



Diverse and innovative – our new products for 2023



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The new myMahr portal: Everything in one place

In the future, you as a Mahr customer will benefit from the new digital service platform: The myMahr portal centrally combines all of the interfaces between you and us in a clear and user-friendly way. The only prerequisites for accessing the personalized digital services are an Internet connection and an initial registration.

Our myMahr portal will make it considerably easier for you to complete all of the work relating to measuring tasks. This is because it combines all of the important information about the measuring technology in your production department. At a glance, you can thus quickly and accurately determine if the performance in the measuring room is correct and where you can make optimizations. In addition, you can simply and easily order products, spare parts, and accessories directly online. If you should ever require our support, you can contact Mahr quickly via the platform.

The myMahr portal has four functions for you:

- 1 Monitoring & Assets
- 2 Online Shop & Order Status
- 3 Services
- 4 Training

In the near future, we will be adding further convenient services to the myMahr portal, which will further simplify and support your quality assurance processes. Initially, the platform will be available to customers in Germany, Austria, and Switzerland before we make it available globally.

Contemporary online shopping

Our new online shop is available 24/7 providing you with a quick and clear overview of all of the required accessories and spare parts at a best price guarantee.

Your request – our job

Direct contact to our Service team, including the option of remote access, ensures you receive support quickly.

Quality assurance of the future

Here you can access your virtual measuring room including the measuring data and performance in real-time, and all of the relevant documents.

Metrology expertise

You can easily book your professional training, training courses, and seminars here and attend them online.



Services



Shop &
Order Status

myMahr



Trainings



Monitoring
& Assets



Advantages

- Intuitive to operate thanks to clear user guidance
- Measuring room performance at a glance
- Direct contact to the Mahr Service team
- Connection to our own online shop

Full control: All measurement solutions at a glance

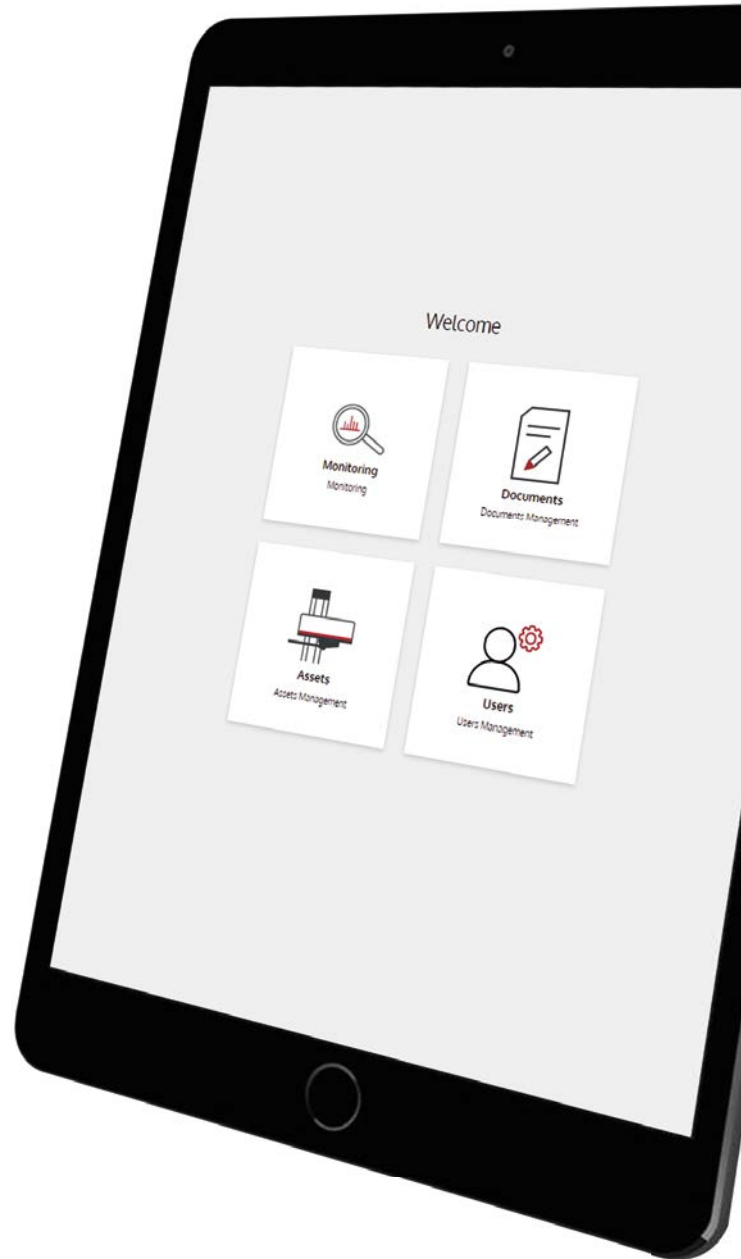
We provide the Monitoring & Assets area in the myMahr portal to ensure you always know what and how everything is running in your measuring room. It is designed to be a control center for your measuring machines and as an archive for all of the relevant documents. This is an important step towards automating quality assurance processes.

