

# SSMITH TECHNOLOGIE

Your Metrology Solution Provider



# Profile & Introduction

Greeting from Ssmith Technologie,

We wish to introduce ourselves as supplier of Metrology Equipment's, serving Auto Components, Aerospace, Wind energy, Valves, Textile machinery, Electronics & Original Equipment manufacturers in the state of Karnataka, Tamilnadu, Andhra Pradesh & Kerala.

The products & principals we represent are market leaders in their respective products & fields. We have joined hands with them to provide solutions to our esteemed customers.

We sail along with customers in all their measuring solutions & provide value added services through application study.

## Products we represent

- Mahr Metrology (GmbH)
- Fischer Measurement Technology (GmbH)
- Norbar Torque Tools
- Wenzel GmbH Coordinate Measuring Machine (CMM)

# Mahr (GmbH) Products



Since 1861

**The company founded in the year 1861 by Carl Mahr**

- Digital Vernier, Mic & Dial Indicators (wireless)
- Puppitast & Millimess Dial Comparators
- Millimar Comparator for Air Gage & LVDT
- Digital Height Gage (1D/2D)
- Bore Gage (3Point & 2Point)
- Marameter Indicating Snap & Plug Gages
- Multimar
- Surface Roughness Tester (Skid & Skidless)
- Contour Measuring System
- Mechanical Roundness Tester
- Universal Length Measuring System
- Automatic Dial Calibrator

# Digital Vernier, Mic & Dial Indicators (wireless)



MarConnect – Product Connectivity Configuration window

MarCom - Connectivity

Instrument	Description of the connected measuring instrument	Description of the measuring task	Last sent measured value	Destination file and path to where the values are to be sent
COM1	Shaft Diameter	Mahr C12ex Millenar	20.00400	Excel: Default.xlt/sheet1/1,1
USB1	foot switch	Switch MC1	OFF	
USB2	Dial Comparator 2	µMaxim II 2000usb	-0.0016	Timer Global: Button 00:00:10
USB3	Dial Indicator 1	MarCator 1088 2000usb	+69.999	Timer Global: Button 00:00:10
RF1	RF1	MarCator 1088RF RF 01001	+9.992	Excel: Default.xlt/Tabelle1/1,1
USB4	Dimension 1	MarCal 16 18E4u	+022.28	Switch: foot switch

Annotations in the screenshot include: 'Connect/disconnect RF-Device' pointing to the RF1 row, 'USB plug-in position' pointing to the USB4 row, 'Individual instrument number' pointing to the COM1 row, 'Request of the measured value via the Timer (Start/Stop)' pointing to the timer settings, and 'Data Request via (e.g. switch or keyboard - button F1)' pointing to the 'Key: F1' field.

→ Data transmission with integrated wireless

Innovative features

Micromar 40 EWRI-L

Hand-held measuring devices with integrated wireless system

# The New MarCator Digital Indicator

MarCator 1086 Ri / 1086 ZRi

Digital indicator



## FUNCTIONS

- ON/OFF
- mm/inch
- RESET (set display to zero)
- PRESET (dimension presetting) – 3 values possible
- TOL (Tolerance and warning limit setting) – 3 tolerances possible
- <0> (Icon mode of the tolerance display)
- ABS (display can be set to zero without losing reference to preset)
- Factor (Multiplier for measuring travel)
- Reversal of counting direction
- Resolution selectable
- LOCK function (general key lock in the menu and individual key and menu locks for process-safe measurements via MarCom software)
- Bi-directional data interface (for data retrieval - transfer of parameters - remote control - individual function locks via MarCom software)
- Remote-controllable by MarCom software
- DATA (data transmission)
- HOLD (freeze current measured value)

### Application:

- Extensive measuring functions for static measurements e.g. lengths, distances and length differences



## TECHNICAL DATA

Order no.	4337790	4337791	4337720	4337721	4337722	4337723	4337731	4337910	4337911
Type	1086 Ri				1086 ZRi				
Measuring span	mm 12,5	25	12,5	25	50	100	25	12,5	25
Measuring span	inch .5"	1"	.5"	1"	2"	4"	1"	.5"	1"
Resolution	mm 0,01	0,0005, 0,001, 0,002, 0,005, 0,01							
Resolution	inch .0005"	.00002", .00005", .0001", .0002", .0005"							
Error limit	mm 0,02	0,004		0,007		0,008		0,004	
Error limit over	mm 0,002								

### Touch operating keys

With the practical touch function, a gentle touch of the surface is enough to operate the dial indicator safely – ideal for sensitive measuring tasks.



1087 BRI for dynamic comparative inner/outer measurements

### Unique measurement classification

The innovative colored LED display is used to quickly and unambiguously identify good products and waste, as well as reworks or warning limits. Icons also show this information on the display.

### For static and dynamic measuring tasks

The moving pointer of the additional analog scale display allows the dynamic measuring movement and tolerance limits of the MarCator 1087 models to be reliably identified visually. The MarCator 1086 models are designed for purely static measuring tasks.



### Optimum connectivity

Convenient and secure wireless data transmission (Ri models) or USB data cable with bidirectional data transfer (R and Ri models). You can also benefit from the handy option of setting the dial indicator very easily and clearly via a PC and the remote control option in conjunction with the free MarCom Professional software.

### Best protection

The robust hardened glass display with non-wearing touch operating keys makes the dial indicators even more durable and less susceptible to damage. In addition, the large LCD displays allow all measured values and icons to be read off directly and at a glance.



### Application:

- For highest accuracy requirements
- Indicator with lowest possible error limit and finest resolution: Resolution 0.1 µm (.00001")
- Extensive measuring functions for:
  - Static measurements e.g. lengths, distances and length differences
  - Dynamic measurements e.g. radial run-out, straightness and flatness, by means of MAX/MIN/MAX-MIN functions

# Puppitast, Millmess & Digital Comparators

## Puppitast



LC: 1µm/2µm/10µm



Digital Lever Dial 1µm

## MarCator | Digital Measurement

Our innovative range of digital dial indicators includes high-precision electronic measuring systems, allowing for a whole range of additional practical measuring functions. Simple to operate with a large, easy-to-read display, our digital dial indicators meet all the requirements of a modern measuring instrument. Quick and easy data processing ensures results are available when you need them.

- High contrast LCD
- Protection cap on end of measuring pin
- Power supply: Battery life approx. 3 years

**Functions:** ON/OFF, RESET (set display to zero), mm/inch, reversal of counting direction, PRESET (enter a numerical value), DATA (data transmission via connection cable), LOCK function(key lock), AUTO-ON/OFF

### MarCator 1075R | With large display

Product	Measuring Range		Resolution	Order No.	Features
	mm	(inch)	mm / inch		
1075R	12.5	0.5	0.001 / 0.00005"	4336030	Preset
1075R	12.5	0.5	0.01 / 0.0005"	4336010	Preset
1075R	12.5	0.5	0.005 / 0.0001"	4336020	Preset



MarCator



LC: 0.5µm/1µm



# The New Model Micromar Three point Mic

## Micromar 844 EWRi

Digital 3-point inside measuring instrument



### FUNCTIONS

- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to preset)
- mm/inch
- PRESET (dimension presetting) – 3 values possible
- TOL (Tolerance and warning limit setting) – 3 tolerances possible
- LOCK function (key lock)
- HOLD (freeze current measured value)
- DATA (data transmission)
- Bi-directional data interface (for data retrieval - transfer of parameters - remote control - individual function locks via MarCom software)



#### Application:

- Fast measurements by lever retraction (covers the complete application range of the respective measuring head) from:
- through holes
- blind holes

