analysing and visualising the measurement results.

## **The integrator – our WM | SYS Analyzer**

Our new WM | SYS Analyzer provides all information relating to the operation and use of our products and solutions at a glance, and is explained once more in detail in this latest edition of Metrology World.

## USER SOFTWARE



## INTEGRATION



## PROGRAMM-INTERPRETER

(Messprogramm, CNC)



## TOOLS



## CONTROLLER

WPC, WMC, UCC

## TACTILE SENSORS

TP20, TP200, SP25, SP80, PHS, REVO, PH20

## OPTICAL SENSORS

PHOENIX, SHAPETRACER, PS006

In 2018, we have already begun to demonstrate the new and many further developments that are based on the outlined strategy of the integrated software family. It is important that we do not unnecessarily increase the complexity in each individual solution as a result of the independence of the applications. The WENZEL software family follows a similar concept to Microsoft. There are good reasons for the parallel existence of text

processing, tabular calculation, e-mail and presentation software. However, similar interface solutions make it easier to get started with the software and switch between solutions, which is precisely our claim. In future, we want to offer the best possible solution from WENZEL for each particular application.

# WM | QUARTIS® R2018-1

## NEW RELEASE FOR OUR CUSTOMERS

**As punctual as a Swiss watch, our software team in Switzerland delivered the new version R2018-1 in February. In the following we introduce you to innovations that are based upon specific customer requests and that directly help our users to process their measuring tasks with greater efficiency. However, there are also fundamental considerations and modifications that we have implemented as part of the further development.**

Do you agree that the product name WM | Quartis R2018-1 sounds familiar and yet somehow different? Throughout the course of the realignment in software development, we have also changed the naming strategy for our existing solutions. The “WM” prefix, which is also visible in the logo, stands for “WENZEL Metrology” and indicates that it is a product that we have developed completely in-house. With the new version naming convention, there is a direct reference to the year the version was released.

### **New WENZEL style guide**

In order to satisfy our claim that our users can switch between applications from the WM | software family easily and with little training, we have developed a tailored style guide for WENZEL with the help of an advisor specialising in the “user experience”.



The development of a new, common style guide for mature products that are established on the market was a challenge for all parties involved. However, what is important to everyone is that our users can quickly familiarise themselves with the harmonious and comparable utilisation and can perform their tasks. We achieved this collectively and it marked the start for exploiting further synergies

