Up-to-date and efficient –
New products 2020

Experience innovation – with new products from Mahr

From digital calipers to fully automated measuring stations: modern measuring technology can do more than just measure precisely. Get to know our new products and find out how Mahr brings your quality assurance forward!

Our goal:
your productivity!

As your global partner for quality assurance, we offer you products and solutions that combine proven precision with high efficiency. Short measuring times and high usability speed up your workflows. By strategically combining different measuring methods, we solve several tasks with only one system – and in one clamping. Innovative software tools and a wide variety of interfaces ensure that Mahr metrology meets the requirements of modern production. The productivity of your quality assurance is our goal.

Contents

MarSurf M 310
Mobile roughness measurement guaranteed successful

MarForm MMQ 500
Precise, flexible measurement of form and position

Precimar SM 60
Small giant for mobile, individual measurement

Diverse products for
numerous industries

For 160 years the name „Mahr" has stood for modern technology, highest precision and trend-setting inventions. Today, the Mahr Group is active worldwide and supports customers in a variety of industries. The long-term focus is decisive for high-quality, reliable products and for sustainable customer relationships. The close exchange with our customers results in a comprehensive understanding of the special requirements and technical challenges of these industries.

7
Industries

Whether in the automotive industry, medical sector, for new energies or even in the aerospace industry — Mahr measuring technology is used all over the world.
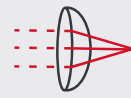
Automotive

Aviation

Electronics

Machines & Tools

Medical

Optics

New Energies

More than

20
product lines

No matter what measuring task you are facing, with the right measuring technology you can solve even the most complex applications. For this purpose, you can draw on the full portfolio of Mahr Metrology: in more than 20 different product groups, we have everything you need, from manual calipers to fully automated, robot-controlled measuring stations according to customer requirements.

Since more than

160 years

highest quality from Mahr

News from
Surface metrology

Wherever surface structures influence the function or appearance of components, careful testing is of great importance. With MarSurf we offer you surface measuring instruments of the highest quality - tactile and optical.

Mobile roughness measurement
guaranteed succesful!

The new mobile roughness measuring instrument MarSurf M 310, has a simple operability and robust design.

We are used to accessing our data with our smartphone anytime and anywhere. Why shouldn't this also be possible with a measuring device? With the new MarSurf M 310, Mahr offers you exactly that. A flexible mobile measuring device for recording and analysis of measured data Thanks to its easy operation and robust design, the Mahr M 310 is ideally suited for use in production, where dirt and dust get into the instrument and often users with little previous knowledge carry out quality controls.

MarSurf M 310

Item number:
6910260
(as a set)

6910267
(set with printer)

6910270
(printer)

Benefits

- Simple operating concept for intuitive handling without training

- Pre-programmed functionalities and automatic filter selection (auto-cutoff) during measurement - no specialist knowledge required

- Large, bright display for easy operation and maximum overview

- Transmission of measurement protocols and data optionally via Bluetooth or cable

- Easy traceability of measurement results

- Optional thermal printer for printing results and profiles

- Wide range of accessories offers you maximum flexibility

- Well-protected against dirt and dust for use in almost any environment

- Always with you: the integrated calibration standard is always available for checking

Status in view

We have equipped the MarSurf M 310 with two clearly visible status LEDs so that you can see the device status at a glance. Depending on the signal color, you know that a measurement is in progress, data is being transmitted or there is possibly an error. In standby mode, the display also shows you the charging status of your M 310.

Robust in every respect

Whether in incoming goods, production or outdoors: the new MarSurf M 310 is equipped for almost any environment. Thanks to the robust skid probe system, the mobile measuring device is also less sensitive to vibrations. The PHT probe is also easy to unify thanks to its open skid.

Modern optics, perfect display

That's something to be proud of: a large, high-resolution and backlit 4.3-inch TFT display characterises the modern appearance of the MarSurf M 310 and ensures precise presentation of your measurement results. The intuitive operation is carried out directly on the touch screen — just like you know it from your smartphone.

IATF ready

Equipped with the proven MarConnect duplex interface, the MarSurf M 310 enables the transmission of a gauge ID with each measurement. This allows you to reliably document which measuring instrument was used to perform a check, thus ensuring the traceability of your measurement results.
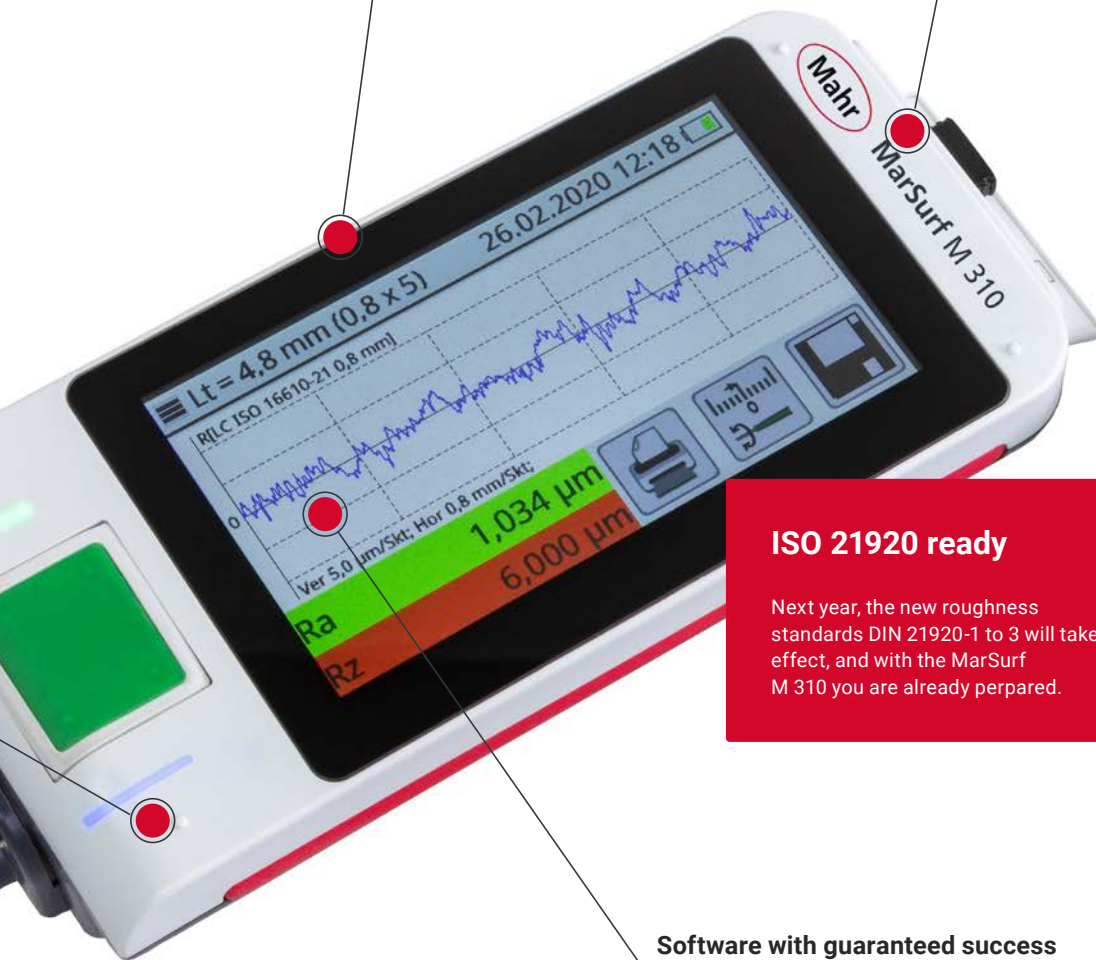
ISO 21920 ready

Next year, the new roughness standards DIN 21920-1 to 3 will take effect, and with the MarSurf M 310 you are already perpared.