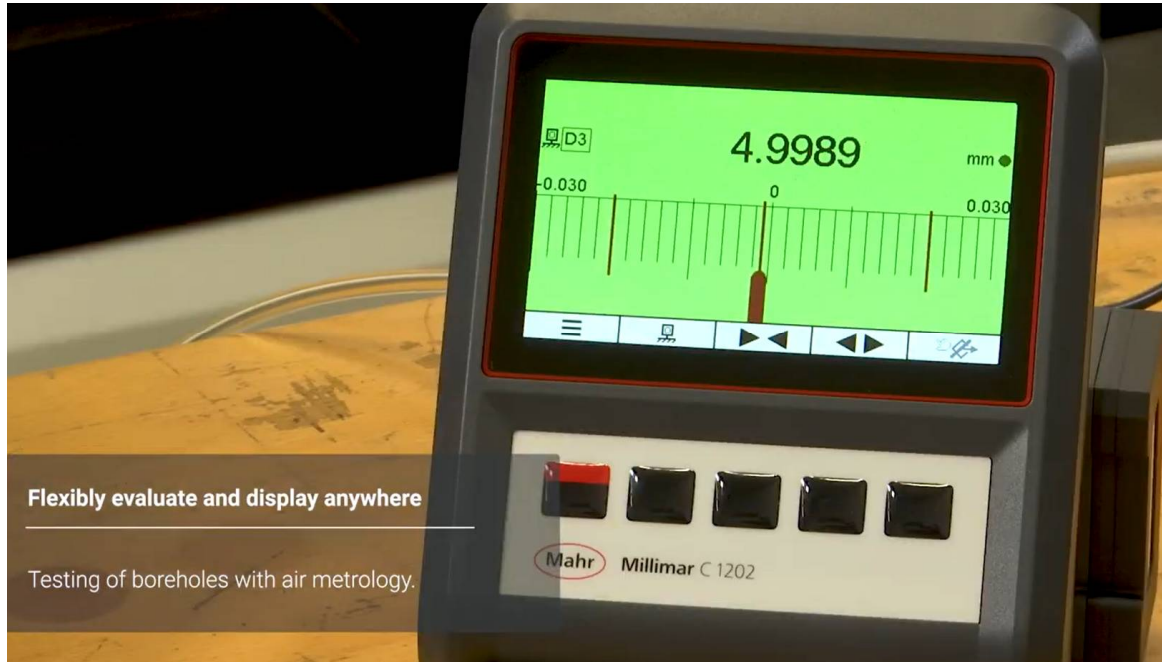


### TECHNICAL DATA

Order no.	Type	Measuring span of indicator		Resolution	Error limit	Standard	Height of digits	Number of measuring heads 44 Ak	Setting rings
		mm	inch						
4192240	844 EWR	6 – 12	.25 – .4725"	0,001 / .00005"	4	Factory standard	11,5	3	8 mm, 10 mm
4192241	844 EWR	12 – 20	.4725 – .775"	0,001 / .00005"	4	Factory standard	11,5	2	16 mm
4192242	844 EWR	20 – 50	.775 – 2"	0,001 / .00005"	4	Factory standard	11,5	4	25 mm, 40 mm
4192243	844 EWR	50 – 100	2 – 4"	0,001 / .00005"	5	Factory standard	11,5	4	60 mm, 85 mm

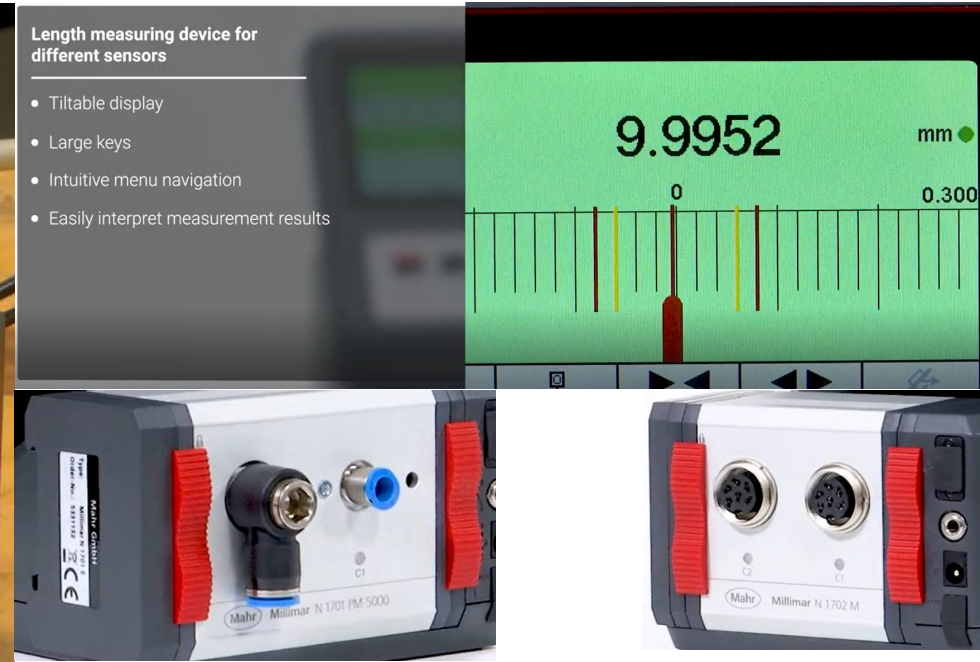


# Millimar Comparator for Air Gage & LVDT



Flexibly evaluate and display anywhere

Testing of boreholes with air metrology.

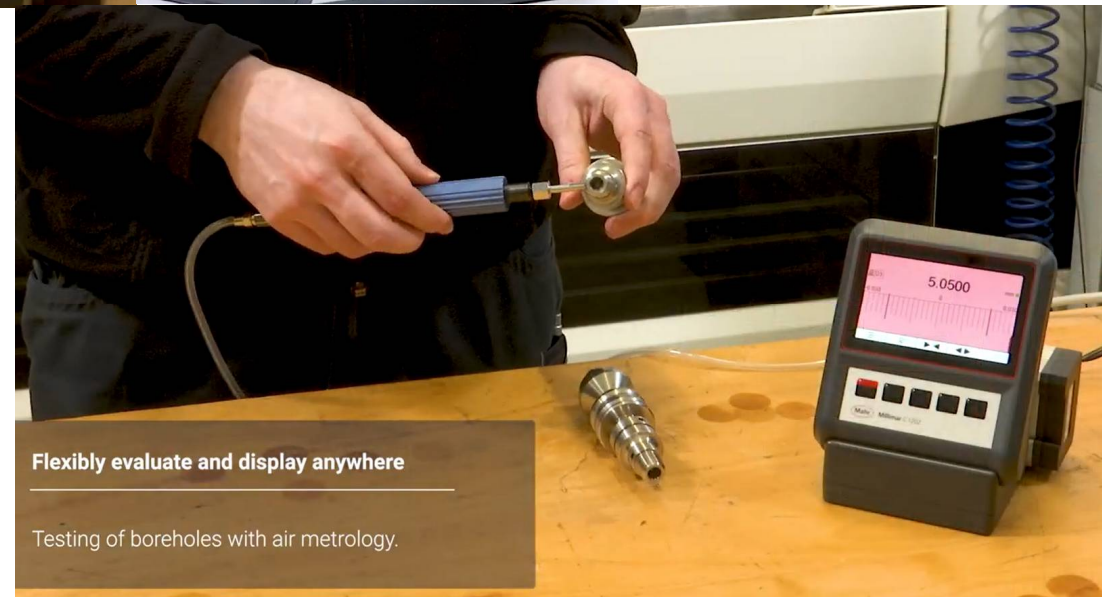


Length measuring device for different sensors

- Tiltable display
- Large keys
- Intuitive menu navigation
- Easily interpret measurement results



- Clear, tiltable color display
- Display up to 3 features simultaneously
- Easy to convert to different measuring tasks
- Clear menu structure
- High-precision measurements with a resolution of  $0.01\mu\text{m}$
- USB and Digimatic interface to document measured values
- Measurement tasks can be stored on micro SD card



Flexibly evaluate and display anywhere

Testing of boreholes with air metrology.

