

INNOVATIONS IN METROLOGY

WENZEL SHOP FLOOR SERIES

Our solutions for your measuring tasks



FOR USE IN THE WORKSHOP

THE NEW WENZEL SHOPFLOOR SERIES CMMs FOR USE IN THE WORKSHOP

WENZEL's workshop-suited CMMs are universally applicable. The WENZEL SF 55 and SF 87 coordinate measuring machines can be used to measure both series and individual individual parts in the direct production environment, in incoming goods and in classical quality assurance. The intelligent and compact design is suitable for a wide range of applications in the production environment, especially in the cutting and forming industry.

WENZEL SF 87

The new SF 87 coordinate measuring machine is the universal measuring machine for the production environment. The SF 87 requires little floor space and offers an optimized measuring volume of 800x700 x 00 mm. This makes it ideal for a large part of the metal cutting and forming industry. The machine concept offers a very good price-performance ratio with low space requirements. High traversing speeds and accelerations ensure high productivity. The combination of powerful probes and optical sensors leads to a considerable increase in efficiency in your measuring and testing process.



WENZEL SF 55

The SF 55 is a CNC bridge measuring device for use in a production environment and can be equipped with both tactile and optical sensors. The corrosion-free guides of the machine are made of granite and hand lapped with high precision. The guide ways are completely covered and protected against contamination. The controller and PC are integrated into the machine for a minimum footprint. The space requirement is low with excellent price-performance ratio. The SF 55 has passive vibration damping and can optionally be equipped with active vibration isolation.





Multisensor capable and ready for automation

SF 87's bionic structure and unique low center of gravity design make it efficient, ergonomic, productive, and insensitive to shop floor vibrations. SF87 is flexible when it comes to sensors. SF87 is multi-sensor capable and supports both optical and Renishaw tactile sensors including the PH10MQ PLUS that can be equipped with extensions and SP25M analogue scanning probes. SF 87 can be configured with a tool-change rack to switch probes and extensions automatically, without need for time consuming requalification. The new coordinate measuring machine is a directly usable production line and automation solution and can be integrated through the optional WENZEL Automation Interface (WAI) for material handling, without losing any footprint. The accessibility of the measuring volume from three sides is optimal for automated assembly by robots and can be flexibly adapted for more complex tasks with customer-specific substructures. In addition, SF 87 uses an active damping system and does not use air bearing technology, which helps customers avoid using expensive clean air and operate with only a 230V power supply, all achieved without compromising measurement accuracy.

WENZEL complements its strong product range with an optional service package which includes all services such as preventive maintenance, calibrations and repairs.

Best Practices Award 2018 goes to WENZEL

Based on the latest analysis of the global market for coordinate measuring machines (CMMs), Frost & Sullivan honors the WENZEL Group with the "Global New Product Innovation Award 2018" for the revolutionary shop floor CMM SF 87. With a larger measuring volume, a smaller footprint, a larger operating temperature range and seamless integration into automation solutions, the SF 87 meets all requirements for successful measurements in the direct production environment. Every year, Frost & Sullivan presents this award to companies that have developed innovative products using state-of-the-art technologies. The award recognizes the value added features and benefits of the product and the associated higher return on investment (ROI) for customers, which in turn increases customer acquisition and overall market potential.

WENZEL SF 55

MEASURING IN THE PRODUCTION ENVIRONMENT

The SF 55 is a CNC bridge measuring device for use in a production environment and can be equipped with both tactile and optical sensors. The corrosion-free guides of the machine are made of granite and hand lapped with high precision. The guide ways are completely covered and protected against contamination.

The controller and PC are integrated into the machine for a minimum footprint. The space requirement is low with excellent price-performance ratio. The SF 55 has passive vibration damping and can optionally be equipped with active vibration isolation.