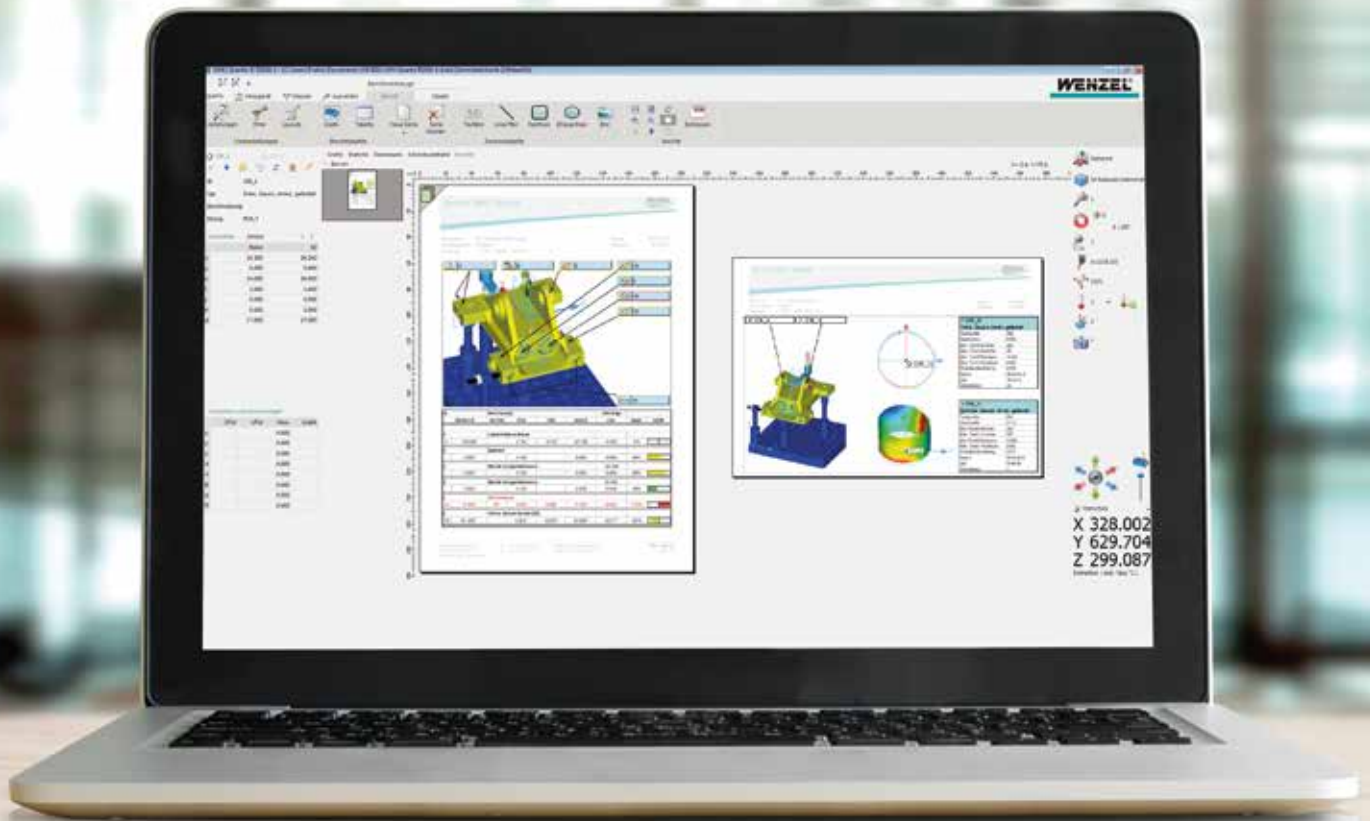
Jan Rahnfeld, Assistant to the CDO of the WENZEL Group

### **New user interface**

The image of WM | Quartis was completely modernised on the basis of the style guide. Few, harmoniously coordinated colours without gradients make it easier to work with the system. Operating elements such as buttons, entry fields and check boxes are flat and have no 3D effect. Dividing lines are avoided as much as possible so that the interface not only looks more modern but is also easier on the eye for the user. The users can of course choose between different colour schemes. Our favourite is the default beige colour scheme, however black can also be selected, similarly to Microsoft, or the blue that was used previously.

## **AN OVERVIEW OF THE NEW FEATURES OF WM | QUARTIS® R2018-1**

- New WENZEL style guide
- New user interface
- New evaluation options
- Innovations in automatic measurement programme generation
- Innovations in the development of tailored reports



### New evaluation options

Circle and cylinder diameters can now be evaluated using different evaluation methods. It is also possible to evaluate the diameter of a bore hole or wave according to the standard. The calculation method can be selected directly for the evaluation and independently of which calculation method was used to record the circle or cylinder. In addition to the Gauss, Tschebyscheff, envelope and Pferch calculations, the user can also select two-point measurement and envelope requirement.

### Innovations in automatic measurement programme generation

We are also familiar with the trend for automatic measurement program generation on the basis of CAD drawings or test plans. We have already implemented individual requirements in previous versions and with R2018-1 we have once more implemented a request from many customers. The BMWIpp format is now also available for generating programmes from element and characteristic lists, in addition to the Daimler/Audi Inspection Feature ASCII format.

### Innovations in the development of tailored reports

Measurement reports travel, leaving behind their own language region, as the customer can be located in another country where he wants to compare, design and hold available the evaluations. For this reason, we have enhanced our settings options in the measurement program and now offer the opportunity for the language used in the report as well as the number of displayed decimal spaces to be directly controlled by the measurement program.

“Easy and quick progression from the measuring task to the measurement result was always a driving force for our product development team. The generation of measurement program offers the greatest optimisation potential. Continuous process chains, consistent data retention and standardised data exchange formats facilitate the route towards automated measurement program generation.