# Digimar 817CLT Height Gage 2D



## FEATURES:

### 817CT With 10" touch panel, Windows based

- Programming in teach-in procedure and drag and drop
- Animation for probe calibration & Easy change of menu functions
- Protocols in PDF format & 2D graphic evaluation
- Data transfer with Bluetooth printer & Data transmission via i-stick with MarCom
- Software update by customer via link
- Online help as operating instructions
- Use of customer company logos
- Calibration take place in the unit - No additional software necessary
- Use of other Mahr measuring equipment via USB cable
- Thumbwheel for fast up and down movement
- Quick mode function
- Displays swivels in all directions
- Use of existing wide range of probes
- Fast measuring buttons
- Improve design for better Ergonomics
- Interface: - 3 x USB 3.1 - - Mini USB – MarConnect
- Measuring Range: 350/600/1000mm

# Digimar 816CLT Height Gage 1D



## FEATURES:

### 816CT With 10" touch panel, Windows based

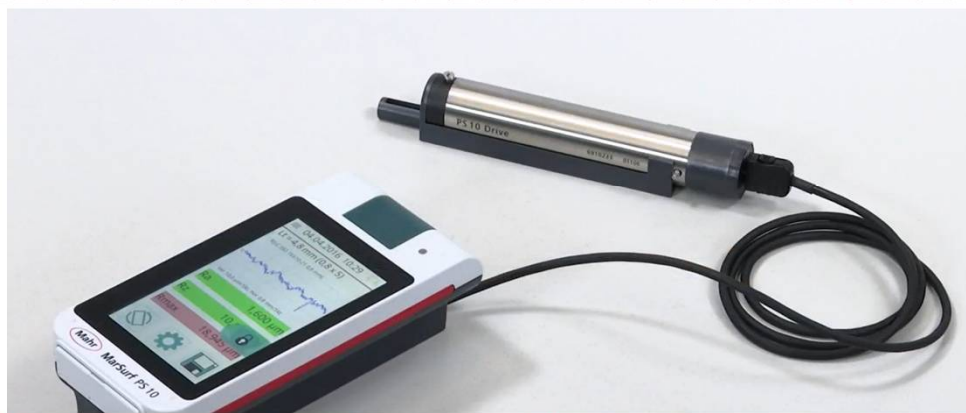
- Excellent measuring accuracy and reliability due to the optical incremental measuring system with the double reader head
- Dynamic probe system enabling high repeatability
- Air bearing system for light and smooth movement
- Measuring head guided in precision ball bearings
- Motorized measuring slide simplifies measurement runs
- Probe constant remains after the instrument is switched off
- Integrated rechargeable battery with a long operating life for mains-independent measurement
- Temperature compensation via integrated temperature sensor
- Measuring Range: 600mm

### Package contains:

- height measuring instrument incl. operating and display unit, carrier 817h1, probe K6/51, setting block 817 eb, USB cable, instruction manual, power source, protection cover, Calibration certificate

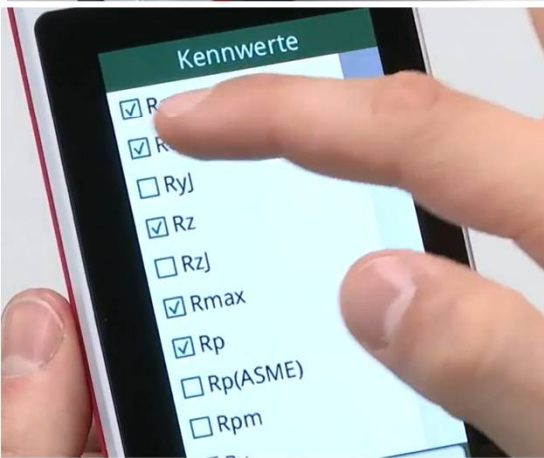


# Portable Surface Roughness Tester (Skid)



## Application:

- For shafts and housing components
- For large machines
- For large workpieces
- For milled and turned parts
- For ground and honed workpieces
- On the production line or directly on the machine; ideal for rapid testing of the surface roughness of a workpiece in or on the machine.

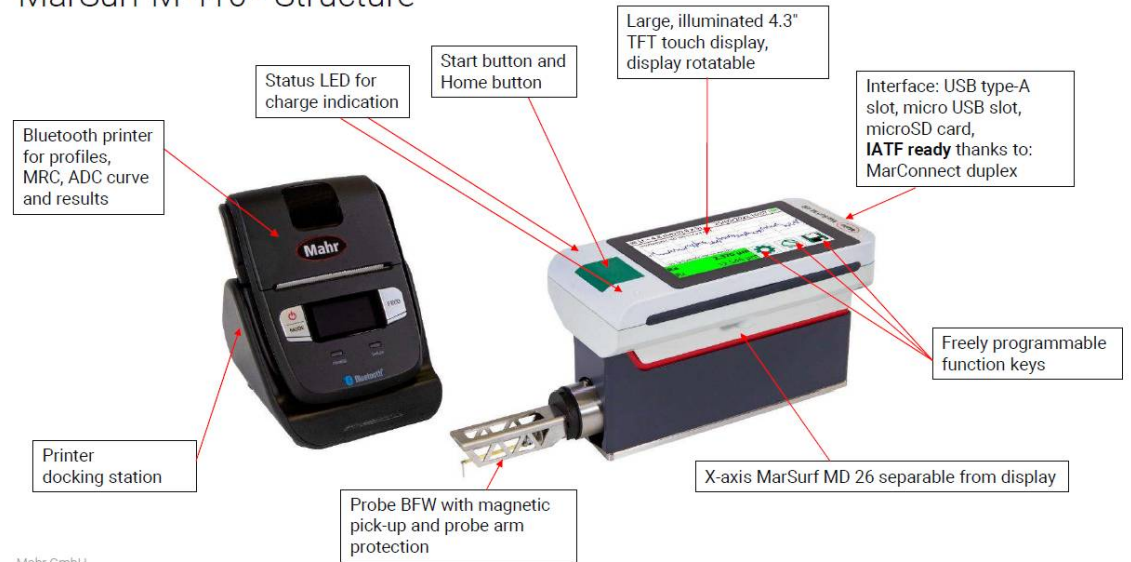


# Mahr M410 Motorized Surface Roughness Tester (Skidless)



MarSurf M 410

## MarSurf M 410 - Structure

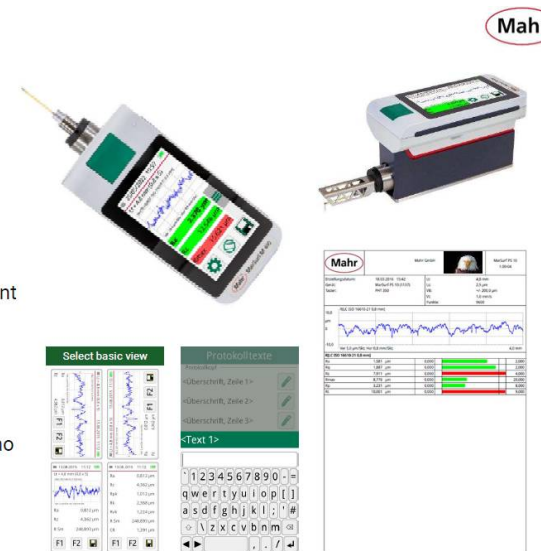


Mahr GmbH

MarSurf M 410

## FEATURES - operation

- Large, illuminated 4.3" TFT touch display, display rotatable.
- Operation like the proven MarSurf PS 10 and MarSurf M 310 - as easy as a smartphone! → saves training effort
- Error-free operation due to standard-compliant settings
- Automatic cutoff selection ensures correct measurement results even for the non-measuring technician.
- Logging directly as PDF file in the device → no additional software required
- Input of PDF protocol texts directly on the MarSurf M 410)