FEATURES

- **Cost-effective entry into coordinate measuring technology** due to excellent price-performance ratio
- **Flexible and universally** applicable in the workshop and in production
- **High measuring throughput** with scanning measuring heads
- **High accuracy** over a wide temperature range due to the use of granite in all axes
- **Compact design** with small footprint

FIELDS OF APPLICATION

The SF 55 can be used universally. Serial and individual prismatic and free-form workpieces can be measured with the coordinate measuring machine in a production environment, for incoming goods and for classic quality assurance.

Steel bushings

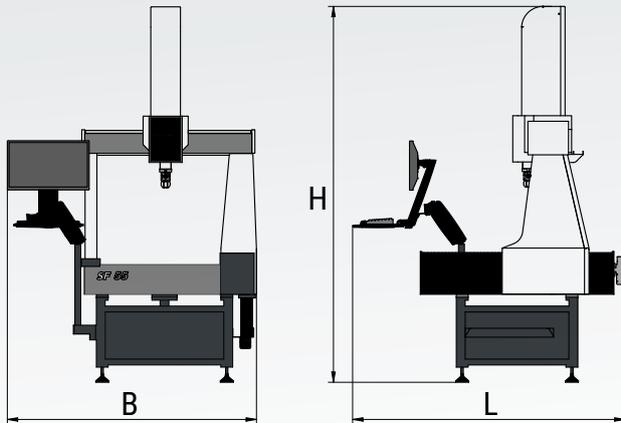


Machine components



Gearboxes





MACHINE PROFILE

Space Requirements (L x B x H)	1730 x 1440 x 2555 mm
Machine weight	980 kg
Max. Workpiece weight	200 kg
Measuring ranges	500 x 500 x 500 mm*

* with touch probe PH10M PLUS

YOUR ADVANTAGES AT A GLANCE

- **High flexibility**
 Bellows covers to protect against contamination |
 Data compatibility with other WENZEL systems |
 Height-adjustable operating arm
- **High mechanical precision**
 Granite base | Hand-lapped base plate (DIN 876/0) |
 Air bearing guide elements in all axes
- **Low operating costs**
 Low air consumption | Renishaw sensors |
 Reliable and inexpensive spare parts
- **Versatile sensor options**
 Swapable sensor systems | 3-axis scanning |
 Optical sensor technology
- **Suitable for automation and integration into the line**
 WENZEL-Automation-Interface (WAI) |
 Good accessibility | WM I SYS Analyzer

WENZEL SF 87

MEASURING IN THE PRODUCTION ENVIRONMENT

The new SF 87 coordinate measuring machine is the universal measuring machine for the production environment. The SF 87 requires little floor space and offers an optimized measuring volume of 800 x 700 x 700 mm. This makes it ideal for a large part of the metal cutting and forming industry.

The machine concept offers a very good price-performance ratio with low space requirements. High traversing speeds and accelerations ensure high productivity. The combination of powerful probes and optical sensors leads to a considerable increase in efficiency in your measuring and testing process.

FEATURES

- **Maximum driving dynamics** for maximum productivity
- **High measuring volume**, matched to production machines
- **Compact design** with small footprint
- **Flexible and mobile** for use in the workshop
- **Maximum stiffness with minimum dead weight** due to bionic design

FIELDS OF APPLICATION

The SF 87 is a workshop-ready 3D coordinate measuring machine for measuring small to medium-sized production parts. The intelligent and compact design is suitable for a wide range of applications in the production environment, especially in the cutting and forming industry.

Steel bushings

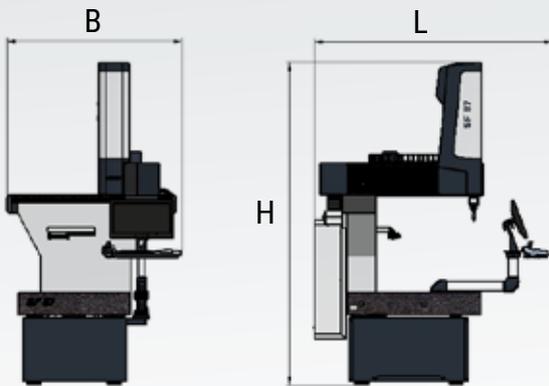


3-cylinder engine block



Gearboxes





MACHINE PROFILE

Space Requirements (L x B x H)	2130 x 1560 x 2890 mm
Machine weight	1850 kg
Max. Workpiece weight	300 kg
Measuring ranges	800 x 700 x 700 mm*