Marcel Lenherr, Managing Director  
WENZEL Metromec AG

# WM | SYS Analyzer®

## TRANSPARENCY FOR OPERATION AND CONTROL

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**Many customers rely on the different products supplied by our company, which are applied and utilised in different ways. A lack of transparency leads to unnecessary downtimes or less than optimum supplying of the machines with measurement orders. To increase transparency and improve the control of WENZEL machines, we have brought the WM | SYS Analyzer to market.**

The specification for the development of the WM | SYS Analyzer was not simple: the real-time provision of all the necessary information for authorised users on a suitable interface. Independently of the machine type and the custom-

er's location. The software is of course secured through an authentication procedure and encryption. It can be saved and called up locally or globally. Our development team comprised of software and controller experts was faced with the challenges and has now launched the first market-ready version.

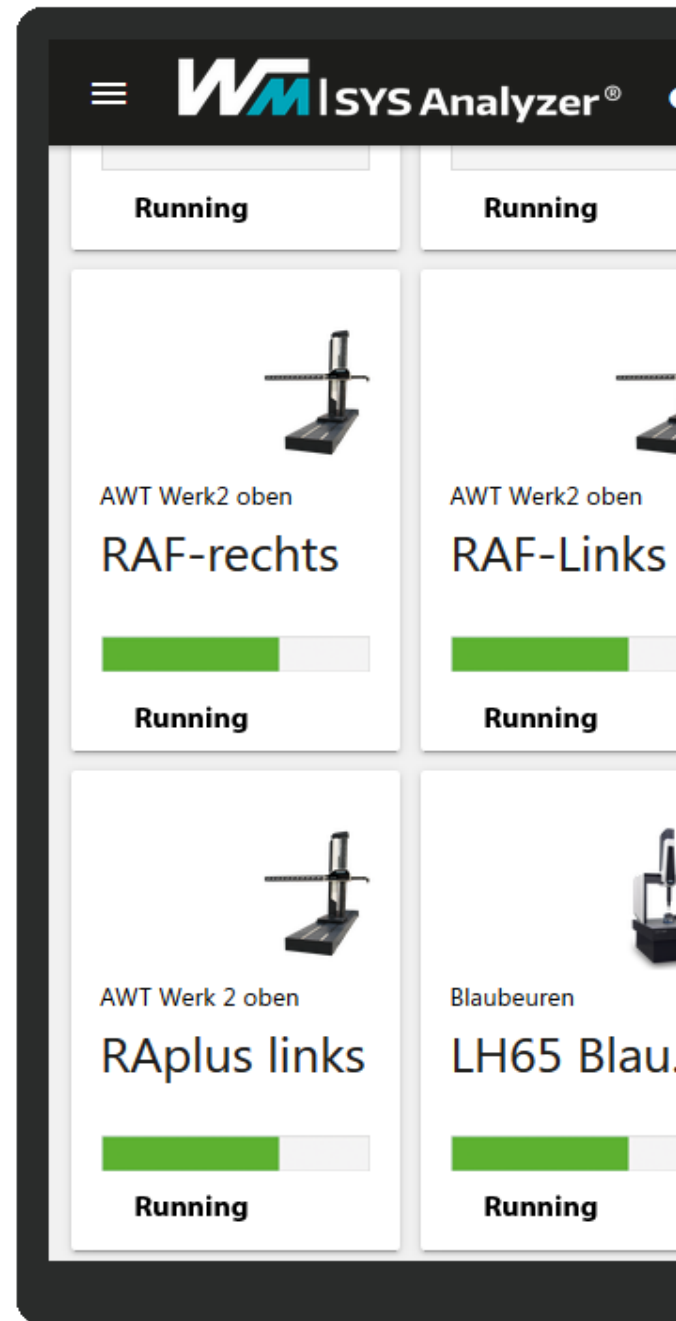
Does everything need to be reinvented as part of digitalisation? Or is it just the inevitable hype when people feel disillusioned? We answered both of these questions with NO. Our users can of course receive important information about the operating state of the machines, and naturally they can select the latest servicing information and schedule new service windows. Fundamentally, each measurement programme can provide information about the remaining duration for processing the tasks. However, everything stored simultaneously and permanently for all connected measuring machines on a visually-attractive interface in order to perform further analyses retrospectively – this is what is new and crucial in terms of digitalisation in this environment and we offer. And we offer all of this to our customers with the WM | SYS Analyzer.