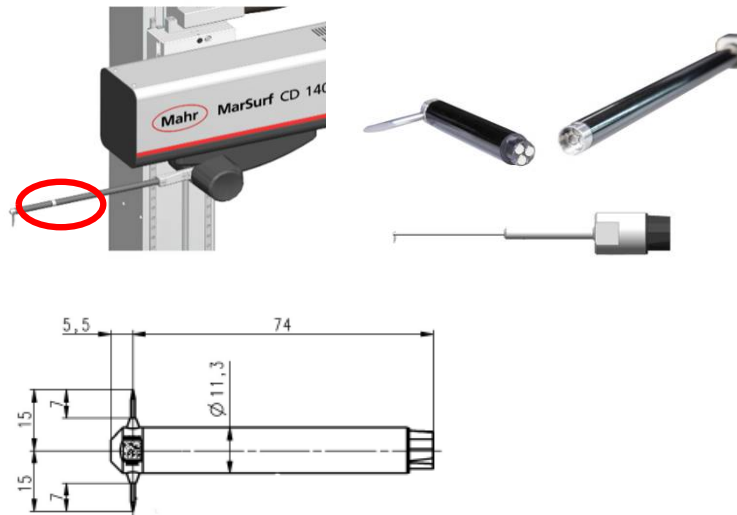
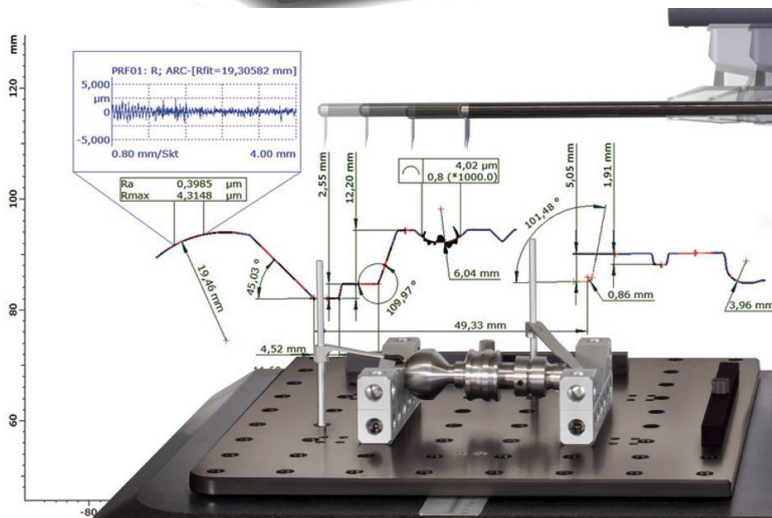
Mahr GmbH



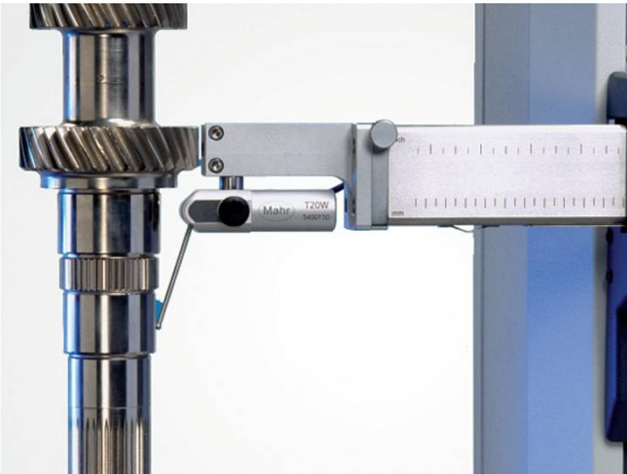
# CD140AG11 Contour Measuring System



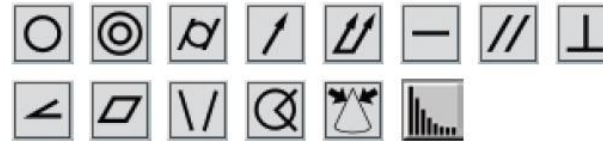
- Extensive contour measuring functions, quick and easy.
- Quick Z-axis adjustment with easy-to-use handle.
- Unique probe tip change system - tool-free probe tip change
- Traversing speed in the X-axis up to 200 mm/s
- Easy part program creation or single measurement with MarWin software
- Automatic evaluation, best fit of contours, CAD contour comparison and many other options.
- X-axis MarSurf CD 140 A mounted on column with quick adjustment on base plate.
- Flexible mounting plate with 50 mm bore grid - use of CMM workpiece holders possible.
- Optionally expandable with the possibility of roughness measurements ( $R_z > 2 \mu\text{m}$ )
- Measurement with double probe tip



# MMQ150 Roundness Tester



## The new MarForm MMQ 150



The new **MarForm MMQ 150** offers you entry into the field of automatic form and location testing. The interplay of mechanically exactly manufactured components enables the MarForm MMQ 150 to attain excellent measuring results. To verify your production quality, the formtester MarForm MMQ 150 fully automatically determines the form and location deviation as per DIN/ ISO 1101, such as roundness, straightness, flatness (single trace), parallelism, conicity, coaxiality, cylindricity.

### Absolutely solid and highly precise

The entire construction of the **MMQ 150** has been designed with robustness, stability and resistance to external influences in mind.

### Base unit

The base unit serves as the 'foundation' of each measuring instrument. The high mechanical stability of the **MMQ 150** is ensured by a highly stable steel body with an internal reinforcing structure in which the mechanical rotational axis is embedded.

- **MarWin Software Package. Velocity Analysis for Roller Bearing Components**
- **MarWin Software Package. Commutator Analysis with MarForm EasyForm**

# Fischer GmbH Coating Thickness Measuring Instruments

## DMP Family

Gauge family for measuring coating thickness

DELTASCOPE® DMP10

ISOSCOPE® DMP10

DUALSCOPE® DMP20

DELTASCOPE® DMP30

ISOSCOPE® DMP30

DUALSCOPE® DMP40

SR-SCOPE® DMP30



## DMP10-40 SERIES

Tactile and non-destructive coating thickness measurement



Pocket Model MPOR Series

# Fischer GmbH Products

## COULOSCOPE® CMS2 COULOSCOPE® CMS2 STEP

**Optimal measurement concept:** Predefined measurement tasks for different coating systems

**Easy calibration:** Achieve the highest level of accuracy

**Intuitive operation:** Color display and graphically supported user guidance

**Maximum flexibility:** Exact coating thickness measurement of almost any coating-substrate-combination

**Individually expandable:** Extensive accessories enable practical work and safe storage



## SIGMASCOPE® SMP350

**Perfect fit:** Different measuring frequencies for different penetration depths and measuring tasks

**Always in view:** Clear management of measurement tasks through user-definable file and folder structure

**Preparation for the aerospace industry:** Meets Boeing specification BAC 5651 with matching probe

**Easy to use:** Operation via high-contrast touchscreen with intuitive user interface



## Coulometric Method: Coating Thickness Measurement (Destructive Method)

SR-Scope: First choice for copper thickness measurement



Phascope PMP10 for the most complex applications and duplex measurements

## Sigmascope SMP350: Electrical Conductivity Meter for Non Ferrous Metals

## SR-SCOPE® DMP30

**Built to last:** Next level quality and durability thanks to all-aluminum housing

**Full measuring control:** Feedback via light, sound and vibration whether measured values are within tolerance within tolerance