The prerequisite for being able to use the full scope of Monitoring & Assets functions, is registering the machines at "myMahr ready". During this process, we will record the hardware and software status of all of your Mahr measurement solutions and integrate this data in the asset management feature. You can then organize and arrange your measurement solutions within the asset management in accordance with your individual requirements, for example, according to the different measuring rooms.



Advantages

- Automatic integration of your hardware and software data following registration on **myMahr ready**
- Status and performance machine data in real-time
- Condition monitoring and predictive maintenance will be available in the future
- Order accessories and spare parts quickly and easily in the online shop



Contemporary online shopping for business customers

Start of our new online shop: With this innovative platform, we are offering you an efficient business-to-business solution to meet your specific requirements as a corporate client. The online shop comprises many practical functions and offers you a comprehensive range of benefits.

An intuitive and user-friendly design guarantees a pleasant shopping experience. You can easily select the right product from a very broad product portfolio that includes hand-held measuring tools, accessories, and spare parts for complex measurement solutions. They are easy to find using the high-performance faceted search function that filters products by their features or using the fast entry screen for the item number. A traffic light system indicates the availability of the relevant item. The online shop also provides important additional information about the individual products, including the measuring range, technical specifications, or drawings.

Customer focus, even for payments: Quick purchases, including payment by credit card or PayPal, can be processed as guest orders without having to register. Registered purchasers with a customer account benefit from many additional advantages. They can, for example, place recurring orders as the customer account saves previous purchases. As our online shop is also optimized for all mobile end devices, you or your measurement engineer can access it from anywhere and order the required products. Overall, we hope that our online shop will improve your purchasing processes and further increase your competitive position.



Advantages

- Simple online shopping with modern user interface
- Accurate and simple searches for required items
- Flexible payment options
- View order status and invoices online
- Additional services for registered customers

Select specific product area

The detailed dropdown menu enables purchasers to quickly access the right product category.