It is "just" a small application, is quick to install and can be deployed on many platforms from smartphones and tablets to computers. It offers significant value to our customers, however, and is improved with each version. Besides the afore-mentioned information, sensors and interfaces for the machine controller collect additional data on the environmental conditions, such as humidity and temperature, machine state with wear display and information about outstanding servicing activities or noticeable wear and tear, as well as manual interventions by the operator. This information can also prove to be valuable years after the measurement, in order to compare or interpret measuring results.

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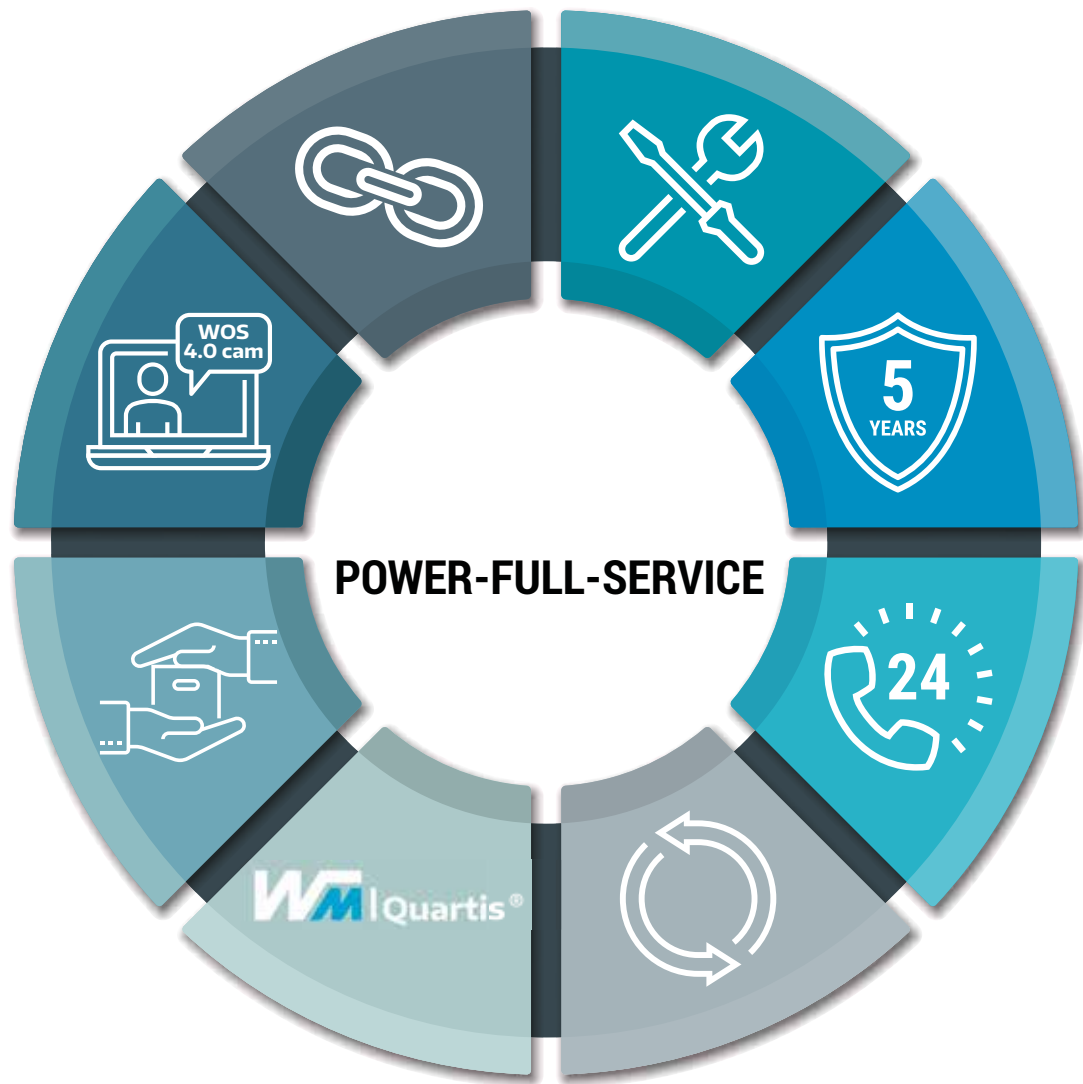