**Perfect fit:** Measure 24/7 due to quick and easy battery change

**Digital probe:** Fully digitized probe for the most demanding measurement tasks

**Powerful software:** Automatic device recognition, easy data export and comprehensive reporting



## PHASCOPE® PMP10 PHASCOPE® PMP10 DUPLEX

**Predestined for small parts:** Thanks to measurement with the phase-sensitive eddy current test method

**Your security:** Reliable measurement results on curved measuring surfaces and rough surfaces

**Measurement in just one step:** Optimize quality processes and save time when measuring paint and zinc coatings

**Three in one:** Combines three different test methods (PMP10 DUPLEX)

**Quick-measure design:** Automatic base material recognition simplifies measurement on steel or aluminum, as probe does not need to be changed



# Norbar Products



- **Torque Screw Driver**
- **Torque Wrench**
- **Digital Torque Wrench**
- **Hand Torque Multiplier**
- **Pneumatic Multiplier**
- **Electronic Torque Multiplier**
- **Torque Calibrators**
- **Torque Verification Instruments**

# Norbar Torque Tools



Nortorque



Professional Torque Wrench



Pneumatic Torque Tool



Evotorque Battery Tool



# Norbar Torque Tools Calibrator



TruCheck™ 2 Plus display showing above target tolerance



TruCheck™ 2 Plus display showing within target tolerance



TruCheck™ 2 Plus display showing below target tolerance



TruCheck Plus2



Torque Wrench Calibrator with Loader



# WENZEL (GmbH) – COORDINATE MEASURING MACHINE (CMM)

FIRST-CLASS COORDINATE MEASURING MACHINES

## WENZEL CMMs

Precision that pays off

Measurement technology has been our profession since 1968 and we have developed it to absolute perfection over the years.

WENZEL stands for highest quality standards and reliability - without forgetting that only those who have their sights set on the future and their vision constantly in mind can survive.

The success of our CMM series is based above all on a coherent overall concept and unconditional perfection in detail. The principle behind the success of this series is mechanical accuracy and top mechanical engineering.

The bridge machines have air bearing guide elements in all axes which ensure wear-free and smooth operation. High precision and user-friendly operation, all rounded off by an intelligent service package - WENZEL thinks ahead. The machines can be equipped with a variety of swivel head and stylus combinations, from rigid heads to motorized rotary heads, from simple probes to high-precision measuring probe systems.

## YOUR ADVANTAGES AT A GLANCE

- **Cost-effective introduction to coordinate measuring technology**  
Excellent price-performance ratio | WENZEL High quality
- **High flexibility**  
Bellows covers for protection against contamination |  
Data compatibility with other WENZEL systems |  
Automation solutions
- **High mechanical precision**  
Granite base | Hand-lapped base plate (DIN 876/0) |  
Air bearing guide elements in all axes
- **Versatile sensor options**  
Changeable sensor systems | 3-axis scanning |  
Optical sensors
- **Low operating costs**  
Low air consumption | RENISHAW sensors |  
Reliable and inexpensive spare parts



# WENZEL (GmbH) – COORDINATE MEASURING MACHINE (CMM)

## WENZEL LH SERIES

### THE FAST AND EASY WAY TO EXACT MEASUREMENT RESULTS

With the LH you benefit from an extremely functional, effective and flexible measuring machine that is reliable and easy to operate. The success of our coordinate measuring machines is based on a proven holistic concept consisting of first-class mechanical engineering, intelligent software and accessory options and a comprehensive service package. Stable, reliable and fully dynamic, the LH is a universal and flexible measuring

instrument for a wide range of applications. With the current generation of air-bearing bridge machines, WENZEL continues the progress in precision, efficiency and longevity. With its revolutionary design, the LH impresses with high mechanical accuracy, perfect ergonomics and increased dynamics. CMMs of the LH series are available in the accuracy classes Standard, Premium and Premium-Select.

### FEATURES

- **High-quality machine components** harmonize in perfect interaction and ensure long machine running times
- **Excellent long-term stability** due to air bearing guides incorporated into the granite base plate and high-precision lapped guide surfaces
- **Identical thermal behaviour** of granite in all axes
- **High-resolution scales** ensure exact positioning and precise measurement results
- **Innovative sensor technology** ensures precise detection of free-form surfaces and geometric elements
- **Perfect working ergonomics** for comfortable and safe operation
- **Highest investment security:** Modular design ensures future upgrade of the CMM

### FIELDS OF APPLICATION

The LH is ideal for all applications requiring high accuracy and high throughput. The LH series is used in almost all areas of industry and measures components in detail from watch manufacture through to the production of large engines. The Y-axis can be customized in length for special sizes.

### PRECISE IN DETAIL

- Base plate, traverse and quill made of dark natural hard stone, thus ensuring identical thermal behaviour on all axes
- Usable surface of the base plate machined according to DIN 876/0
- Y-axis guide system integrated directly into the base plate
- X- and Y-axis guidance with bellows cover
- Weight compensation of the Z quill by means of a controlled pneumatic cylinder
- CNC control of all axes
- Available with active vibration damping
- Compact size
- Air bearing guide elements in all axes for wear-free, smooth-running operation
- Good accessibility for maintenance work

## SENSORS AND CHANGER RACKS

### PROBE HEADS, PROBE SYSTEMS AND SCANNERS

When combined with a variety of innovative sensors the LH Series is a flexible solution for a number of different applications. From the smallest injection molded parts up to large sheet metal forming dies – the LH CMM meets your needs! The LH Series can be equipped with both, manual and motorized probe heads as well as continuously recording systems and indexable probe

heads. With suitable touch trigger, scanning and optical measurement systems LH CMM offers outstanding results for various applications.

The compatible automatic exchange units turn the measuring instruments into homogeneous and versatile measuring systems.



**PH10T PLUS / PH10M PLUS / PH10M IQ PLUS**

Automatically indexable probe head PH10M: 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.

# WENZEL (GmbH) – COORDINATE MEASURING MACHINE (CMM)

## WM | Quartis

### AUTOMATED MEASUREMENT & EVALUATION

WM | Quartis is the versatile, reliable, modern and easy to use measurement software from WENZEL. With WM | Quartis WENZEL offers a new generation of innovative measurement software with a clear, flexible and result-oriented user interface for all industrial applications. Meaningful measurement reports can be generated even faster and easier. The user interface of WM | Quartis, based on Microsoft Office Fluent, significantly simplifies the application of the powerful functions.

You can obtain correct measurement results, impressive test reports and meaningful statistics more quickly and easily. The optimized screen layout and the dynamic, result-oriented ribbons significantly speed up workflows and ensure greater efficiency in day-to-day business. In combination with the WENZEL software products WM | PointMaster or WM | CT Analyzer, WM | Quartis is also able to generate traditional measurement reports from point clouds and CT data.