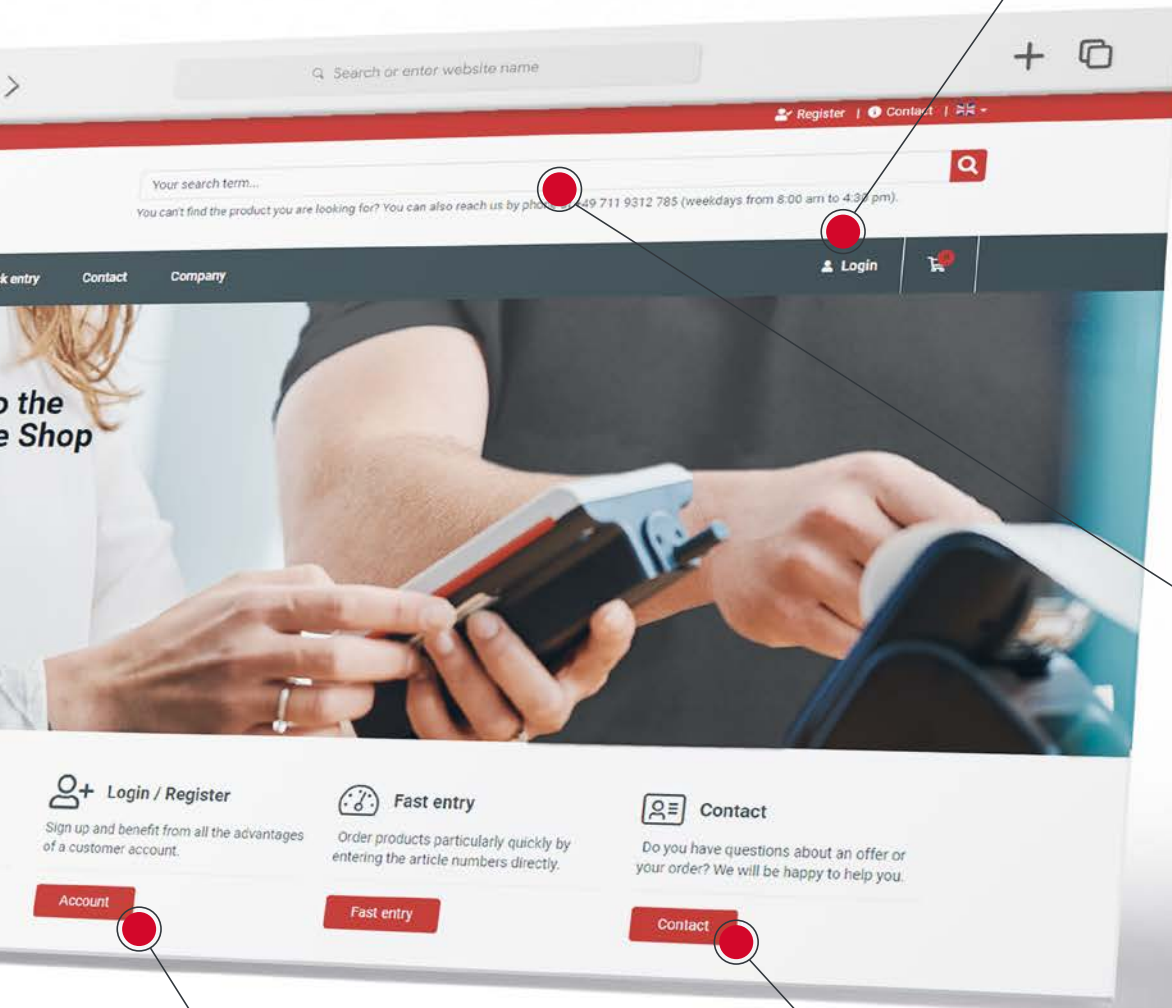


Quick order as a guest

Even without registering, you can make a purchase using a credit card or PayPal.

Logon for existing customers

Registered customers can log in and access their order history, for example.



Efficient search

Products can be found very quickly using the search function.

Get in touch

If you have any questions, it is easy to contact MAHR.

Simply register

Anyone who wishes to benefit from all the advantages a user account has to offer, can simply register.

The new Mahr online shop is here:

<https://shop.mahr.com/DE-en/>



The new depth gage for maximum process safety

Measurements are even safer and more efficient using the MarCal 30 EWRI caliper that is more reliable than ever. Thanks to the Integrated Wireless function, you can also transfer your measurement results to all Windows applications at the touch of a button.

Reliable measuring equipment, that can be used flexibly, is essential in the production and quality assurance departments. Mahr has developed this new caliper to help you ensure your measurements achieve an even higher level of process safety and efficiency. In addition to our tried and tested features, such as the practical Integrated Wireless function for wireless measurements, we have focused on providing the best possible flexibility at the workstation. Practical accessories, as well as other useful special designs, offer you a variety of measurement equipment and tools with which you can increase your daily level of efficiency.

Ergonomic, workshop-focused design

Even in dirty environments or poor lighting conditions, you can still read off the numbers thanks to the high-contrast 11 mm font. The ergonomic housing makes it easy to handle thus providing safe measuring results.