Software with guaranteed success

MarSurf M 310 — that's measurement technology for everyone. Even without specialist knowledge or training, you can use this measuring instrument to reliably determine roughness parameters. Easy and intuitive to use software with clear menu structures and a wide range of pre-programmed measuring functions are the basis for guaranteed measuring success.

Surface metrology

Flexible and feature packed
for your quality assurance
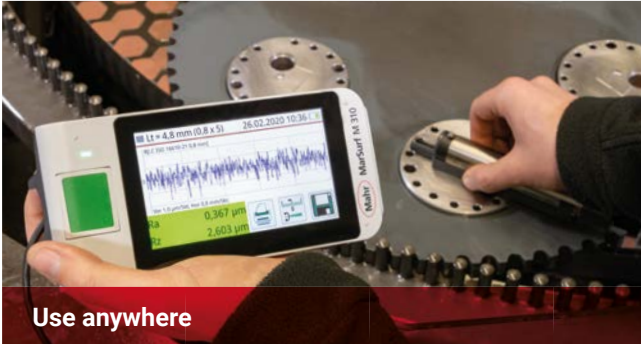
Use anywhere

Due to its compact design, the MarSurf
M 310 is the ideal companion for mobile measuring
tasks. The M310 offers rotatable display for horizontal,
vertical or overhead viewing while its rechargeable
battery provides thousands of measurements between
charges. With a removable feed unit, the MarSurf M
310 allows you to perform flexible measurements even
in the tightest of spaces.

Data and interface variety

The MarSurf M 310 offers a variety of formats and
interfaces for backing up your measurement data.
Choose between complete measurement reports
in PDF format or individual measured values as
CSV files. Data can be transferred wirelessly via
Bluetooth or wired via USB, Micro-USB and the proven
MarConnect duplex interface. The latter also allows
you to transfer a gauge ID to ensure the traceability of
your measurement results.

Valuable **helper**

The corresponding drive holder has a real added
value for your work: The proven accessory signifi-
cantly expands the field of application.

- Flexible positioning of the probe without cost-in-
  tensive measuring stand

- Simple overhead measurement of small parts

- Enables measurements on end faces

Print directly,
document easily

Measurement results in paper form? What sounds outdated is sometimes still the fastest way for simple data transfer or documentation, even in the digital age. In this case, a mobile printer is the perfect complement to your MarSurf M 310: it allows you to save the results of your work directly on thermal paper.

MarSurf M 310 set includes:

- Measuring device including feed unit

- Standard probe PHT 6-350

- Raunormal including factory calibration certificate

- Integrated height adjustment

- Push button protection

- Battery charger

- Operating instructions

- Carrying bag with shoulder strap, carrying case and carrying case

- USB cable

- Extension cable for feed unit

- Hand prism and height adjustment for hand prism (pair)

- Hexagon screwdriver

New accessories for **more efficiency and maximum ease of use**

Optionally available: A motorized TY axis and a new control panel complement the MarSurf CD, GD and VD series

How can you actually improve measuring stations that are already optimized for fast processes and easy handling? A question to which we at Mahr have found two answers:

**Motorized TY-axis:
automated for more efficiency**

Shorter measurement times and reduced risk of error: these are the benefits of automated processes. That is why Mahr now offers a motorized TY axis as an option for all measuring stations of the MarSurf CD, GD and VD series. Multi-point and pallet measurements in a travel range of 60 mm can also be performed easily and quickly with the motorized TY axis.

Benefits

• Reduced measuring times through automated operation

• Reduced risk of errors thanks to minimal user influence

• Easier operation which simplifies positioning

Motorized TY-axis

Item number:
6710700

MarControl

Item number:
6821000

MarControl:
for maximum comfort

This control panel allows easy operation via joystick and touch display - directly at the measuring station. Time-consuming switching back and forth between workstations is therefore a thing of the past. All axes of your measuring system can be moved seamlessly and simultaneously via the modern HMI. Select measuring programs directly via the touch control panel to start the automated processes. With a rotary control you can adjust the speed while the measurement is running or pause the sequence — for maximum flexibility in all cases.

Benefits

• Seamless, manual control of all axes

• Simple probing to the workpiece

• Infinitely variable limitation of the path speed

• Selection and start of measuring programs via illustrated function keys

Individually developed for **maximum accuracy and highest flexibility**

The new MarSurf CD series in customer-specific use

The MarSurf CD 140 BE 0105 measuring station proves that the new contour encoders of the MarSurf CD family do more than cut a fine figure in series production. This customer-specific solution combines a feed unit of the new CD series with a 3-axis workpiece positioning system and an enlarged, vibration-decoupled hard stone base plate.

Maximum positioning precision and the ability to handle a particularly wide range of workpieces characterize this customer-specific measuring station. At the same time, the strengths of the MarSurf CD series include: high measuring accuracy, short measuring times, easy set-up and changeover, tool-free probe arm change with automatic recognition, and the possibility of CNC-controlled operation.

Benefits

- Control of even the smallest manufacturing tolerances thanks to the low probing deviation of 0.75 µm

- Precise positioning of complex workpieces thanks to the 3-axis positioning system with high-precision rotation axis (± 0.5 °Min) and digital position display

- Workpieces up to 180 kg can be measured flexibly thanks to the enlarged mounting plate with 50 bore grid

- Suitable for use close to production due to vibration decoupling

MarSurf CD 140 BE 0105

Item number: 9025234

> 40 %

Time-saved
during the analysis of a workpiece

Fast axes

Fully CNC capable Z-axes and high-speed X-axes allow positioning speeds of up to 50 mm/s in Z and up to 200 mm/s in X direction. This means that the MarSurf devices are particularly fast at the starting point of each measurement.

Time-saving placement

You can bring your workpiece into position in just a few steps - thanks to the 50 mm bore grid of the mounting plate, an integrated TY axis and the plug-in guide stops.

10 mm/s

The highly dynamic touch probe system brings rigidity and dynamics into optimum balance — for maximum accuracy at measuring speeds of up to 10 mm/s.

Mahr **MarSurf** CD 280

1 time

The **magnetic holder** and **one-time calibration** allow the probe arms to be changed quickly and easily. This saves time when changing over to another measuring task

Surface metrology

3D surface analysis –
simple, everywhere

Mahr now offers the mobile measuring system MarSurf CM mobile with high-resolution HDR camera — for full performance in mobile use

For the latest generation of the MarSurf CM mobile, one thing above all else applies: new and yet proven. Equipped with an HDR camera, the mobile measuring microscope is now on a par with the stationary systems of the CM series: the resolution increases to 1,200 x 1,200 pixels, and the HDR functionality with 16 bits ensures optimum contrast for highly dynamic surfaces. Color information can also be evaluated if required. For you as a customer this means maximum performance in the analysis of 2D and 3D roughness, waviness, wear and micro-geometries, even in mobile applications.

MarSurf CM mobile

Item number:
6350020/21/22/23

Benefits

• Latest 16 bit HDR camera

• 5 times higher pixel density

• Highest vertical resolution with 2 nm

• Measuring roughness with nanometer accuracy and process reliability

• High measuring speed with 100 fps at full resolution

News from the
Form metrology

In addition to its dimensions, the shape of a workpiece is the most important factor for its trouble-free function and durability. Form measuring technology from Mahr helps you to reduce process costs without driving up inspection costs - through stable, innovative devices with a maximum of automation, flexibility and accuracy.