### FEATURES

- **Geometry, freeform** and **curves** combined in one measuring software
- Scanning with **tactile and optical sensors** and **5-axis measuring heads**
- Form and position evaluation according to the latest **ISO GPS** and **ASME standards**
- **DMIS 5.2 Standard** complements the intuitive Quartis programming language
- **Structured data management** in relational database (MS Access / SQL-Server)
- **Report generator** for descriptive measurement reports

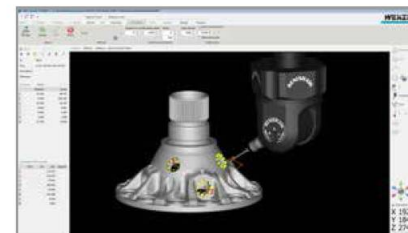
**All granite CMM:-** Wenzel CMM uses granite in all the axis. There is homogeneity in the material which insures uniform thermal behaviour. Granite Beam has zero elasticity module therefore, there will not be any bending problem in the bridge over entire life of the machine.

#### Physical characteristics of materials in metrology

Material	Specific Weight [kg/dm <sup>3</sup> ]	Expansion Coefficient [1/K]	Temperature Diffusion Rate [W/mK]	Elasticity Module [10 <sup>3</sup> N/mm <sup>2</sup> ]
Steel	7,25	10,4*10 <sup>-6</sup>	42-63	90-180
Aluminium	2,7	23,8*10 <sup>-6</sup>	210	72
Ceramic (Al2O3)	3,85	8*10 <sup>-6</sup>	28	370
<b>Granite</b>	<b>2,8</b>	<b>6,5*10<sup>-6</sup></b>	<b>3,5</b>	<b>NIL</b>

Y axis Guide way is machined directly in the granite base plate, providing optimal long term stability.

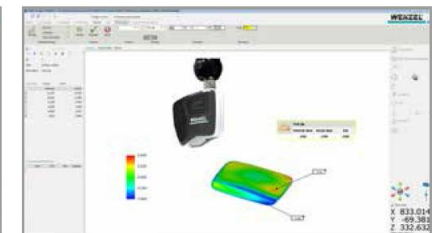
### HIGHLIGHTS



#### Universal measuring software

One solution for all tasks

A software for measuring and evaluating geometry, freeform and curves. 5-axis REVO and PH20 probes increase measurement throughput and allow measurement of roughness. Automatic creation of measuring programs as well as efficient teach-in offline and directly at the coordinate measuring machine. Universal measuring device interfaces (I++ DME).



#### Optical measurement

Measuring at the speed of light

With the 3D line scanner WENZEL Shapetracer surfaces are automatically scanned on tactile components. The comparison of the point clouds to the CAD model shows the deviations. Export of point clouds for optional further processing in WM | PointMaster.

# WENZEL (GmbH) – Gear Tester

**WENZEL®**

## WENZEL GT SERIES

TOP CLASS GEAR METROLOGY



### AEROSPACE

In aerospace the technical requirements on gears concern high efficiency, low noise emission and high durability. These requirements are fundamental. The measurement of these parts needs reliable and precise gear measuring machines. Furthermore the software has to allow an easy and gapless documentation of measuring results according to certified standards. This combination of hard- and software offers the GT series.



### INDUSTRIAL VEHICLES & GEAR BOXES

Gear boxes of commercial vehicles are exposed to extreme mechanic and climatic conditions. However to guarantee a high durability the complex component parts have to be measured exactly and be traceable documented. Besides the measurement of gears, the measurement of geometrical references and their evaluation concerning accuracy to size and form and position is of great importance. All these measuring tasks can be solved with a GT.



# WENZEL (GmbH) – Gear Tester

WM | Gear

## WIND ENERGY

Gearboxes of modern wind turbines are subjected to extremely high loads. In conjunction with the low speeds of a wind turbine, even microscopic breaks on the gear flank are enough to cause expensive gear damage. Therefore, reliable and highly accurate initial sampling for gearboxes in wind turbines is essential.



## AUTOMOTIVE INDUSTRY

In construction of modern gear boxes high efficiency, low noise emission and weight reduction at highest durability are at very high priority. Precise and reliable measuring systems in quality assurance are essential. Because of its ease of use a GT can easily be integrated into production for resource saving and efficient measuring procedures.



## MACHINE & PLANT ENGINEERING

The requirements in machine and plant engineering are as manifold as their applications. They reach from the measurement of small gears (module 0.3 mm) up to the measurement of high accuracy gears and geometrical evaluation of pump housing. But also the measurement of large bevel gears as they are used in ship production is part of this spectrum. To fulfil these diverse requirements a measuring system with high accuracy and high flexibility is essential. The GT series offers exactly this precision and flexibility.



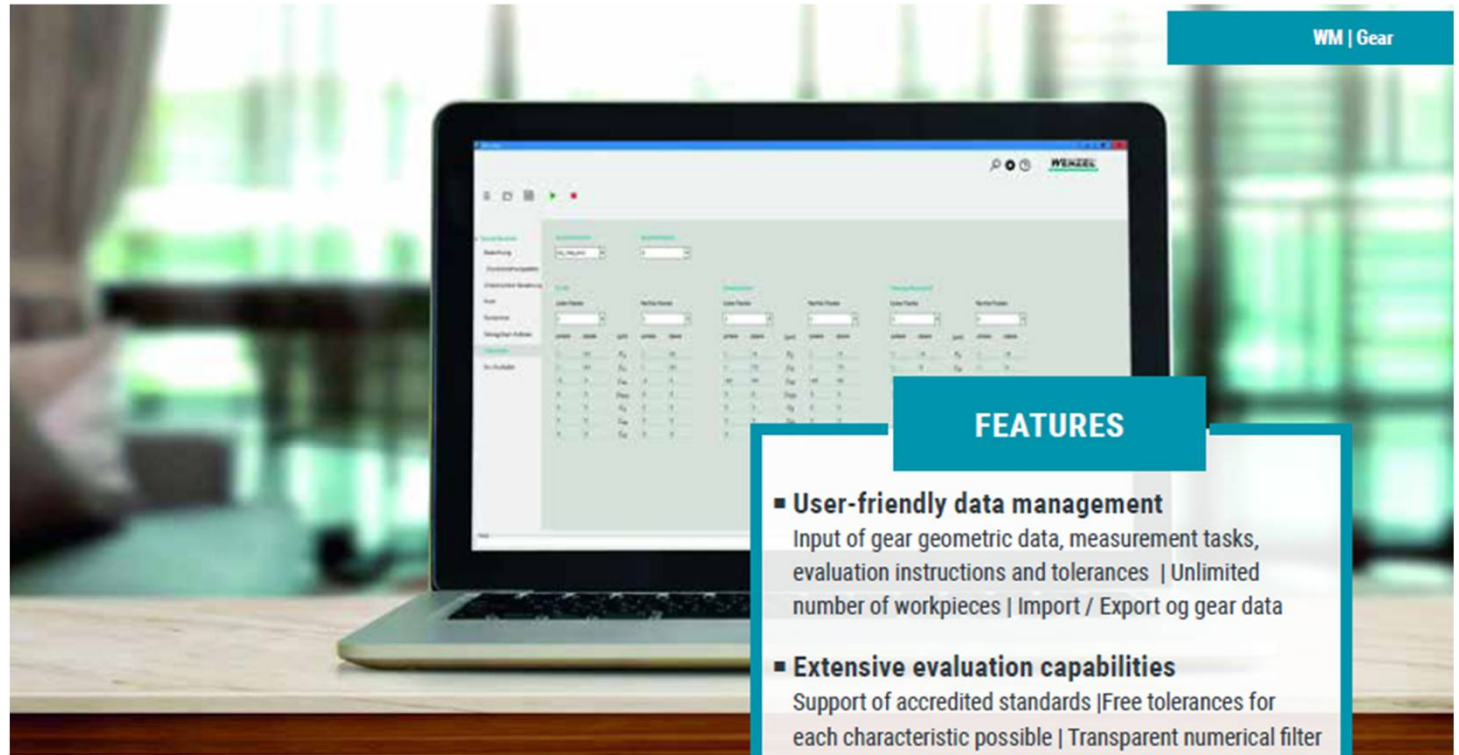
## PITCH AND RUNOUT INSPECTION

Extensive parameterization of measuring tasks. All common pitch / runout characteristics can be determined. Up to three pitch tests at different tooth positions can be determined.

