

INNOVATIONS IN METROLOGY

SENSORS AND CHANGE RACKS

Our solutions for your measuring tasks



SENSORS AND CHANGE RACKS

FOR GANTRY MACHINES

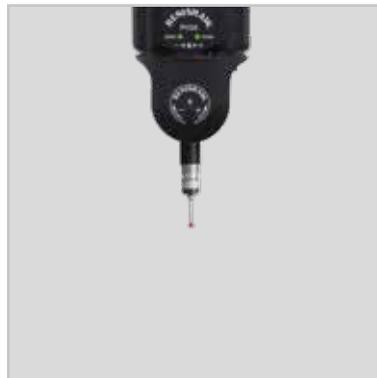
Combined with a variety of innovative sensors, the WENZEL gantry machines are applicable flexibly even for the most different of applications. From smallest injection moulded parts up to large sheet metal punching tools - our product series meet your requirements! They can be equipped with manual, motorized, infinitely variable or indexable

mounting heads. With the corresponding touch-trigger, scanning and optical measuring systems, our product series achieve meaningful results for a wide variety of applications. The compatible automatic changing racks turn the measuring machines into homogeneous and versatile measuring systems.



PH10T PLUS / PH10M PLUS / PH10M iQ PLUS

Automatically, indexable probe head, Fast probe replacement (auto joint) with the corresponding change systems.



PH20

The 5-axis PH20 and LH are an efficient solution for measuring 3D and prismatic components. The 'Head Touch' function takes measurement points very quickly and reduces cycle times.



REVO-2

The revolutionary 5-axis probe system REVO™ coupled with WM | Quartis provides an extremely fast high scanning speed solution with a high degree of measurement flexibility, and thus an extremely high throughput.



TP20

Touch trigger probe. Extremely robust and flexible touch trigger probe with stylus module.



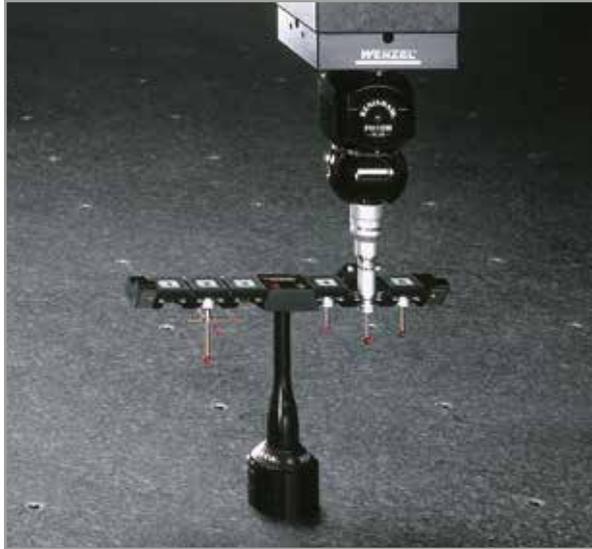
TP200

Compact, modulechanging touch trigger probe particularly suitable for measuring tasks with tight dimensional tolerances for 3D free-form surfaces with longer styli.



SP25M

The most compact and versatile probe system for scanning on a global scale.



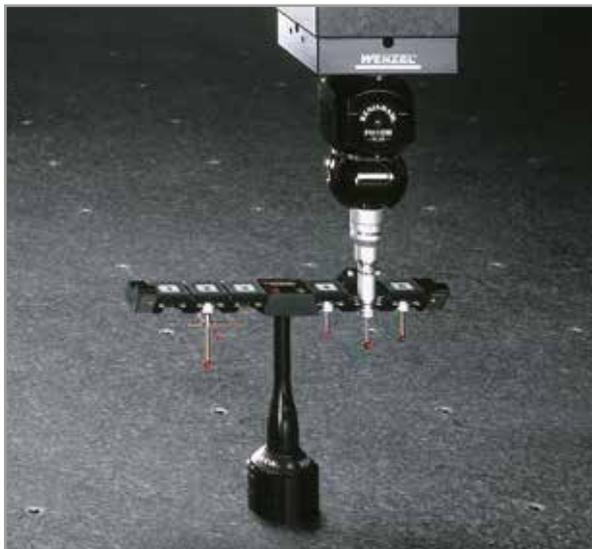
Change Rack SCR200

The SCR200 provides automatic, high speed changing between up to six TP200 stylus modules. The SCR200 is powered by the separate probe interface, PI 200, and provides features to facilitate safe stylus changing.



Change Rack ACR3

The changer rack ACR3 provides a passive means to automatically exchange probes without the need for requalification. Although the ACR3 is a four port unit, systems can be linked together so that more different probes or extensions can be stored in the rack - sufficient for any measurement task.