Form metrology

Precise, flexible measurement
of form and position

The new MarForm MMQ 500 form tester extends Mahr's portfolio and is proven with flexibility and speed.

The new MMQ 500 is the best choice among the bench form testers due to its various possibilities for high-precision measurement. Due to the optimized machine construction, it is universally applicable and enables maximum utilization. The innovative device design makes operation child's play: with just one hand you can move all components into the optimum position for your measurement. With the clever, powerful software, setup and measurement is fast and safe.

**MarForm
MMQ 500**

Item number:
5440901

Benefits

- Shortest floor-to-floor time on the market
- Universally applicable for small workpieces of a few millimetres in size up to heavy workpieces up to 80 kg
- For measuring form, position, roughness, contour and twist in one measuring sequence
- Intuitive to use software
- Highest axis accuracy even with decreasing tolerances
- Best repeatability even for difficult measuring tasks

Fully automatic probe arm change

Optimal for automated operation: The probe arm unit can hold up to four probe arms at once – for fast switching between the probe arms without additional operator intervention.

Minimized floor-to-floor time

The Z-axis allows movements with up to 100 mm/s — more than 3 times faster than conventional form measuring devices.

75% faster than market standard

The newly developed centering and tilting table enables faster alignment than comparable models, thus increasing efficiency and productivity.

High load-bearing capacity

Measure even heavy workpieces with a mass of up to 80 kg thanks to the particularly powerful ZK table.

High measurement reliability

The mechanical bearing is up to 70 times stiffer than comparable models and therefore insensitive to external influences. The maximized axis accuracy offers more security for your production.

The new ZK table enables fast, efficient alignment

T7W: Fully automatic change between inside and outside measurements

MarForm | MMQ 500

Always on **form!**

0.5 μm

Centering accuracy of the
centering and tilting table

75 %

faster than
the market standard

0.01 μm   **maximum accuracy of the measuring axes**

Even with small tolerances, the MarForm MMQ
500 tabletop form tester impresses with maxi-
mum accuracy. The result: high measuring relia-
bility for every application.

4 times

increased capacity
on the form tester

> **80** kg

table load

Up to

100 mm/s

positioning speed

< **60** sec   **Centering and tilting speed**

From 1000 μm to 1 μm in less than 60 seconds
for fast alignment of all workpieces.

News of
Dimension metrology

Dimension metrology is the key to highly efficient processes in all areas of industrial production. Mahr's comprehensive portfolio combines accuracy and efficiency - and thus enables you to optimize production processes and keep quality costs within the calculated range.

Dimension metrology

New compatibility for
more flexibility

Mahr adds to the Millimar N 1700 portfolio two new modules

The Millimar N 1700 bus system for length and multi-point measurement is already a true performer for quality assurance close to production. The modular design and a wide range of transducers from the Millimar portfolio allow almost unlimited flexibility in the design of measuring fixtures. Furthermore, measuring tasks can be easily created and clearly visualized with the measuring and evaluation software, „Millimar Cockpit."

Mahr is now expanding its product range with two new 2-input Modules for inductive sensors of the manufacturers Tesa and Marposs. Simply use existing measuring sensors of this manufacturer and combine them flexibly with the Millimar N 1700 series from Mahr.

Benefits

- Lower acquisition costs, since existing measuring sensors from other manufacturers can be used
- Modular design and broad compatibility - for more flexibility in length measurement
- Robust and space-saving design
- Simple mounting on top hat rail possible
- Software for the simple visualization of measuring tasks
- Dynamic program library (DLL) for integration into own programs

**Millimar
Series N 1700**

Item number:
5331121
(N 1702 T, Tesa)

5331122
(N1702 U, Marposs)

64

Measuring steps
for your measuring task

One sensor for each measuring task

Mahr's portfolio of probes includes over 100 transducers – so you are guaranteed to find the right probe for every measuring task.

Space-saving

The modular design of the units saves you space, because you can control which modules you want to work with or not. Unused modules can simply disappear into the drawer for later use.

43

Inductive probes
in the portfolio

Up to
4.189

values per second
are transmitted

Customized use

With the diverse products of the Millimar family you will find the right evaluation unit for every application.

Mahr

	80%
	63%
	44%
	79%
	38%
	95%

Simple combination

The portfolio of the new Millimar generation includes thirteen modules from which you can easily select the right one for your measuring task. The module structure works according to the mix-and-match principle: select and combine the modules with and among each other — as required.
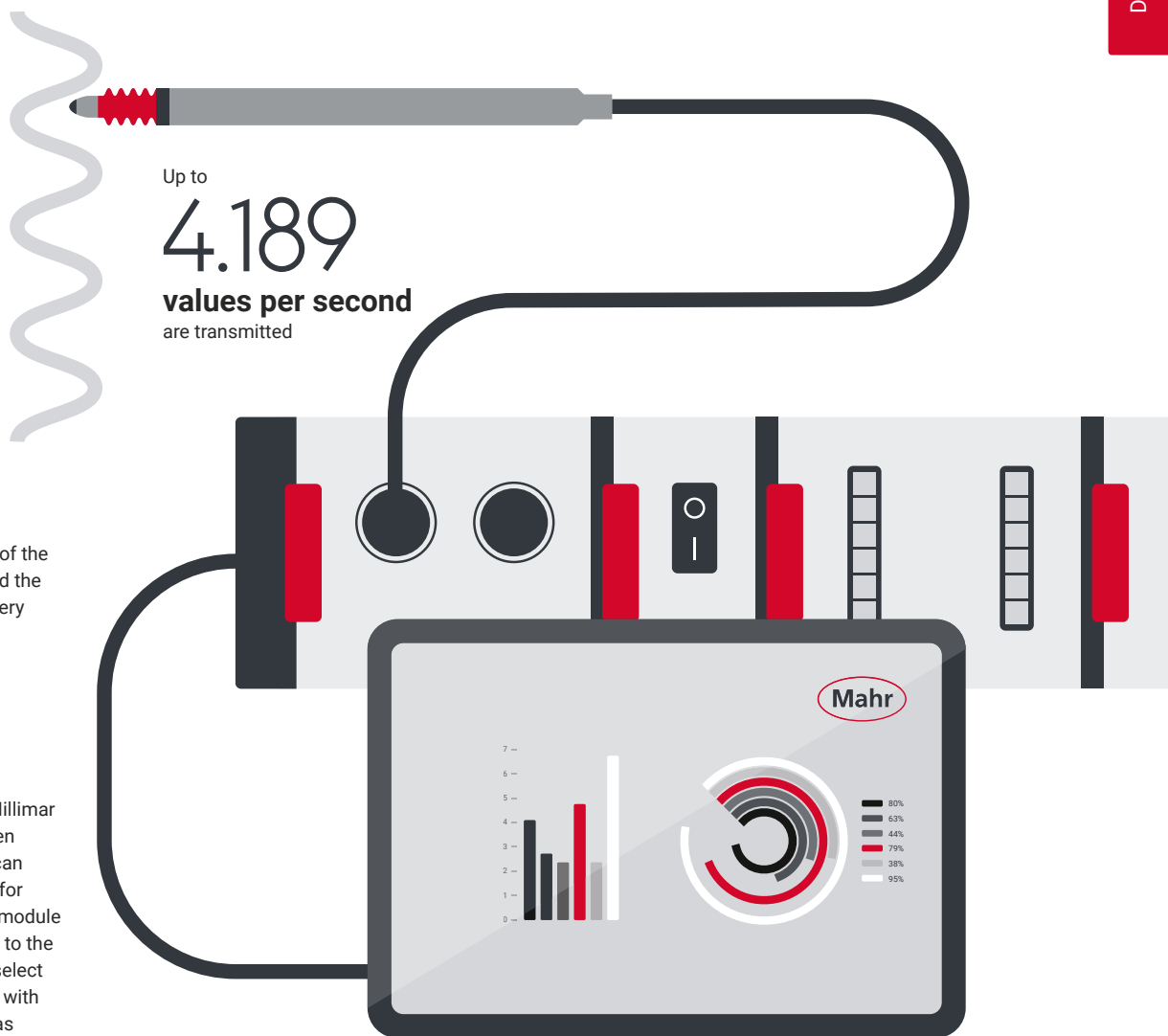
Intelligent software

The Millimar Cockpit software enables you to measure and evaluate professionally.