The WM | SYS Analyzer is ready for delivery in a relatively short time and is available in three stages. With the business model, we follow the approaches of the various apps. The free-of-charge MONITORING basic version will in future be delivered to the customer free of charge upon request with the purchase of a WENZEL machine and offers important basic information for the connected measuring machine. This includes machine status, hardware errors, temperature display, service history and service record as well as servicing information. With the OPERATIONS chargeable design, up to three WENZEL machines can be connected. In addition, more diverse information is available on the software and programme runtime, temperature development and data history. With the ANALYTICS design, the customer has the option for the unrestricted connection of WENZEL machines as well as any available displays. This includes the Dashboard, result histogram, displays showing operating hours and runtime, servicing support, full service and predictive maintenance (see table).



	Monitoring	Operations	Analytics
Connectable machines	1	3	unlimited
Machine status	+++	+++	+++
Error status	+	++	+++
Environmental conditions	+	++	+++
Inspection program info	0	+	+++
Service information	+	++	+++

Naturally, all the different designs will be considerably expanded upon in the upcoming versions. We have our own ideas in this respect but are also looking forward to hearing about the initial experiences of customers using them in practice. And of course we are open to implementing appropriate customer requests. Use the WM | SYS Analyzer with immediate effect for machine and process control. We look forward to discussing the application together with you and further developing it in order to fully exploit the many possible uses.



- |                         |                                   |                                 |                    |
|-------------------------|-----------------------------------|---------------------------------|--------------------|
| SERVICING / CALIBRATION | WARRANTY EXTENSION / FULL SERVICE | WENZEL HOTLINE                  | EXCHANGE SERVICE   |
| SOFTWARE MAINTENANCE    | WENZEL TOP INSURANCE              | WENZEL ONLINE SERVICE (WOS 4.0) | WM   SYS ANALYZER® |

### WENZEL POWER FULL SERVICE

## ALL-ROUND CAREFREE SERVICE PACKAGE FOR THE NEW SHOP FLOOR CMM SF 87

The WENZEL Group presented the new coordinate measurement machine SF 87 at Control 2018 in Stuttgart, as an entry device for the production environment. It can be combined with the unique Power Full Service solution. By concluding a Power Full Service contract, the customers can rely upon a 100% manufacturer warranty with additional benefits such as the replacement delivery of a CMM within 24 hours.

The excellent performance promise includes all services such as preventive maintenance, calibrations and repairs. The Power Full Service manufacturer warranty includes original spare and wear parts, the controller, the measurement computer, the operating panel and the measuring system. Only the probes are excluded from the warranty. The preventive replacement of wear parts and the possibility of performing maintenance in two-shift operation considerably reduces downtime. The installation



of the latest release for the WM | Quartis measurement software and one training day per release update are also included in the all-round carefree service package.

### **100% planning security, 0% risk**

The Power Full Service package is valid from three to five years and offers extended availability of the WENZEL hotline as well as guaranteed response times of 24 hours. The extended on-call standby also applies to WENZEL Online Service (WOS 4.0) with web cam support. This means that during the online support task, live images can be sent to the application technician and video calls can be held with several users.

With the individually coordinated Power Full Service, WENZEL takes on the cost risk and maintenance planning. Therefore, besides absolute cost transparency and simple budgeting throughout the whole term, maximum machine availability is ensured and the well planned execution of preventive maintenance activities is guaranteed. On the basis of a fixed quarterly rate, all the necessary services and components are covered for the complete operational readiness of the measuring machine.