Change Rack FCR25

Flexible change racks for automated changing of SP25M scanning and touch-trigger 3 Station (6, 9, 12 and 15 Stations available).



MRS2 Stylus Module Rack

MRS2 is available with different column and rail lengths to allow configurations for a variety of applications. When the CMM workspace is tight, or when a large number of probes and styli are needed, additional rails can be attached to the MRS2 to configure a multi-stage magazine. The rail is compatible with the following interchangeable systems: ACR3, FCR25, memory module and roughness probe SFA for REVO probes.

SENSORS AND CHANGE RACKS

FOR HORIZONTAL ARM MACHINES

The R series can be equipped with manual, motorized, infinitely variable or indexable probes and swivel heads. These can be combined with an extensive range of touch trigger, scanning and optical measuring systems.



PH10T PLUS / PH10M PLUS / PH10M iQ PLUS

Automatically, indexable probe head, Fast probe replacement (auto joint) with the corresponding change systems.



PHS2 servo positioning head

Can be swiveled continuously. Minimum probe calibration efforts. Extensions of up to 750 mm possible.



SP600

A universal robust probe with scanning functions. Ideal for scanning forms and fine surface details.



TP20

Touch trigger probe. Extremely robust and flexible touch trigger probe with stylus change modules.



Universal mounting head

The mounting head allows the mounting of probe systems and marking tools for all axial directions in a fast, secure and user-friendly way.



Scribing tool

The manual mode of operation of the R series allows the scribing of models in metalworking, mould making, tooling, tooling, etc. and design area.



ACR2 Autochange rack

ACR2 can store up to six probe extensions or probe adaptors. It makes a change of probe extensions or probe adaptors possible so that the measuring tasks do not have to be carried out manually.

The pick-up heads and probes shown here are only a small selection from our extensive product range.

For further information please contact your WENZEL contact person.



Change rack ACR3

The ACR3 is a four port unit, two can be linked together so that eight different probes or extensions can be stored in the rack - sufficient for any measurement task.



Change rack MCR20

Module change rack enabling automated changing of TP20 stylus modules. The MCR20 module changing rack can store up to six TP20 probe modules for automatic changing under measurement program control.

REVO® 5-AXIS-SYSTEM

HIGH PRECISION SCANNING AT HIGH SPEED

With the REVO, the measuring machine has the ability to perform the most accurate measurements with extremely high scanning speeds and data rates due to its unique technology. By means of the Active-Head function, the fast Scanning movements performed by the stepless axes of the head, while the machine axes perform slower movements. This ensures reliable results, even with large extensions, and the Head-Touch Function for quick single point fantasies.

The infinitely variable axes provide maximum workpiece accessibility with minimum need for probe change, probe material and calibration time. The exchangeable roughness sensor with sixth axis turns the measuring machine into a surface measuring device. In combination with the user-friendly measuring software WM| Quartis, the REVO offers unprecedented speed and flexibility.

FEATURES

- **Active head function** enables scanning at extremely high speed (up to 500 mm/s²)
- **Fast single point probing** with head-touch function
- **Undercuts** with conventional 3-axis mode and angled probes
- **Extensions** up to 800 mm possible
- **Short calibration time & few probe changes** due to unlimited positioning possibilities
- **Low cost** of probe material
- **Full integration** into user-friendly measurement software WM | Quartis
- **Surface roughness sensor** optionally possible

REVO IN WM | Quartis

- Full integration of REVO functionalities in WM | Quartis
- Simply set probing strategies and scan paths via menu ribbon and view in preview graphic
- Fast surface measurement with sweep scan; simple cylinder measurement as helical scan
- Complete integration of the REVO in graphic display, swivel dialog and probe catalogue
- Fast measurement even with high point density (up to 6,000 points/second)



EVALUATION SYSTEMS AND ACCESSORIES

PRECISION IN DETAIL



WENZEL Evaluation Station

- Compact workstation with integrated media supply
- Mounting the WENZEL CNC-Controller
- Housing of the evaluation PC system in desk form (120 cm x 90 cm) 19" technology

WENZEL evaluation system CNC

- Optimized machine performance
- Optimized for WENZEL & Renishaw sensors
- Scanning probe possible via option cards

Interfaces WPC2040

- Ethernet
- RS232
- Readerhead input (5V TTL)
- Probe input (5V TTL)
- Motor connections



Standard control panel HT400, wired

- Ergonomic shape for one-hand operation
- 1 joystick for all axes
- Multifunction pad
- Stepless adjustment of the CNC travel speed
- Emergency stop function according to EN 60204 and EN ISO 13850

Wireless control panel HT400RC

- Wireless control panel HT400RC incl. receiver
- 1 charging cable each 0.5 and 6.0 m
- Charging station
- Spare battery
- Power supply



Styli

Comprehensive range of styli for every application

The accessories shown here are only a small selection from our extensive product range.