9

seconds
on average for the replacement of a module

13

Different modules
for individual combination in the portfolio

Powerful bench for **mobile length measurement**

For precise external measurements, Mahr's SM 60 from the Precimar portfolio

Its simple and not needed fast operation, robust design and great flexibility make the Precimar SM 60 a perfect tool for quality-conscious production. With this small-length measuring bench, external measurements can be carried out quickly and precisely — and with greater flexibility than ever before. Thanks to its small size, it is both mobile and adaptable, making it ideal for immediate use in the workshop and other production environments.

+

Benefits

• Extra robust construction for direct use in production

• Large measuring table for workpieces up to 60 mm

• Individual combination options with other measuring devices

• Suitable for left- and right-handed users

Transportable and production-oriented

With its robust construction, handy size and low weight, the SM 60 is mobile and therefore flexible with regard to its place of use

slim

9 **kg**

total weight

Flexible measuring display options

Combination of different measuring devices possible, either wireless or cabled

up to

60 **mm**

scope of application

Adjustable Reference Anvil

for highly accurate part positioning

< 1 μm

Parallelism
of the measuring surfaces

Infinitely height-adjustable support table

for exact measurements of different workpieces up to 60 mm

Mahr

Precimar SM 60

Double protection

The integrated slip clutch secures your workpiece in case of unintentional slipping or incorrect operation and thus protects it from scratches

Precimar SM 60

Item number:
5357360

25 mm

Measuring range
of the movable sleeve
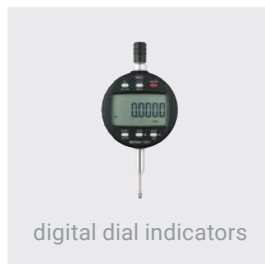
# Flexible and individual
combination possibilities

The small length measuring bench is mobile and individually adaptable to new workpieces, as the measuring equipment (e.g. digital dial gage or measuring probe) can be combined as required. With different measuring attachments, different types of measurements can also be taken on the workpiece.

digital dial indicators
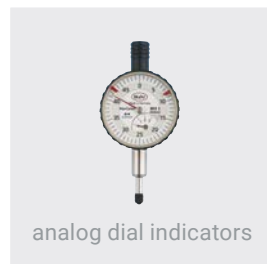
analog dial indicators
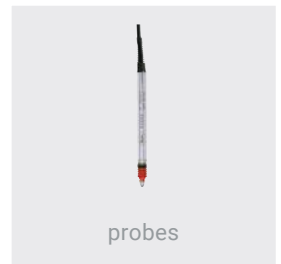
probes

MarCator 1086 Ri

Order number: 433761

MarCator 1087 Ri

Order number: 4337661

MarCator 1086 R-HR

Order number: 4337698

Millimar C 1200

Order number: 4337661

Millimar P 2004 M

Order number: 5353010

Additional
accessories

An overview of the complete range of accessories can be found on **page 38**.

Technical data

Product type	ID number	Measuring range in mm	Resolution in mm
MarCator 1086 R Digital Indicator	4337621	25	0,0005 – 0,01
MarCator 1086 Ri Digital Indicator	4337625	25	0,0005 – 0,01
MarCator 1087 R Digital Indicator	4337661	25	0,0005 – 0,01
MarCator 1087 Ri Digital Indicator	4337665	25	0,0005 – 0,01
MarCator 1086 R-HR Digital Indicator	4337698	25	0,0001 – 0,01
MarCator 1087 R-HR Digital Indicator	4337696	25	0,0001 – 0,01
Millimar C 1200	5312010	-	0,1
Millimar P 2004 M	5323010	± 2	-

Faster calibrations,
Better results

The new Precimar ICM 100 IP for automatic economic testing of dial gauges and fine pointers

Reading the pointer position of measuring instruments to be tested is a strenuous and monotonous activity that can easily lead to errors. With the new Precimar ICM 100 IP, Mahr offers you a practical solution for the fully automatic, cost-effective and efficient testing of digital and analog measuring instruments.

With its innovative device design, operation is child's play. With just one hand and completely effortlessly, you can move all components into the optimal position for your measurement. With the clever software, setup and measurement are quick and safe.

Precimar ICM 100 IP

Item number:
5351010
(Complete solution)

535 10 50/60/70
(Upgrade kits)

Benefits

- Over 60 % time savings

- Easy handling and tool-free operation

- Flexible use for a wide range of measuring equipment

- Intuitive, software-supported operation

- Wide standard support

- Fatigue-free work without loss of concentration

60 %

Time saved
compared to manual measurement

1 hand

for operation
With just one hand and no tools whatsoever, you can quickly bring the camera and light source into the optimum position for your measurement: press the lever together, adjust the height continuously — finished

Data acquisition fast & secure
The powerful USB 3.0 camera and a robust LED illumination guarantee that all display values are reliably recognized.
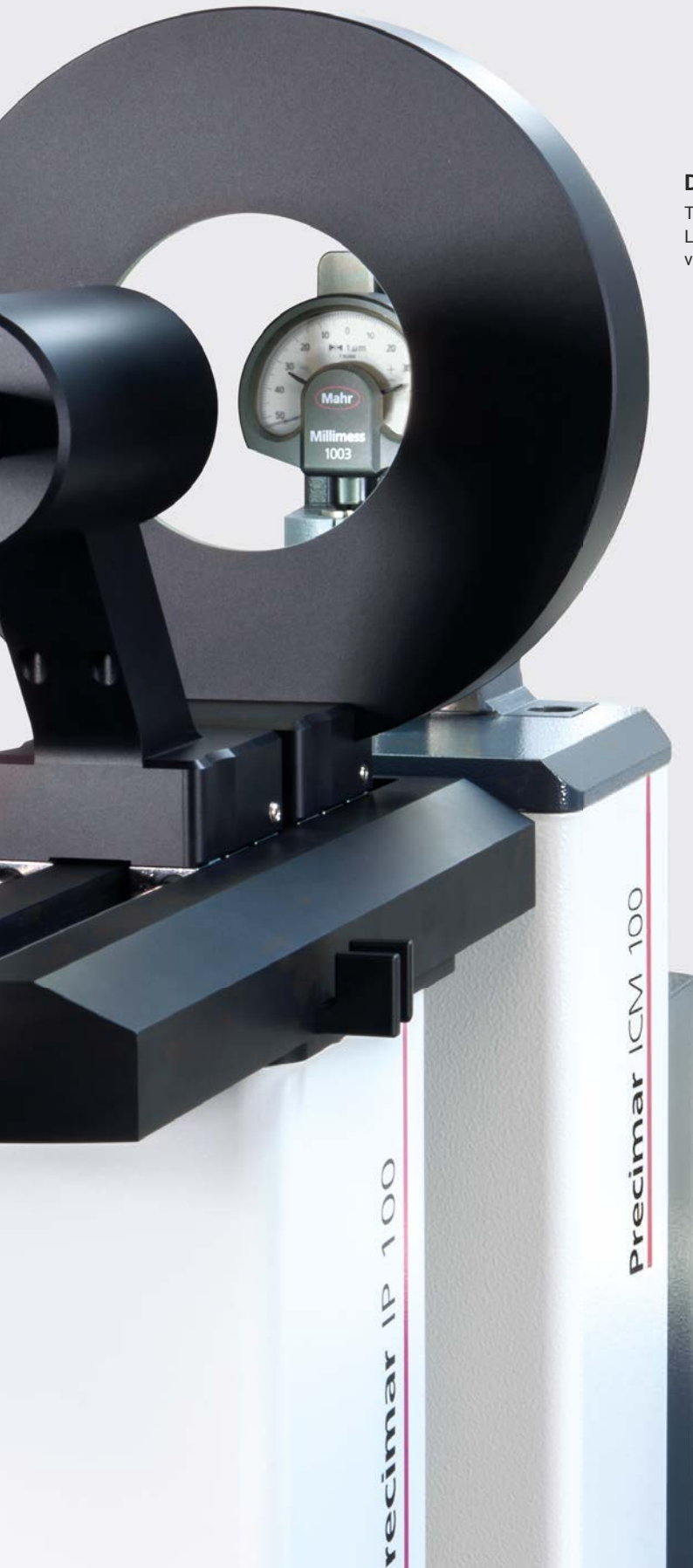
266