## DETERMINATION OF ABSOLUTE DIMENSIONS

Following characteristics may be determined at up to three different tooth positions:

- Tip circle diameter
- Root circle diameter
- Dimension over one ball
- Dimension over two balls
- Dimension over one roll
- Dimension over two rolls
- Tooth span width
- Tooth thickness



## FEATURES

- **User-friendly data management**  
Input of gear geometric data, measurement tasks, evaluation instructions and tolerances | Unlimited number of workpieces | Import / Export of gear data
- **Extensive evaluation capabilities**  
Support of accredited standards | Free tolerances for each characteristic possible | Transparent numerical filter configuration | Company standards possible on request
- **Interactiv measurement diagram**  
Magnification automatic / fix | Dilation automatic / fix | mm / inch switching | Subsequent modification of measurement sheet form | Temporary switching of presentation language | PDF file archiving of measurement results
- **High flexibility**  
Fully automatic measurement sequence | Evaluation and presentation parameters may be modified subsequently | Manufacturer-independent evaluation of measurement data available in valid GDE-format

Division inspection & absolute dimensions



## Allied Products:

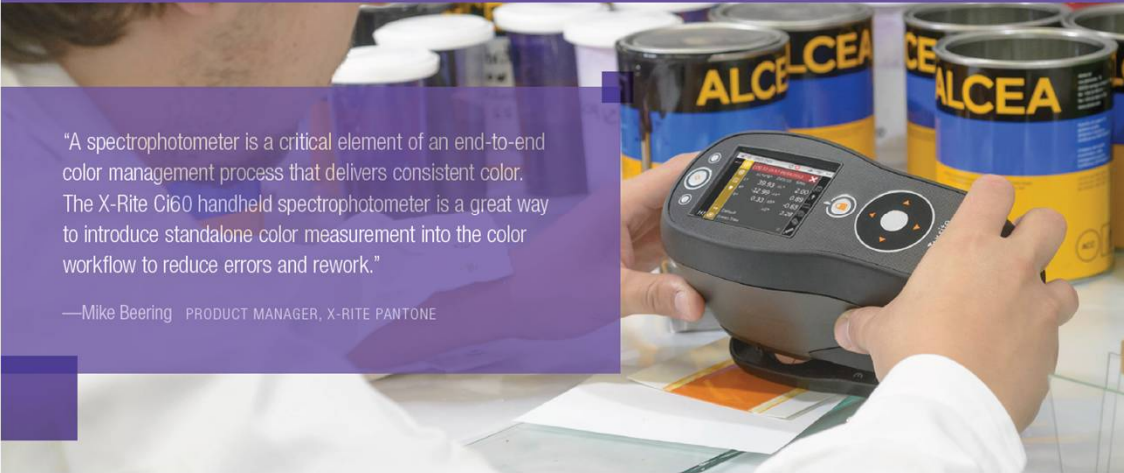
- X-rite Spectrophotometer for colour analysis (L\*A\*B)
- Glossmeter
- Portable Hardness Tester
- Viscometer
- Scratch Test & Analysis equipment's

# X-rite Ci60 Spectrophotometer:

x-rite PANTONE®

"A spectrophotometer is a critical element of an end-to-end color management process that delivers consistent color. The X-Rite Ci60 handheld spectrophotometer is a great way to introduce standalone color measurement into the color workflow to reduce errors and rework."

—Mike Beering PRODUCT MANAGER, X-RITE PANTONE



x-rite PANTONE®

Ci60 Portable Spectrophotometer



- 1 Results at a glance
- 2 Simple, pass-fail indicator

You might also like...

### Ci62 Portable Sphere Spectrophotometer

The X-Rite Ci62 portable sphere spectrophotometer is a high-performance instrument uniquely suited for ensuring accurate color, especially on metallic reflective or uneven surfaces. It features connectivity to color quality control and formulation software for a more robust color workflow.

### Ci64 Portable Sphere Spectrophotometer

The Ci64 is X-Rite's most precise handheld, available in three models with simultaneous SPIN/SPEX, correlated gloss and a UV option. Embedded NetProfiler for complete track and trace and a unique Graphical Jobs™ Interface with visuals showing exactly how measurements should be taken.

## Ci60 Portable Spectrophotometer



### Overview

Accurate color on complex materials – from specialty paints and coatings to plastics and textiles – is vital, especially when producing unique color combinations. The X-Rite Ci60 portable sphere spectrophotometer is an entry-level handheld spectrophotometer uniquely suited for ensuring accurate color, especially on reflective or textured surfaces.

### Key Benefits

The Ci60's large high-resolution color screen and configurable menus make it fast and easy for users to understand color measurement procedures for consistent operation. This versatile standalone instrument is ideal for use in the lab, quality control, in receiving to qualify incoming materials, and in the field or in the manufacturing plant to enhance both quality and speed to market.

- **Accurately measure reflective or textured surfaces** on a wide variety of products and packaging types to ensure consistent color across the supply chain.
- **Access up to 4,000 samples** stored in the device for fast, easy recall of previous samples and measurements.
- **Increase instrument up-time** with optional dual-bay charging to use the Ci60 while charging the second battery.
- Easy to use thanks to a **friendly user interface**, straight forward menus and results, and a simple pass or fail indicator.

## Service Support & Warranty

Drawing on our extensive color expertise, X-Rite offers the right level of services on-site, online or on the phone, to support and nurture your business. For additional protection beyond the one-year warranty, take advantage of our extended warranty program. With global full service contracts, you can ensure your devices are well maintained through X-Rite's Annual Five Point Checkup, uniquely developed to keep devices performing to original specifications. With twelve global service centers, we make it easy to reach us. For more information about extended support options, visit [www.xrite.com/extended-warranties-services](http://www.xrite.com/extended-warranties-services)

## Specifications

	Ci60
4mm spot measurement	
8mm spot measurement	✓
16mm spot measurement	
White Repeatability $\Delta E^*$	.10 $\Delta E^*$ CIELAB
Light Source	Tungsten
Spectral Range	400nm-700nm
Inter-instrument agreement	.40 Avg. $\Delta E^*$ CIELAB
Weight	1.1 Kg
Graphical Jobs	

# Glossmeter:



## HG268 Three-angle gloss meter

### PRODUCT FEATURES

1. 20, 60 and 85° in one: from high to low gloss - have the specified angle on hand
2. Concise appearance, feel good
3. Display 5 sets of measurement data, good for comparison
4. Built-in lithium ion rechargeable battery
5. Basic model measurement can meet basic glossiness testing requirements
6. Connect to PC, more extend functions
7. One button for all angles measurement at the same location
8. Comply with international standards
9. Stable performance, easy to read data.



### APPLICABLE INDUSTRIES



The new generation of intelligent gloss instrument is more perfect than portable gloss meter, perfect combination of the human body mechanics structural design, large color touch screen, one-touch operation and navigational context menu in full screen, gloss measurement amazingly simple, more accurate result.