For further information please contact your WENZEL representative.

OPTICAL SENSORS

FOR CMMs AND MEASURING ARMS

Coordinate measuring machines can be equipped with touch-trigger as well as tactile and optical measuring sensors. Which sensor is the right choice depends on many factors, e.g. what the measuring task is, which surface has to be measured, the measuring speed and much more. Whereas measurements used to be carried out mostly in measuring rooms, it has now been apparent for some time that it is increasingly being shifted towards production, e.g. IN-Line or AT-Line, in order to ensure the quality of the products during series pro-

duction. The optical measuring technology enables the user to perform completely new measuring tasks without contact and with the desired accuracy in a reasonable time, whether these are vehicle seats or medical implants, does not matter. WENZEL sees the next step as the integration of optical sensors to measure roughness on a coordinate measuring machine. This makes a CMM a true multi-sensor device. Today, optical sensors can already be mounted on many measuring machines.

FOR COORDINATE MEASURING MACHINES



WM | SHAPETRACER II

The WM | SHAPETRACER II from WENZEL is a flexible sensor, which was developed for the measurement of point clouds on a coordinate measuring machine. With a maximum line length of 120 mm, even larger components can be captured and processed in an efficient time.



WM | LS 70

The WM | LS 70 from WENZEL convinces with a high resolution of 50 μm and a line width of max. 70 mm. Combined with a temperature compensation and the new optics, use in the production environment is no problem. Furthermore, this sensor is multifunctionally applicable, can also on a measuring arm WM | MMA from WENZEL and can be equipped e.g. with a TP20 from Renishaw for additional tactile measurement.



Typically, the sensors (except those of CORE) are designed for use with all WENZEL coordinate measuring machines by using a Renishaw Autojoint adapter. This enables you to upgrade your existing measuring systems (RS, RA, RAX, etc.) with an optical sensor from WENZEL

and thus ensures the cost-effective adaptation of your coordinate measuring machine to current requirements. You can combine the advantages of tactile measurement with those of optical measurement and thus prepare your system for future measuring tasks.



As already mentioned WENZEL keeps pushing the development of its optical metrology sector. You will be interested in a line sensor with a large line width, which enables you to quickly detect large components. In addition, the use of strip light projection sensors opens up

new possibilities in 3D coordinate measuring technology. The sensor portfolio is rounded off with a roughness depth measuring device that can always be mounted at the same position on the CMM during series production in order to reliably determine the roughness.

FIELDS OF APPLICATION

It makes no difference whether the optical sensors are mounted on a multi-column system, a portal machine or a shop floor machine. WENZEL offers for each application a suitable sensor with the corresponding performance, e.g. line width and other features. This results in innumerable possible application areas in the aerospace and automotive sectors, in medical technology as well as in many other industrial sectors.

Automotive



Railway industry



Construction equipment



FOR MEASURING ARMS

The optical sensors of the WM | MLS product series were specially developed for use on the measuring arm. Depending on the sensor, these enable you to digitize a component in record time with a correspondingly high resolution. They can measure with a line width of 100 mm to 200 mm (depending on the sensor) and digitize the component with an accuracy of up to 9 μm at a data rate of 600,000 points per second. Depending on the version, the sensor also has temperature compensation and an LED display.



WM | MLS 100

The WM | MLS 100 is distinguished by a max. laser line of 100 mm at a line resolution of 50 μm and a maximum data rate of 200,000 points per second.



WM | MLS 100P

The high-resolution scanner WM | MLS 100P has a max. laser line of 100 mm at a line resolution of 25 μm and a max. data rate of 600,000 points per second, which enables accurate digitization.



WM | MLS 200

The optimized scanner WM | MLS 200 has a max. laser line of 200 mm at a line resolution of 50 μm and a max. data rate of 600,000 points per second, which enables fast digitization.



WM | HS & WM | DS

FOR THE CORE SERIES

The WM | HS and WM | DS have been specially developed for the CORE product range. The WM | DS is based on a double-eye principle which enables the precise measurement of particularly small radii. The WM | HS is a hybrid

sensor, which fulfills your measuring task at top speed by the combination of optical and tactile at a CORE with a 5-axis scanning. Both sensors are designed for use in the production environment.