Test samples
are stored in Mahr's own operating software pre-programmed.

Software-supported work
Ready to go in a few moments — thanks to the live visualization on the monitor. You can see at a glance whether the camera is in focus and the exposure is sufficient.

100 mm

direct scope

The ideal choice
for your workshop

The new MarCal 18 EWRi workshop caliper with Integrated Wireless

The display, enlarged to 12.5 mm, makes reading the measured values even more convenient and error-free. The simple operation has been completely redesigned: typical measuring functions are triggered by direct keys and system settings are made via a clear and intuitive menu. The MarCal 18 EWRi caliper gage has been specially developed for the workshop and offers maximum freedom of movement for unimpeded working thanks to Integrated Wireless and large measuring ranges.
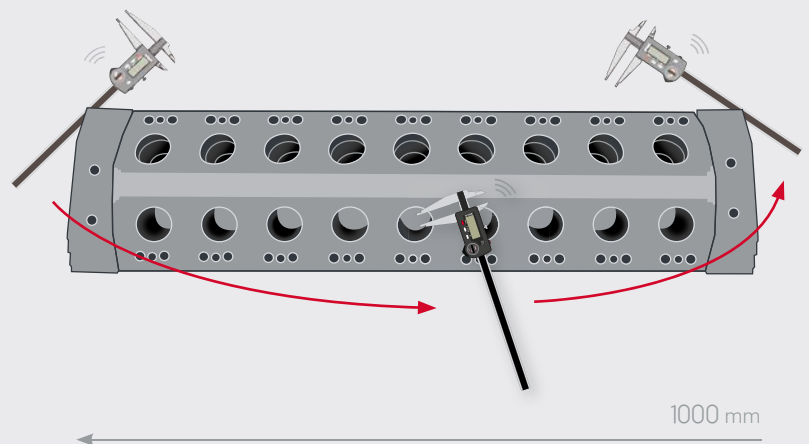
MarCal 18 EWRi

Item number:
see table

Autonomous and
flexible in use!

Do you measure large workpieces and can't use any stumbling blocks? No problem for the MarCal 18 EWRi. Send you measured values wirelessly, up to 6M easily without added modules or cables. You enjoy complete freedom of movement for unimpeded, flexible working.

1000 mm

With integrated wireless data transmission of the calipers 18 EWRi, you benefit from unimpeded freedom of movement, especially for large workpiece dimensions.

12,5 mm

Digit height

4 available measuring ranges

0 – 300 mm

0 – 500 mm

0 – 750 mm

0 – 1000 mm

Benefits

- Data transmission via Integrated Wireless — autonomous measurement without expensive add-on modules or troublesome data cables

- Large display (12.5 mm digit height) for safe reading of the values

- Direct function keys and intuitive, menu-driven settings

- Maximum freedom of movement especially for large measuring ranges up to 1000 mm

IP 65

#ID

REF system
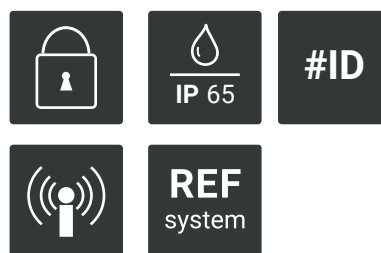
Variants of MarCal 18 EWRi:

Product type	ID number	Measuring range in mm	Resolution in mm	Error limit in mm	Standard
MarCal 18 EWRi	4112571	0 – 300	0,01	0,03	Factory standard
MarCal 18 EWRi	4112572	0 – 500	0,01	0,04	Factory standard
MarCal 18 EWRi	4112573	0 – 750	0,01	0,05	Factory standard
MarCal 18 EWRi	4112574	0 – 1000	0,01	0,06	Factory standard

Versatility
in your production

The new Multimar 25 EWRi universal caliper with Integrated Wireless

This universal caliper can be adapted to your individual needs with its to the extensive range of accessories. Outside and inside diameters, recesses, hole distances and much more can be measured depending on the workpiece and the measuring task. You can measure workpieces in the application range up to 1250 mm just as easily. The display, which has been enlarged to 12.5 mm, makes it even easier to read the measured values without errors.

IP 65

#ID

REF system

Measuring range

0 – 1250 mm

12,5 mm

Digit height

4 **available measuring ranges**

0 – 300 mm

0 – 600 mm

0 – 1000 mm

0 – 1250 mm

Benefits

- Data transmission via Integrated Wireless — easily, up top 6M with out added modules or troublesome cables

- Individually adaptable to the measuring tasks, with extensive accessories

- Large display (12.5 mm digit height) for safe reading of the values

- Direct function keys and intuitive, menu-driven settings

- Maximum freedom of movement especially for large measuring ranges up to 1250 mm
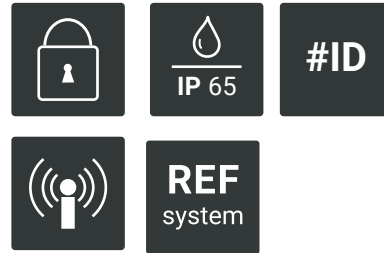
Multimar 25 EWRi

Item number:
see table

Variants of Multimar 25 EWRi:

Product type	ID number	Area of application (outside) in mm	Resolution in mm	Error limit in mm
Multimar 25 EWRi	4119050	0 – 300	0,01	0,03
Multimar 25 EWRi	4119051	0 – 600	0,01	0,03
Multimar 25 EWRi	4119052	0 – 1000	0,01	0,04
Multimar 25 EWRi	4119053	0 – 1250	0,01	0,04

Accessories

Extensive accessories (measuring arms, stops and probe elements) for adaptation to your measuring tasks you will find in the current Mahr catalog or on **www.mahr.com**.
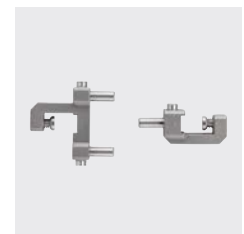
Here for you
worldwide

With more than 40 Mahr locations in America, Asia and Europe and an additional 39 dealer representatives around the globe, we have spun a broad network to ensure international presence on all five continents.

5 continents

>40 **locations** worldwide

>60 countries

39 distributors

Down to the smallest detail – **the Supplementary Catalog**

Learn everything you need to know about the newest Mahr innovations 2020 — from technical data, application examples and possible accessories to detailed illustrated product characteristics.