* with touch probe PH10M PLUS

YOUR ADVANTAGES AT A GLANCE

- Suitable for workshop and production use**
 Temperature compensation | active damping as an option
- Excellent price-performance ratio**
 Large measuring volume with small footprint | low operating costs | no compressed air required
- Modern machine design**
 Ergonomic and user-friendly | Bionic structures and massless weight compensation | Turntable option
- Flexible and universal use**
 Multisensor capable (optical and tactile) | 5-axis measuring technology | available with matching probe changing units
- Integration into the line and into automation processes**
 WENZEL-Automation-Interface (WAI) | can be equipped from three sides | WM I SYS Analyzer

Renishaw Equator

POWERED BY WENZEL

In the past, various measuring instruments were used to control manufacturing processes, e.g. Calipers, go/no-go gauges or bore gauges were used. The Equator Gauge combines these measurements in one device. This independent inspection system offers a good repeatable accuracy at an appropriate speed, with light weight and a high operability for manual and automated applications in production. For direct quality assurance in the process, the Equator enables timely

corrections to the process for specific manufacturing processes. By checking at more frequent intervals, the following occurs; A fast reaction to possible process fluctuations. Almost independent of the production environment, constant accuracy can be guaranteed in a temperature range from 5°C to 50°C at a humidity of 80%. The system is designed for ease of use, cost reduction and improved process control through an appropriate test system concept.

FEATURES

- **100 % testing** at low cost
- **Increase measurement throughput & reduce labor costs** through automation solution with Equator tester
- **Reduce scrap** with real-time process monitoring functionality
- **Short cycle times** due to versatility & high operating speed
- **Versatile** due to high temperature range & many configuration options

APPLICATION AREAS

The Renishaw Equator powered by WENZEL is used wherever gauges, measuring rings, etc. have been used until now. By previous production of a master part on a CMM, in connection with the Equator, almost 100 % inspection of the manufactured components can be realized in time with the production cycle. Therefore you don't even have to change the software, both the CMM and the Equator work with WM | Quartis from WENZEL. By loading measurement programs on the PC of the Equator, it is possible to select the corresponding program previously created on the CMM.





YOUR ADVANTAGES AT A GLANCE

- **Suitable for workshop and production use**
 Temperature range 5°C - 50° | Reliable measurement in Production environments | Temperature fluctuations compensation by reference point definition
- **Excellent price-performance ratio**
 One-system complete solution | One system for different Workpieces | No ongoing calibration costs
- **Flexible and universal use**
 Exchangeable clamping device | Simple Configuration | Operating system WM | Quartis Equator
- **Integration into the line and into the automation processes**
 Automation kit EZ-10 available | Automatic workpiece loading possible | Barcode reader for automatic program selection
- **Improved process control**
 Automatic updating of machine tools | Integrated data display

WM | MMA SERIES

MOBILE MEASUREMENT IN THE PRODUCTION ENVIRONMENT

Mobile measuring arms from WENZEL are characterized by great flexibility, enabling use in both production and quality assurance processes. By combining a portable 7-axis measuring arm with a high-resolution line scanner, which captures every detail contact-free, the measuring arms represent a useful complement to your established classical coordinate measuring systems. The use of the latest materials makes the measuring arm a lightweight unit that delivers highly accurate

and reproducible measurement results in mobile applications. The measuring arm can be used directly on the component - both with optical and tactile sensors - without any warm-up time and without sticking markers to the component. The measurement results obtained can then be transmitted via a WiFi interface for further use. The capacity and low consumption of the integrated battery ensure reliable operation of the measuring arm over a long period of time.