WM | DS



WM | HS

WM | SHAPETRACER II

HIGHEST FLEXIBILITY & CONVINCING PERFORMANCE

The WM | SHAPETRACER II is a highly flexible 3D line scanner for the acquisition and processing of point clouds on a multisensor coordinate measuring machine. The optical sensor is integrated into the software of

Wenzel integrates with both WM|PointMaster and WM|Quartis and thus delivers high-quality, precise and repeatable results. With the

WM | SHAPETRACER II sets WENZEL standards in the field of digitization. In comparison to the predecessor model, an increase in the measuring range and the measuring speed has resulted in an increase in performance of over 400 %. By using a blue laser line and a better resolution, a higher tolerance towards critical surface structures

was achieved. The WM | SHAPETRACER II works with the lens and ambient light filter independently of ambient light and offers a high degree of flexibility with regard to a wide range of workpiece colors. Firmware updates can be easily controlled via the multiwire interface of the Autojoint adapter. Since the calibration data of the 3D line scanner is stored on an intelligent camera system, the installation is very easy. The connection to the coordinate measuring machine

is carried out via an automatic, fully integrated Multi-sensor-Interface. The combination of optical and tactile measurement ensures effective work for every application.

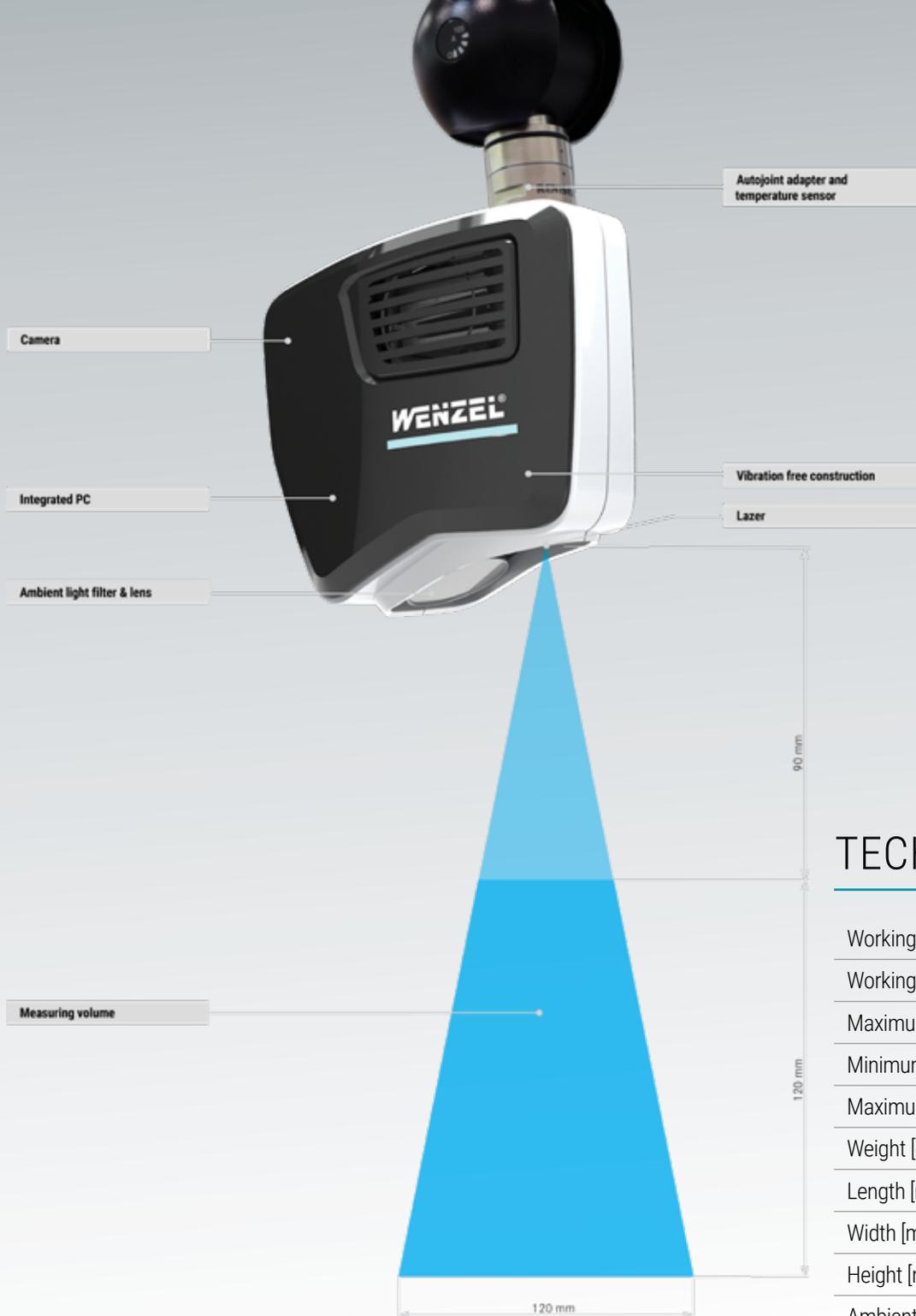
FEATURES

- **Automatically replaceable** with Autojoint adapter
- **Optimized line width**
- **Low unit weight**, enabling use on various turning and swivel heads, e.g. PH10, etc.
- **Fast reverse engineering** possible
- **Fast detection** of surfaces
- **Can be used for various materials**, e.g. aluminium, sheet metal, plastics and other...
- **Different surfaces and colors** can be measured
- **Virtually independent of ambient light** due to ambient light filter

APPLICATION AREAS

The 3D line scanner WM | SHAPETRACER II turns your coordinate measuring machine into the ideal tool for recording and editing point clouds. WM | SHAPETRACER II can be used in the following industrial and application areas, among others:

- Styling- and designstudios
- Tool and mould making
- Prototype construction
- Automotive industry
- Reverse Engineering
- Automation technology
- Verification and evaluation
- Nominal – actual color maps
- Digitization of design applications



TECHNICAL DATA

Working distance [mm]	approx. 80
Working range [mm]	approx. 120
Maximum line width [mm]	approx. 120
Minimum point distance [μm]	29
Maximum point rate [Pkt./s]	approx. 100
Weight [g]	495
Length [mm]	124
Width [mm]	124
Height [mm]	68
Ambient light filter	Yes

YOUR ADVANTAGES AT A GLANCE

■ High Productivity

Fast data transmission | Hardly any surface pretreatment necessary | Large measuring range