MarCal 18 EWRi

Digital workshop caliper

FUNCTIONS

- ON/OFF
- AUTO-ON / OFF
- HOLD
  (storage of measured values)
- RESET
  (set display to zero)
- PRESET
  (for entering a numerical value)
- Reversal of counting direction
- mm/inch
- LOCK function (key lock)
- DATA (data transmission)

FEATURES

- High contrast analog display
- Locking screw above
- Rounded measuring blades
  for inside measurements
- Slide and beam made of
  hardened stainless steel
- Immediate measurements due
  to the Reference System
- Raised guideway for the
  protection of the scale
- Excellent resistance against dust,
  coolants and lubricants
- Dirt wipers are integrated in
  the slide
- **Software:** MarCom Professional
  free download:
  www.mahr.com/marcom
  (only for Mahr data cables and
  wireless systems with USB
  and RS–232 interface)
- **Digit height:** 12.5 mm
- **Data interface:**
  Integrated wireless
- **Energy supply:** Battery life
  approx. 3 years (approx. 0.5 in
  wireless mode)
- **IP protection category:** IP 65
- **Package contains:** battery,
  instruction manual, case

Available from August 2020

TECHNICAL DATA

Order no.	Type	Measuring range	Numerical increment	Measuring blades for outside measurements	Error limit
		mm	mm/inch		mm
4112571	18 EWRi	0 – 300	0.01 / .0005"	•	0.03
4112572	18 EWRi	0 – 500	0.01 / .0005"	•	0.04
4112573	18 EWRi	0 – 750	0.01 / .0005"	•	0.05
4112574	18 EWRi	0 – 1000	0.01 / .0005"	•	0.06

Order no.	a	b	c	d	e	f
	mm	mm	mm	mm	mm	mm
4112571	430	90	10	10	20	40
4112572	650	150	20	20	25	55
4112573	905	150	20	20	25	55
4112574	1165	150	20	20	30	60
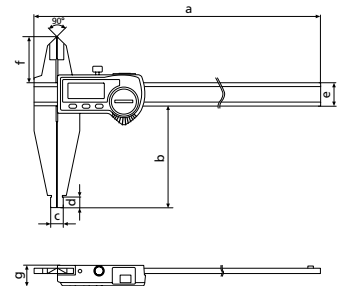
ACCESSORIES

Order no.	Product name	Type
4102220	Receiver for instruments with Integrated Wireless	i-Stick
4102520	Battery 3 V, CR 2032	

i-Stick

Multimar 25 EWRi

Digital universal caliper

#ID | ((•)) | 🔒 | IP 65 | REF system

FUNCTIONS

- ON/OFF
- AUTO-ON / OFF
- HOLD (storage of measured values)
- RESET (set display to zero)
- PRESET
  (for entering a numerical value)
- Reversal of counting direction
- mm/inch
- LOCK function (key lock)
- DATA (data transmission)

FEATURES

- Individually adaptable to the measuring task through exchangeable measuring arms, probe inserts and stop elements (optional accessories)
- Due to the patented possibility to mount the measuring elements on the upper and lower long side of the measuring arm carriers, the numerical display can always be read from the operator's side
- The application range can be extended by turning the measuring arms
- Both measuring arm carriers can be moved on the rail, thus even weight distribution for small dimensions
- Slide and rail stainless and hardened
- **Data interface:** Integrated wireless
- **Energy supply:** Battery life approx. 3 years (approx. 0.5 in wireless mode)
- **IP protection category:** IP 65
- **Software:** MarCom Professional free download: www.mahr.com/marcom (only for Mahr data cables and wireless systems with USB and RS–232 interface)

Application:

For the measurement of:

- Outer and inner diameters
- Centering shoulders
- Narrow collars
- Outer and inner cones
- Dovetails
- Grooves
- Hole spacing

TECHNICAL DATA

Order no.	Application range outside up to inch	Type	Application range outside	Numerical increment	Error limit
	inch		mm	mm/inch	mm
4119050	12	25 EWRi	0–300	0,01 / .0005"	0.03
4119051	24	25 EWRi	0–600	0,01 / .0005"	0.03
4119052	40	25 EWRi	0–1000	0,01 / .0005"	0.04
4119053	50	25 EWRi	0–1250	0,01 / .0005"	0.04

Order no.	a
	mm
4119050	480
4119051	790
4119052	1200
4119053	1450
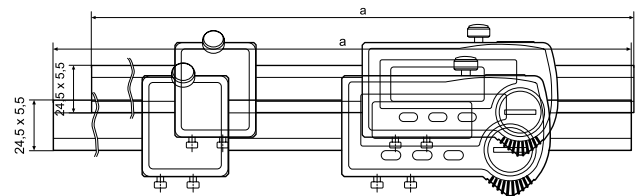
ACCESSORIES

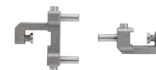| Order no.	Product name	Type
4102220	Receiver for instruments with Integrated Wireless	i-Stick
4102520	Battery 3 V, CR 2032	
4118520	Setting gage	25 Eel
4119010	Measuring tips for drill hole intervals, Ø 2–20 mm	25 Eba
4119011	Measuring tips for drill hole intervals, Ø 10–40 mm	25 Eba
4503020	Case for accessories	844 Tzb
4503024	Measuring arms, 25 mm	844 Te
4503025	Measuring arms, 35 mm	844 Te
4503026	Measuring arms, 70 mm	844 Te
4503027	Measuring arms, 100 mm	844 Te
4503030	Mounting attachement	844 Tma
4503031	Mounting attachement	844 Tmi
4503109	Depth stops for 844 Tma, 844 Tmi, 844 Te	844 Tw
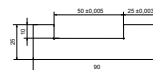
i-Stick | 25 Eel | 844 Tma | 844 Tw | 25 Eba

Millimar N 1702 T / N 1702 U

Module for inductive probes

FUNCTIONS

FEATURES

- Flexibly configurable RS485 bus modules
- Powerful connection modules for evaluating measuring sensors (inductive/pneumatic)
- Synchronous data retrieval from multiple connected measuring probes
- Connection of N 1700 modules via USB interface to the smart, universal evaluation and configuration software Millimar Cockpit
- Connects all compatible probe types using one module
- Flexible and modular product combinations to tackle customer-specific measuring tasks
- Maximum theoretical bus data rate of 4189 values/s (depending on the number of connected channels)
- Package contains: instruction manual

Application:

Smart and flexible combination of measuring modules and software for solving customer-specific measuring tasks.