Advantages

- Wireless data transfer and free MarCom Professional software
- Hardened stylus element for universal contact even in tight measuring points
- Measurements with a wide measuring surface
- Lapped guide rails ensure the slide runs evenly and smoothly
- Protection rating IP 67 for use in all workshop conditions
- Practical accessories, e.g. long measuring bridges to cover large distances
- Additional model type 30 EWRI-D with twin hook to measure depths, distances, and widths



Two measuring surfaces

Perfect for your measuring task, including universal stylus or wide transverse measuring surface – the stylus can be removed for this purpose.

3 Up to 3 years
battery life

Integrated Wireless

Take measurements completely autonomously without data cables getting in the way and benefit from recording data quickly and safely without the risk of incorrect manual entries. The displayed measured value is wirelessly transferred directly to your Windows application at the touch of a button.

Extra narrow rail cross-section

The particularly narrow rail cross-sections (12 x 3.5 mm) above all enable you to measure narrow measuring points in more detail, while the lightweight design of the caliper makes it easier to handle.

Practical accessories:

long measuring bridges 30 EXm

If it does not fit, it can be adjusted. We provide long measuring bridges (300 and 400 mm) to place over and cover distances. Installation is simple and can be adjusted within the hole grid, ensuring you can reach your measuring point even if there are greater distances between the points.



MarCal 30 EWRI / 30 EWR

Digital depth gage

FUNCTIONS

Functions 30 EWRI:

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

30 EWRI



Functions 30 EWR:

- AUTO-ON / OFF
- DATA (data transmission via connection cable)
- ON/OFF
- PRESET (for entering a numerical value)
- RESET (set display to zero)
- mm/inch
- LOCK function (key lock)
- High contrast digit display
- Locking screw above
- Lapped guideway
- Measuring surfaces made of steel
- 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

30 EWR



FEATURES 30 EWRI:

- **Digit height:** 11 mm
- **Data interface:** Integrated Wireless
- **Energy supply:** Battery life approx. 3 years (approx. 0.5 in wireless mode)
- **Battery type:** CR 2032 (3V Lithium)
- **IP protection category:** IP 67
- **Package contains:** battery, test certificate, instruction manual, case

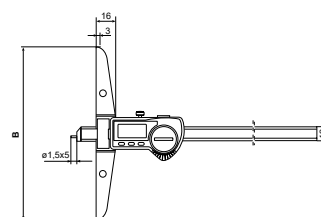
FEATURES 30 EWR:

- **Digit height:** 8.5 mm
- **Data interface:** USB, Opto RS-232C, Digimatic
- **Energy supply:** Battery life approx. 3 years
- **Battery type:** CR 2032 (3V Lithium)
- **IP protection category:** IP 67
- **Package contains:** battery, test certificate, instruction manual, case

TECHNICAL DATA

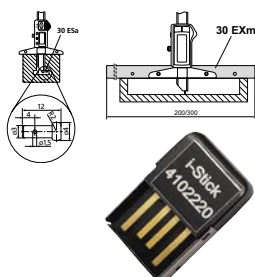
Order no.	Type	Measuring range	Measuring range	Resolution	Error limit	Standard
		mm	inch	mm/inch	mm	
4126671	30 EWRI	0-150	0-6"	0.01 / .0005"	0.03	ISO 13385-2
4126672	30 EWRI	0-200	0-8"	0.01 / .0005"	0.03	ISO 13385-2
4126673	30 EWRI	0-300	0-12"	0.01 / .0005"	0.04	ISO 13385-2
4126674	30 EWRI	0-500	0-20"	0.01 / .0005"	0.05	ISO 13385-2
4126651	30 EWR	0-150	0-6"	0.01 / .0005"	0.03	ISO 13385-2
4126652	30 EWR	0-200	0-8"	0.01 / .0005"	0.03	ISO 13385-2
4126653	30 EWR	0-300	0-12"	0.01 / .0005"	0.04	ISO 13385-2
4126654	30 EWR	0-500	0-20"	0.01 / .0005"	0.05	ISO 13385-2