■ Low operating costs

Integrated in the WENZEL software family | Fast and reliable spare parts availability | Can be retrofitted to existing systems

■ High flexibility

Renishaw probe changer | Independent use of tactile and optical sensors | Independent use of tactile and optical sensors | Compatible with tactile sensors from Renishaw

■ Ergonomic design

Simple operation | Maintenance-friendly | Aesthetic design

WM | LS 70

MULTIFUNCTIONAL WITH IMPRESIVE PERFORMANCE

The WENZEL WM | LS 70 was developed for use in many different applications. It can be used on the mobile measuring arm WM | MMA as well as on a WENZEL CMM. The WM | LS 70 enables the user to make accurate and fast measurements.

By using a blue laser it is possible to measure reflective surfaces as well as workpieces with dark surfaces.

The WM | LS 70 also has an adapter for mounting of Renishaw's TP20 probe and can therefore measure both optically and tactilely almost simultaneously. The WM | Quartis measuring software can be used on both the CMM and the measuring arm, thus all functions are available through the user-friendly user interface familiar to the user.

FEATURES

- **Automatically replaceable** by Autojoint adapter
- **Optimized line width** of max. 70 mm
- **Low own weight**, therefore also applicable on different probe heads, e.g. PH10, and many more
- **Many application possibilities** - CMM and measuring arm
- **Optical & tactile measurement** almost simultaneously
- **Can be used for various materials**, e.g. aluminium, sheet metal, plastics and many more.
- **Laser class 2M - blue** enables measurement of high-gloss or extremely dark components

APPLICATION AREAS

Developed for demanding applications, the WM | LS 70 enables the most accurate and fast measurements in various industrial and application areas:

- Styling and design studios
- Tool and mould making
- Prototype construction
- Automotive industry
- Reverse Engineering
- Automation technology
- Verification and evaluation
- Nominal - actual color maps
- -Digitization of design applications



YOUR ADVANTAGES AT A GLANCE

■ High Productivity

250,000 pts/sec. | Accuracy of 10 µm | Optimized line width

■ Low operating costs

Integrated in the WENZEL software family | Fast and reliable availability of spare parts | Easy to retrofit to existing systems

■ Ergonomic design

Simple operation | Maintenance-friendly | Aesthetic design

■ High flexibility

Use on WM | MMA measuring arm and CMMs | Compatible with Renishaw tactile probes in changer | Scanning of different surfaces

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.



YOUR LOCAL CONTACT

Wenzel America Ltd

28700 Beck Road

Wixom MI 48451 USA

Phone: +1 (248) 295 4300

E-Mail: sales@wenzelamerica.com

www.wenzelamerica.com

Follow us & stay up to date!