TECHNICAL DATA

Order no.	Type	Numerical increment	Measuring range, inductive probe	Probe inputs	Compati-bility	Configu-ration	Data transmis-sion rate	Error limit	Data in-terface:	Current consuption	Energy supply:	IP pro-tection category
		µm	µm				Hz			mA		
5331121	N 1702 T	0,1	± 2000, ± 5000, ± 1000, ± 500	2	Tesa	Millimar Cockpit Software	4189	0,3 % (min. 0,2 µm)	RS–485	95	+ 5V from N 1700 Bus	IP 42
5331122	N 1702 U	0,1	± 2000, ± 5000, ± 1000, ± 500	2	Marposs	Millimar Cockpit Software	4189	0,3 % (min. 0,2 µm)	RS–485	110	+ 5V from N 1700 Bus	IP 42

Order no.	Depth	Height	Width
	mm	mm	mm
5331121	66	54.8	77
5331122	66	54.8	77

Millimar N 1702 T / N 1702 U

Module for inductive probes

ACCESSORIES

Order no.	Product name	Type
4400190	Inductive probe, ± 2 mm	P1300 TA
4400191	Inductive probe, ± 2 mm	P1300 TB
4400192	Inductive probe, ± 2 mm	P1300 TA ohne Kabel
4400193	Inductive probe, ± 2 mm	P1300 TB ohne Kabel
5323011	Inductive probe, ± 2 mm	P2004 T
5323013	Inductive probe, ± 2 mm	P2004 U
5323021	Inductive probe, ± 2 mm	P2004 TA
5323023	Inductive probe, ± 2 mm	P2004 UA
5323031	Inductive probe, ± 2 mm	P2004 TB
5323033	Inductive probe, ± 2 mm	P2004 UB
5324021	Inductive probe, ± 5 mm	P2010 TA
5324023	Inductive probe, ± 5 mm	P2010 UA
5324031	Inductive probe, ± 5 mm	P2010 TB
5324033	Inductive probe, ± 5 mm	P2010 UB
5324071	Inductive probe, ± 2 mm	P2104 TA
5324073	Inductive probe, ± 2 mm	P2104 UA
5324081	Inductive probe, ± 2 mm	P2104 TB
5324083	Inductive probe, ± 2 mm	P2104 UB
5331138	Extension cable, length 2 m	N 1700 RS485

P2010 TA;P2010 UA

P2010 TB;P2010

P2104 TA;P2104 UA

P2004 TB;P2004 UB

P1300 TA

P1300 TB without cable

P2004 T;P2004

P2004 MA;P2004 TA;P2004 UA

P2104 TB;P2104 UB

P1300 TB

P1300 TA without cable

Precimar SM 60

Length measuring bench

FUNCTIONS

FEATURES

- Simple instrument design
- Quick adaptation to new workpieces
- Rugged construction makes it suitable for use close to production
- Freely selectable measuring equipment (e.g. digital dial indicator, probes, etc.)
- Carbide measuring surfaces
- Integrated coupling protects the measuring equipment
- Wide choice of measuring attachments
- Suitable for left- and right-handed operators
- Large support table, Ø 60 mm, with variable height adjustment

Order no.		5357360
Type		SM 60
Mounting shaft diameter	mm	8
Application range mm	mm	0 – 60
Measuring range	mm	0 – 25 mm
Measuring surface dia.	mm	6
Parallelism of measuring surfaces		<0,001 mm
Size of table	mm	Ø 60
Measuring forces [N]		1 ± 0.2 + measuring force of measuring system
Mass [kg]		9

Order no.	Product name	Type
4337661	Digital indicator, 0.0005 mm, 25 mm	1087 R
4337665	Digital indicator, 0.0005 mm, 25 mm	1087 Ri
4337621	Digital indicator, 0.0005 mm, 25 mm	1086 R
4337625	Digital indicator, 0.0005 mm, 25 mm	1086 Ri
5312010	Compact amplifier	C 1200
5323010	Inductive probe, ± 2 mm	P2004 M
5355368	Measuring attachment M 2.5	
5355410	Measuring attachment with plane surface Ø 2 mm	
5355411	Measuring attachment with flat-edged blade 2	
5355412	Measuring attachment with ball zone R20	
5355413	Measuring attachment with flat-edged blade 8 (pair)	
5355414	Measuring attachment with plane surface Ø 8 mm	
5355415	Measuring attachment with plane surface Ø 14 mm	
5355416	Measuring attachment with plane surface Ø 7.5 mm	
5355485	Measuring attachment with plane surface Ø 6.35 mm	

1087 R;1087 R-HR;1087 ZR

1087 Ri

1086 R;1086 R-HR;1086 ZR

1086 Ri

C1200;C 1200

P2004 M;P2004 T;P2004 U;P2004 F;P2004

Precimar Precimar ICM 100 IP

Fully automatic indicator tester

FUNCTIONS

FEATURES

- Convenient, tool-free and intuitive operation with just one hand
- Highest-accuracy measurement through compliance with Abbe's principle
- Testing to international standards, including ASME/ANSI, DIN, BS, JIS, VDI, GOST and NF.
- High-performance USB 3.0 industrial camera with high image quality and wide dynamic range
- Robust, industrial-grade LED ring light for measurements unaffected by ambient light
- Ability to automatically measure digital indicators through direct reading of values – no cables required
- Wide variety of possible test specimens up to 4 Inches / 100 mm – dial & digital indicators, comparators, test indicators
- Pre-programmed measurement modules with pre-loaded nominal values and tolerances
- Direct measurement range of 4 inches / 100 mm – no need to reposition the test specimen during testing
- Inductive probes from various manufacturers can be tested (only in manual mode)
- **Energy supply:** 230 V/115 V; 50/60 Hz

Application:

- Calibration of dial indicators, dial test indicator measuring devices and dial comparators
- The Precimar MSW 100 software system controls the dial indicator test device, processes the camera image (pointer or numeric display of the test object) and the reference measuring values of the dial indicator test device, and also performs all the subsequent processes related to test equipment management.
- The testing routine can be implemented based on DIN, VDI, DKD or DAkkS guidelines, various international standards, or based on the company's internal specifications.
- Deviations between test objects are illustrated in a graph during testing.

TECHNICAL DATA

Order no.	Type	Measuring range mm	Mass [kg]
5351010	Precimar ICM 100 IP	100 mm	45

MarSurf M 310 / M 310 with printer

Mobile roughness measuring instrument

FUNCTIONS

FEATURES

MarSurf M 310 -

guaranteed successful!

- Compact roughness measuring instrument for mobile use
- Simple and intuitive to use: as easy as using a smart phone
- Large, illuminated 4.3" TFT touch display
- Adjustable display
- Data backup as TXT, X3P, CSV or PDF file
- Transmission of measurement protocols and data optionally via Bluetooth or cable
- IATF 16949 compliant - Reliable traceability with MarConnect
- Print directly on the mobile printer (as an option or directly in set with printer)
- Create complete PDF measuring records directly in the measuring instrument
- Micro-USB interface for remote control via ASCII commands, e.g. via software for statistical process control or remote start control for automation solutions
- Customized comments for the PDF measuring record can be entered directly into the MarSurf M 310
- Display and printing of the MRC and ADC curve
- Saving measuring programs (Quick & Easy)
- Specification of the cutting line C in µm or in % of Rz for the characteristic values Rmr and tp
- Mains-independent operation: Over 1200 measurements without having to recharge the instrument
- An all-in-one solution. Small and lightweight (approx. 500 g)
- Instrument flexibility: removable drive unit
- 31 surface parameters: offer the same range of functions as a laboratory instrument
- Roughness standard stored within housing aids in reducing errors
- Quick access to your frequently used functions via the Favorites list in the display
- Automatic cutoff selection, so even non-specialists can be sure of getting the correct measuring results
- NEW: Additional version with transverse drive unit available as MarSurf M 310 C2 or a set without probe