FEATURES

- Freedom of movement due to 7 axes with axis limit detection
- Automatic button recognition
- WiFi
- Battery operation
- Temperature compensated
- Stable resting position
- Internal weight compensation with damping element

MEASURING ARM PROFILES

The measuring arm is available in different versions - suitable for individual measuring requirements and tasks.

	Axis	Arm length	Tactile (with Scanning)		Optical		
			Single point repeatability	Accuracy	WM MLS 100P	WM MLS 200	WM MLS 100
WM MMA 2.0	7	2,0 m	0,022 mm	0,032 mm	0,038 mm	0,042 mm	0,047 mm
WM MMA 2.5	7	2,5 m	0,027 mm	0,038 mm	0,044mm	0,048 mm	0,053 mm
WM MMA 3.0	7	3,0 m	0,042 mm	0,051 mm	0,057 mm	0,061 mm	0,066 mm
WM MMA 3.5	7	3,5 m	0,054 mm	0,062 mm	0,068 mm	0,072 mm	0,077 mm
WM MMA 4.0	7	4,0 m	0,069 mm	0,074 mm	0,080 mm	0,084 mm	0,089 mm
WM MMA 4.5	7	4,5 m	0,078 mm	0,089 mm	0,095 mm	0,099 mm	0,104 mm



YOUR ADVANTAGES AT A GLANCE

■ High flexibility

7 axes for freedom of movement | Can be used with tactile and optical sensors | Axis limit detection

■ Mobile use

Suitable for industrial use | Portable light weight | Integrated battery & WiFi

■ High process efficiency

No marker sticking | No warm-up time | Automatic button recognition

■ Accurate and reproducible measurement results

Temperature compensation | Stable rest position | Internal weight compensation with damping element

■ Data evaluation and security

Integrated WiFi interface | Evaluation with QM | Quartis Mobile

	Axis	Arm length	Tactile (without Scanning)		Optical
			Single point repeatability	Accuracy	WM MMA + WM LS70
WM MMA 2.0	7	2,0 m	0,022 mm	0,032 mm	0,039 mm
WM MMA 2.5	7	2,5 m	0,027 mm	0,038 mm	0,045 mm
WM MMA 3.0	7	3,0 m	0,042 mm	0,051 mm	0,058 mm
WM MMA 3.5	7	3,5 m	0,054 mm	0,062 mm	0,069 mm
WM MMA 4.0	7	4,0 m	0,069 mm	0,074 mm	0,081 mm
WM MMA 4.5	7	4,5 m	0,078 mm	0,089 mm	0,096 mm

Magnetic MOUNTS 6" und 8"

An excellent way to attach a measuring arm to an iron surface such as a steel plate or a table is to use a magnetic mount. Some customers use it as a flexible mounting solution on a large steel table or even mount them directly on the bed of a machine tool. They can easily be turned on and off, allowing the user to quickly change the position while he measures a large part on a table. The magnets are switched on and off with an Allen key. In some cases, customers even use a magnetic mount, to attach the measuring arm directly to the part to be measured. This creates a desirable situation in which the part does not move relative to your measuring device. Our magnetic fasteners include a universal 3-1/2"-8 stainless steel mounting ring. The magnetic brackets are delivered in a hard foam case to a simple to ensure transport to the workplace



TRIPOD-HDP

Portable tripod for measuring arms with universal 3-1/2"-8 threaded ring. The measuring stand is suitable for measuring arms up to a length of 3 m. The portable aluminum tripod is a lightweight and can be folded in our optional plastic case.



TRIPOD-HDP-PRO

The measuring stand is suitable for measuring arms with up to a length of 5 m. The portable measuring stand made of lightweight aluminium and can be folded in our optional plastic case.