### PRODUCT FEATURES

1. Small aperture: 1.5\*2mm
2. 60° angle for semi gloss
3. Display 5 sets of measurement data, good for comparison
4. Measuring mode: basic measurement, statistical measurement, continuous measurement, QC measurement (only for GQC6 software)
5. Continuous mode to check uniformity over large areas
6. Connect to PC, more extend functions
7. Input gloss value manually
8. Large touch screen operation, easy to use
9. Beauty appearance, good man-machine communication interface
10. Powerful functions to meet many different requirements
11. Large storage to save over 5000 data
12. Built-in lithium ion rechargeable battery



## NHG60M: For small samples Inspection

### SPECIFICATION FEATURES

**Measuring Angle:** 20°/60°/85°

**Comply with standard:** ISO 2813, GB/T 9754, ASTM D 523, ASTM D 2457

**Measuring Area (mm):** 20°: 10x10 60°: 9x15 85°: 5x36

**Measuring Range:** 20°: 0~1000GU 60°: 0~1000GU 85°: 0~160GU

**Division Value:** 0.1GU

**Measurement Range:** 0-10GU 10-100GU 100-1000GU

**Repeatability:** ±0.1GU ±0.2GU ±0.2%GU

**Reproducibility:** ±0.2GU ±0.5GU ±0.5%GU

**Measurement Standard:** Conform with JJG696 first class glossmeter working requirement

**Chromaticity Corresponding:** Corresponding with CIE 1931(2°) under CIE C light source

**Errors:** ±1.5, ±1.5%

**Measuring Time:** 0.1s

**Dimension:** L\*W\*H: 160mm\*75mm\*90mm

**Weight:** 350g

**Language:** Chinese/English

**Battery:** 3200mAh Li-ion Battery, >10000 times (within 8 hours)

**Display:** TFT 3.5 inch

**Interface:** USB/RS-232

**Storage:** Basic mode: 1000

**Software:** GQC6 Quality Control Software with QC report printing functions and more extended functions

**Operation Temperature:** 0~40°C (32~104°F)

**Storage Temperature:** -20~50°C (-4~122°F)

**Humidity:** <85% relative humidity, no condensation

**Standard Accessories:** Power Adapter, USB cable, User Manual, GQC6 software CD (except HG60S), Calibration Plate

**Optional Accessories:** Miniature Printer



# Anton Paar Viscometer:



## PTD 100 CONE-PLATE WITH BUILT-IN PELTIER TEMPERATURE DEVICE

The ViscoQC 100/300 can be equipped with the PTD 100 Cone-Plate measuring system with integrated Peltier temperature control within seconds, providing a sophisticated method for absolute viscosity determination of small-volume samples down to 0.5 mL.

### Highlights of this all-in-one solution:

- Error-eliminating, time-saving automatic gap setting
- Built-in Peltier temperature control from 0 °C to 100 °C and embedded temperature probe for super-precise temperature control and reading
- Spindles with magnetic coupling and Toolmaster™ feature, saving up to 25 seconds per spindle change and preventing costly operator errors

shop.anton-pa



## SOLUTIONS FOR YOUR SPECIAL CHALLENGES

For the most convenient operation, ViscoQC 100/300 can be equipped with Heli-Plus. Your measurements can be fully standardized since all measuring positions are defined digitally on the user interface. By using a T-bar spindle, paste-like materials can be easily measured.

The determination of the gel time/pot life of thermosetting compounds (such as resin, glue) is possible with ViscoQC 100/300 using a glass rod.



## SOFTWARE UPGRADES FOR EXTRA ANALYSIS AND COMPLIANCE

ViscoQC 300 is your future-proof rotational viscometer that can grow with your needs via optionally upgradeable software modules in stand-alone mode (V-Curve and/or V-Comply) – all without any external PC. V-Comply is delivered with a ready-to-use pharma qualification package (PQP) document to save time and costs by qualifying the instrument within one day.

A PC data collection software, V-Collect, is also included for free in every ViscoQC delivery.

# Your Application – Our Solution

## L-Model – Low Viscosity

## R-Model – Medium Viscosity

### CHEMICALS AND PETROLEUM PRODUCTS

Adhesives (solvent base) | Chemicals  
Hot waxes | Hydraulic fluids | Inks | Latex  
Oils | Paints and coatings | Isocyanate  
Polymer solutions | Rubber solutions | Solvents

Adhesives (hot melt) | Asphalt | Ceramic slurries  
Engine oil | Epoxy resins | Gums  
Inks (screen printing) | Organosols | Paints  
Paper coatings and pulp | Plastisols  
Surface coatings | Varnish

### FOOD AND BEVERAGES

Dairy products | Fruit concentrate | Juice  
Syrup | Smoothies | Gum arabic

Chocolate | Dairy products | Yogurt  
Dressings | Food products | Pudding | Starches  
Sauces | Ketchup

### COSMETICS AND PHARMACEUTICALS

Cosmetics | Mouthwash | Pharmaceuticals  
Shower liquids | Hand disinfection fluid  
Methylcellulose

Creams | Detergents | Lotions | Shampoo  
Liquid makeup | Eye makeup remover  
Toothpaste | Nail polish | Cough suppressant

	ViscoQC 100			ViscoQC 300		
	L	R	H	L	R	H
<b>Viscosity test type</b>	Single-point			Multi-point		
<b>Viscosity range [mPa·s] (depends on the measuring system)</b>	0.2* to 6 M	1.6** to 40 M	13.2*** to 320 M	0.1* to 6 M	1.3** to 40 M	10.6*** to 320 M
<b>Speed [rpm]</b>	0.1 to 200 25 increments: 19 standard speeds plus 6 freely selectable speeds			0.01 to 250 Speed list with 18 standard speeds Freely selectable speeds within the speed range		
<b>Max. spring torque [mNm]</b>	0.0673	0.7187	5.7496	0.0673	0.7187	5.7496
<b>Accuracy</b>	±1.0 % full scale range					
<b>Repeatability</b>	±0.2 %					
<b>Display</b>	3.5" color LCD			7" color touchscreen		
<b>Data storage</b>	Non-storage Direct print/export			Data memory for up to 999 measurements Print/export from data memory		
<b>Trademarks</b>	Toolmaster (003623873), TruGuard (017904903), Trumode (017904895), T-Ready (009176983), TruSine (017904915)					

\* With optional PTD 100 Cone-Plate, with L1 spindle 15 mPa·s  
\*\* With optional PTD 100 Cone-Plate, with RH1 spindle 100 mPa·s  
\*\*\* With optional PTD 100 Cone-Plate, with RH1 spindle 800 mPa·s

M = 1 million

# Our Valuable Customers



Please feel free to contact us for your Metrology solution



**SSMITH**  
TECHNOLOGIE

Email: [info@ssmithtechnologie.com](mailto:info@ssmithtechnologie.com)

**BENGALURU**

#85/143, 9th Main, Dhuggalamma Layout, Peenya 3rd Stage,  
Bengaluru - 560058.

Ph: +91 95388 35190 / 95133 20338

**HOSUR**

#C1B1, Ground Floor, New ASTC Hudco, 100 Ft Road,  
Avvai Nagar, Hosur - 635109.

Ph: +91 98431 20336 / +91 95388 35190



Calipers & Micrometers  
Digital & Dial Indicators  
Height Measuring Instruments  
Indicating Measurements Instruments



Coating Thickness  
Material Analysis  
Ultrasonic Wall Thickness  
Micro Hardness



Torque Wrenches  
Torque Measurement  
Pneumatic Torque Tools  
Electronic Torque Tools

SSMITH TECHNOLOGIE  
Mail: [info@ssmithtechnologie.com](mailto:info@ssmithtechnologie.com)