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

TECHNICAL DATA

Order no.		6910260	6910265	6910267	6910268
Type		M 310		M 310 with printer	
Parameters		A1, A2, Ar, CF, CL, CR, Mr1, Mr2, R, R3z, RPc, RS, RSk, RSm, Ra, Rk, Rmax, Rmr (tp (JIS, ASME) is equivalent to Rmr), Rp, RpA (ASME), Rpk, Rpm, Rpm (ASME), Rq, Rt, Rvk, Rx, Rz, Rz (JIS), Rz (Ry (JIS) is equivalent to Rz), Vo			
Measuring units		metric/inches			
Stylus		2 µm	5 µm	2 µm	5 µm
Calibration function		Dynamic; Ra, Rz, Rsm			
Storage capacity		Min. 3900 profiles, min. 500,000 results, min. 1500 PDF records, expandable to 32 GB with Micro SD card			
Languages		German, English, French, Italian, Spanish, Portugese, Dutch, Swedish, Russian, Polish, Czech, Japanese, Chinese, Korean, Hungarian, Turkish, Romanian			
Other		Lock/password protected, date/time			
Data interface:		USB A, USB B, MarConnect (bidirectional), Micro SD slot for SD / SDHC cards up to 32 GB			
System of protection		IP 40			
Rechargeable batteries		Lithium-ion battery, min. 1200 measurements			
Wide range power supply		100 to 264 V			
H x W x D	mm	160 mm x 77 mm x 50 mm			
Weight	kg	4.7		5.7	
Measuring principle		Stylus method			
Probe		Inductive skidded probe			
Measuring range	mm	0,350			
Profile resolution		8 nm			
Filter according to ISO/JIS		Gaussian filter as per ISO 16610–21 (formerly ISO 11562), special filter as per DIN EN ISO 13565–1, Lambda s filter as per DIN EN ISO 3274 (can be switched off)			
Cutoff lc according to ISO/JIS		0,25 mm, 0,8 mm, 2,5 mm, automatic filter detection, variable			
Number n of sampling length according to ISO/JIS		Selectable: 1 to 16			
Short stroke under ISO/JIS		Selectable			
Traversing length Lt according ISO/JIS		1.5 mm, 4.8 mm, 15 mm, N x Lc, variable, automatic			
Traversing length according ISO 12085 (MOTIF)		1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm			
Evaluation lenth ln according to ISO/JIS		1,25 mm, 4,0 mm, 12,5 mm			
Measuring force	N	.00075			

MarSurf M 310 / M 310 with printer

Mobile roughness measuring instrument

ACCESSORIES

| Order no.	Product name	Type
6910271	Printer set for MarSurf M 310	
6850540	PHT pick-up extension 80 mm	PHT (80 mm)
6111520	Standard probe 2 µm	PHT 6–350
6111526	Standard probe 5 µm	PHT 6–350/ 5µm
6111527	Standard probe 10 µm	PHT 6–350/ 10µm
6111521	Probe for bores with a dia. larger than 3 mm	PHT 3–350
6111524	Probe for grooves	PHT 11–100
6111525	Probe for concave and convex surfaces	PHTR–100
6111522	Probe for gear tooth flanks	PHTF 0.5–100
6111523	Probe for metal sheets	PT 150
6850715	Pick-up protection with header V-block, steel	PHT-ts4
7028530	Pick-up protection header V-block, plastic	PHT-ts3
6910209	Mount PS 10/M310 on measuring stand ST	ST-a3
6910435	RD 18 C / PS 10 upright holder for cylindrical drive unit, Ø 8 mm	ST-a2
6710803	Measuring stand 300 mm with cast iron base	ST-D
6710806	Measuring stand 300 mm with granite plate	ST-F
6710807	Measuring stand 300 mm with granite plate and T-slot	ST-G
2247086	Adjustable mounting bracket to connect to 814 SR	814 Sh
4426100	Height measuring and scribing instrument, 0 –350 mm	814 SR
4426101	Height measuring and scribing instrument, 0 –600 mm	814 SR
4102410	Data connection cable RS232C (2 m)	16 EXr
6710401	V-block	PP
6710604	Parallel vice	PPS
6710529	XY Table	CT 120
4246819	Set of miniature precision vises Set contents: Mini-vises, jaw widths 15 / 25 / 35 mm, with tripod and V-blocks and miniature dividing attachments	109 PS
6820420	Roughness standard with Mahr calibration certificate, profile depth 10 µm	PRN 10
6820601	Geometric standard with sinusoidal groove profile, profile depth 3 µm	PGN 3
6820602	Geometric standard with sinusoidal groove profile, profile depth 1,5 µm	PGN 1
6820605	Geometric standard with sinusoidal groove profile, profile depth 10 µm	PGN 10
9027715	Mahr calibration certificate for PGN Standard	PGN
6980102	DKD (German Calibration Service) calibration certificate for PGN Standard	PGN
4413000	Indicator stand with delta base 300 mm	815 GN
4413001	Indicator stand with delta base 500 mm	815 GN
4413005	Indicator stand with delta base 750 mm	815 GN
4416000	Measuring tripod with magnetic base	815 MA
6299054	Evaluation software	SW XR 20
6910240	Protective films for LCD, real glass (3 pieces)	SF LCD
6850500	Magnetic fixture PS 10 / M 310	MH
6820521	PS 10 Gauge-/ Geometric Standard incl. Mahr Calibration Certificate	PS 10 KN Mahr

MarSurf M 310 / M 310 with printer
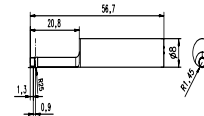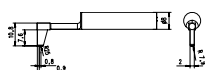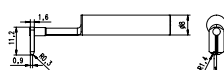
Mobile roughness measuring instrument

Printer
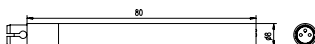
PHT (80 mm)
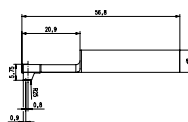
PHT 6–350;PHT
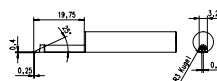6–350/ 5μm;PHT
6–350/ 10μm

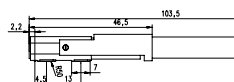PHT 3–350

PHT 11–100

PHTR–100

PHTF 0.5–100

814 Sh

814 SR

109 PS

PT 50

ST-D

ST-F

ST-G

MarForm MMQ 500

High precise universal form measuring machine

FEATURES

Due to the variety of precise measurement options, the MarForm MMQ 500 is the best option when it comes to tabletop form testers. The optimized design of the machine ensures that it can be implemented universally and guarantees maximum utilization.

- Shortest throughput time on the market
- Can be used universally for small workpieces of just a few millimeters right through to
- heavy workpieces of up to 80 kg
- Intuitive software
- Highest axis accuracy even as the tolerances become smaller
- Best repeatability even for difficult measuring task
- Measurement of form, position, roughness, contour, and lead in one measuring sequence

TECHNICAL DATA

Order no.	5440901
Diameter max.* [mm]	530
Straightness deviation / 200 mm measuring path (µm)**, X-axis	0.600000
Measuring path Z (mm)	470
Type	MMQ 500
Roundness deviation (µm+µm/mm measuring height) **	0,02 + 0,00025
Roundness deviation (µm+µm/mm measuring height) *	0,01 + 0,000125
Axial runout deviation (µm+µm/mm measuring radius) **	0,04 + 0,0002
Axial runout deviation (µm+µm/mm measuring radius) *	0,02 + 0,0001
Centering and tilting table	automatic
Table diameter	300
Table load capacity, centered (N)	800
Straightness deviation / total measuring path (µm)**, Z axis	0.3
Parallelism deviation Z-/C axis in tracing direction, measuring path (µm)	0.6
Measuring speed (mm/s), Z axis	100
Positioning path (mm), X axis	280

* Values as maximum deviation from LSC reference circle, filter 15 undulations/revolution.

** All values in accordance with DIN ISO 1101 at 20°C ±1°C in a vibration-neutral environment, filter 15 undulations/revolution LSC or 2.5 mm LSS, 5 rpm or 5 mm/s and standard probe arm with ball diameter 3 mm. Proof at the standard using error separation techniques. Given the number of different options available, only a few machines are described here by way of example. Technical data for "your" MMQ is available from Mahr on request.

ℹ️ For more information, please visit our website: www.mahr.com

Mahr