Workshop trolley with granite plate 600 x 920 mm

Our workshop trolley with a dimension of approx. 600 x 920 mm is provided with a granite slab. The cart is narrow enough to pass through a doorway to fit in standard size and contains two 3-1/2"-8 mounting rings. It has lockable cupboard doors and handles at both ends to ensure easy manoeuvrability of the cart. The interior of the case stays open to all devices, Power supplies, printers or computers.



Workshop trolley with granite plate 720 x 1220 mm

Our workshop trolley with a dimension of approx. 720 x 1220 mm is provided with a granite plate. The car is still narrow enough to go through one Door opening in standard size to fit, and contains three 3-1 / 2 "-8 mounting rings. It has lockable cupboard doors and handles at both ends to ensure easy manoeuvrability of the trolley. The interior of the case remains open to accommodate all devices, power supplies, printers or computers.

WM | Quartis Mobile

THE UNIVERSAL STANDARD MEASURING SOFTWARE

WM | Quartis Mobile is the product for applications with mobile measuring instruments. The following measuring arms can be operated with the product without an additional module: WENZEL WM | MMA. With additional module DME-MAN the measuring arms Hexagon RDS, FARO USB FaroArm and Kreon ACE are also supported. The use of other measuring instruments is not possible with this product.

User Interface

Suitable for every task

The easy-to-use, task-oriented and individually configurable graphical user interface is suitable for every measuring task. The measuring programs can be invoked quickly and simply with just one click over the quick dial panel or by means of a barcode scanner. The relational database also ensures traceable measurement results. The integrated statistics package guarantees a rapid Assessment of manufacturing processes. The CAD functionality of WM | Quartis Mobile is the basis for efficient measurement. The integrated live preview secures a correct application of the standard-compliant evaluation according to ISO GPS and ASME.

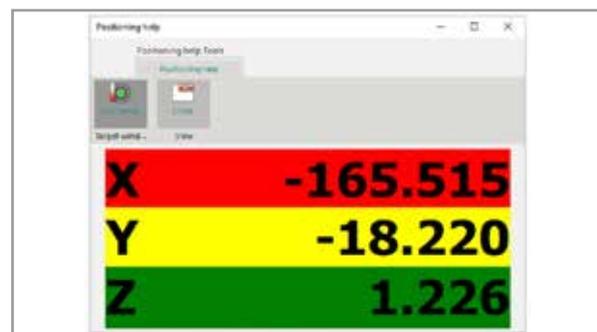
Positioning aid

The new working window "Positioning aid" is used to position the touch points of the elements as accurately as possible during the execution of measuring programs with manual measuring instruments. The target window of the positioning aid is defined by the measuring distance and can be found under the current probe radius taking into account the normal direction of the point to be scanned. The target point is thus identical to the touch point of the stylus on the material (for actual = nominal). The "Positioning aid" working window can be displayed via "Quartis button / Working window / Positioning aid" and edit" will be displayed. When the "Positioning aid" working window is switched on and the active manual measurement of an element during the execution of a measuring program, the X, Y and Z values are displayed numerically in the working window.

Clear measurement reports

Everything at a glance

The integrated report generator allows a free design of the measurement reports (table and graphic views with freely configurable data and statistics boxes). Deviations can be displayed color-coded. WM | Quartis Mobile also offers a wide range of Export options (PDF, ASCII, Excel).



MEASURING SOFTWARE

	WM Quartis Mobile	Metrolog	Polyworks
Tactile measurement	X	X	X
Optical measurement of surfaces	From 10/19	X	X
Optical measurement of features	From 10/19	X	X

INNOVATION MEETS TRADITION

The WENZEL Group is a market leader in innovative Metrology. WENZEL offers a comprehensive product portfolio in the fields of Coordinate Metrology, Computed Tomography and Optical High Speed Scanning. The technology of WENZEL is used in all industries, including the automotive sector, aeronautics, power generation and

medicine. WENZEL looks at today on an installed base of more than 10,000 machines worldwide. Subsidiaries and agencies in more than 50 countries support sales and provide after-sales service for our customers. The WENZEL Group today employs more than 600 people.



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