### **Maximum operational reliability, minimum downtimes**

“The Power Full Service for our new shop floor measuring instrument offers a number of highlights that go above and beyond the attractive benefits of our established Full Service offering,” explains Karl Nagel, Head After Sales Service at WENZEL. The WENZEL Exchange Service ensures the replacement delivery of a CMM in Germany within 24 hours and in the EU within 48 hours. The Top Insurance machine insurance guarantees the immediate rectification of damage to the measuring instrument e. g. as the result of a collision. The costs are assumed in full and there is no excess to pay.

WENZEL’s monitoring system, the WM | SYS Analyzer, is an intelligent solution for machine monitoring. It offers complete control of the measuring machine and optimises maintenance and service planning through various error analysis and analysis options through to predictive maintenance.

### **Flexible leasing models**

WENZEL offers flexible leasing models for the Power Full Service contract and thus a whole range of additional services that represent considerable added value for the customer. Leasing ensures liquidity and financial independence and as an off-balance instrument it can increase the financial leeway. This generates planning security and competitive advantage. The customer has full investment security and long-term, manageable, almost calculable costs. “Our new offering is calculated in such a way that the customer makes considerable savings compared to an individual order. Even compared with our server agreement models, the customer can save money,” explains Karl Nagel.

### **About the WENZEL Group**

The WENZEL Group is a market leader for innovative metrology. WENZEL offers an extensive product portfolio in the areas of coordinate measuring technology, gear metrology, computed tomography, optical high-speed scanning and styling solutions. Technology from WENZEL is used in all industry sectors, including automotive, aviation, energy generation and medicine. Today there are more than 10,000 WENZEL machines installed around the world. Subsidiaries and agencies in more than 50 countries support sales and provide the After Sales Service for our customers. The WENZEL Group currently employs 630 members of staff.



Karl Nagel,  
Head After Sales Service



Mourad Mansouri, Head Retrofit / Used Machines

AN INTERVIEW WITH MOURAD MANSOURI, HEAD RETROFIT / USED MACHINES

## RETROFIT – A PROMISING INVESTMENT TO SAFEGUARD MEASURING TASKS

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**Mr Mansouri, you are Head of the Retrofit and Used Machines team in After Sales Service. What does your team do exactly?**

In the retrofit and used machines team, we sell software updates and upgrades, all kinds of service contract such as hardware, software and full service as well as warranty extensions, for example. Complete overhauls and used machines that we offer at an attractive price, also form part of our day-to-day business. Retrofits represent a large and increasing proportion of our work, involving both WENZEL machinery and also that of third parties.

**What does a retrofit actually involve?**

A retrofit can incorporate different scopes. From replacing the controls and importing the latest software through to a complete overhaul including replacement of all wear parts and the measuring system.

**What does the scope of the retrofit depend upon?**

We offer a recording of the current status as well as a precise needs analysis of the customers requirements, in advance. Depending on the machinery and measuring task requirements, as well as age and state, an exact retrofit scope can be defined together with the customer. In any case, we ensure that the coordinate measuring instrument is retrofitted with the latest technology and software. All the latest innovations from our WM | Quartis measuring software are incorporated and the latest safety specifications and standard requirements are met. Overall, the customer receives a fully intact mechanical machine of the latest technological standard and has the opportunity to use it over the next decade with maximum machine availability. The customer is making a promising investment to safeguard its measuring tasks.



### And WENZEL offers all of this?

Yes, as a manufacturer our retrofits offer a real alternative to the purchase of new machinery and can significantly extend the service life of existing machines on the customer's premises. Compared with new machines, the costs are lower and retrofits do not involve any downstream effort to place and deploy the machine.

### Is this included in the WENZEL scope of supply?

We offer retrofitting and all other necessary work from a single source. Not only does this include retrofitting by our trained experts, but also possible downstream support from a renowned manufacturer in the event of application-related issues. This is extremely interesting for international customers too, as the members of our global service network are trained and qualified in accordance with our Partner Qualification Programme. It goes without saying that we exclusively use original WENZEL spare parts and offer a manufacturer's warranty.

### Is this large performance scope economically attractive for the customer?

Absolutely! We offer special retrofit packages for the different measuring systems that are precisely aligned with the customer's needs. These include the SP25 and REVO systems as well as optical sensors. Our optional service contracts enable a further increase in the economic efficiency of the machine as they lead to the further reduction of the life cycle costs, and due to increased reliability they reduce downtime.

### What machine types do you offer retrofits for?

Our retrofit packages can be used on all common portal and stand-mounted machines. Portal measuring instruments are often retrofitted from tactile to scanning measuring systems. Customers thus ensure the maximum operational flexibility of the machine as both tactile and scanning measurements can now be performed. Besides an increase in the measuring speed, this also results in a considerable improvement in performance. However, stand-mounted measuring machines are also often retrofitted with our optical sensors in order to measure larger components (especially in the automotive sector).

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### Will your customers also benefit from the fact that your company is celebrating its 50th anniversary?

During our anniversary year we are offering a number of retrofit packages at extremely attractive prices, and we are already looking forward to many requests and retrofits from satisfied WENZEL customers.





# YOU CAN MEASURE YOUR SUCCESS WITH US WENZEL METROLOGY SERVICES

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**Our benchmark: perfection. This is our claim for entering the market with WENZEL MESSTECHNIK GmbH in Blaubeuren and Leipzig. For customers who do not (yet) have their own measuring machines and experience bottlenecks in the timely performance of measuring tasks. Our measuring centres are open to you.**

We can cater for numerous and diverse measuring tasks; our measuring machines are equipped with start-of-the-art technology and have numerous experts on hand to assist.



That describes our two service locations in southern and eastern Germany in a nutshell.

Usually our customers identify in advance any specific applications where our machines need to be used. This is not the case with our service subsidiaries. Each customer visits our measurement centre with different materials and requirements for their measuring tasks. This challenges our on-site employees to find a solution in order to satisfy our customer. And of course, we receive unfiltered and direct feedback enabling us to further improve our products and solutions. Our experts naturally focus initially upon the high-performance products from our company, however the customer is king and we also have expertise in competitor solutions. The portfolio of our service locations covers the following competences and capabilities:

## **CONTRACT MEASUREMENT**

Our application technology area incorporates the latest measuring instruments of all types for contract measurement. We advise our customers on the selection of the ideal measurement strategy and the appropriate sensor technology. Whether tactile, optical, with the support of computed tomography or a combination thereof – we solve measuring tasks easily and quickly.



WENZEL Measurement Centres in Blaubeuren (above) and Leipzig (below right)

### Measurement coverage in the area of COORDINATE MEASUREMENT TECHNOLOGY

- Tactile, scanning, optical
- Geometry or free-form surface measurement
- Target/actual comparison
- Individual and series production testing
- Initial sample test reports
- Shape and position
- Reverse engineering
- Digitalisation
- Bodywork

### Measurement coverage in the area of COMPUTED TOMOGRAPHY

- Non-destructive testing
- Cavity and pore analysis
- Hairline crack detection
- Assembly control
- Defect detection
- Target/actual comparison
- Wear testing
- Initial sample test reports
- Function analysis
- Damage analysis

### ORDER PROGRAMMING

Our customers may experience capacity bottlenecks, need replacement support during staff holiday periods or require help with a long-term project. We are happy to offer the support of our experienced measurement technicians to create CNC programmes for your measuring instrument. Technical drawings, CAD models, test plans and individual specifications form the basis of the measurement programme.

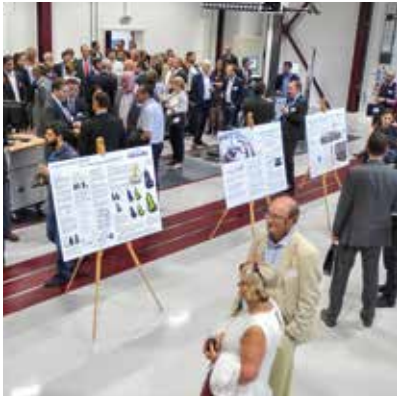
### RAMP-UP SUPPORT

Our customers may require ramp-up support with the creation of their measuring programmes. We are happy to offer on-site support. Sound planning and ramp-up support reduce potential follow-on costs and additional expenditure. Through our expertise and experience we make sure that your project runs smoothly.



# IMPRESSIONS FROM THE LAST YEAR

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# IMPRINT

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