Order no.	a	b	Rail cross-section
	mm	mm	mm
4126671	230	100	12 x 3.5
4126672	280	100	12 x 3.5
4126673	382	150	12 x 3.5
4126674	586	150	12 x 3.5
4126651	230	100	12 x 3.5
4126652	280	100	12 x 3.5
4126653	382	150	12 x 3.5
4126654	586	150	12 x 3.5



ACCESSORIES

Order no.	For measuring instrument	Description	Quantity	unit	Type
4102220	30 EWRI	Receiver for instruments with Integrated Wireless			i-Stick
4102357	30 EWR	Data connection cable USB (2 m)			16 EXu
4102410	30 EWR	Data connection cable RS232C (2 m)			16 EXr
4102915	30 EWR	Interface adapter with data cable Digimatic (2 m)			16 EWd
4125611	30 EWRI, 30 EWR	Anvil (4 mm)	Piece		30 ESa
4126510	30 EWRI, 30 EWR	Cross beam extension (300 mm)			30 EXm
4126511	30 EWRI, 30 EWR	Cross beam extension (200 mm)			30 EXm



MarCal 30 EWri-D / 30 EWR-D

Digital depth gage

FUNCTIONS



Functions 30 EWR-D:

- High contrast digit display
- Locking screw above
- Lapped guideway
- Measuring surfaces made of steel
- 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



30 EWri-D



FEATURES 30 EWri-D:

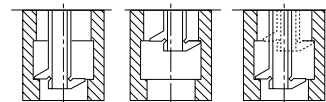
- **Digit height:** 11 mm
- **Data interface:** Integrated Wireless
- **Energy supply:** Battery life approx. 3 years (approx. 0.5 in wireless mode)
- **Battery type:** CR 2032 (3V Lithium)
- **IP protection category:** IP 67
- **Package contains:** battery, test certificate, instruction manual, case



30 EWR-D

Application:

Measuring groove widths and distances between grooves



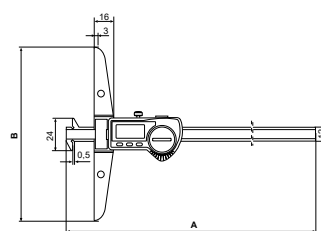
FEATURES 30 EWR-D:

- **Digit height:** 8.5 mm
- **Data interface:** USB, Opto RS-232C, Digimatic
- **Energy supply:** Battery life approx. 3 years
- **Battery type:** CR 2032 (3V Lithium)
- **IP protection category:** IP 67
- **Package contains:** battery, test certificate, instruction manual, case

TECHNICAL DATA

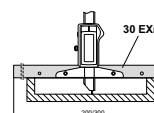
Order no.	Type	Measuring range		Resolution	Error limit	Standard
		mm	inch			
4126535	30 EWri-D	0 – 200	0 – 8"	0.01 / .0005"	0.03	ISO 13385-2
4126536	30 EWri-D	0 – 300	0 – 12"	0.01 / .0005"	0.04	ISO 13385-2
4126525	30 EWR-D	0 – 200	0 – 8"	0.01 / .0005"	0.03	ISO 13385-2
4126526	30 EWR-D	0 – 300	0 – 12"	0.01 / .0005"	0.04	ISO 13385-2

Order no.	a	b	c	Rail cross-section
	mm	mm	mm	mm
4126535	289	100	12	12 x 3.5
4126536	391	150	12	12 x 3.5
4126525	289	100	12	12 x 3.5
4126526	391	150	12	12 x 3.5



ACCESSORIES

Order no.	For measuring instrument	Description	Type
4102220	30 EWri-D	Receiver for instruments with Integrated Wireless	i-Stick
4102357	30 EWR-D	Data connection cable USB (2 m)	16 EXu
4102410	30 EWR-D	Data connection cable RS232C (2 m)	16 EXr
4102915	30 EWR-D	Interface adapter with data cable Digimatic (2 m)	16 EWD
4126510	30 EWri-D, 30 EWR-D	Cross beam extension (300 mm)	30 EXm
4126511	30 EWri-D, 30 EWR-D	Cross beam extension (200 mm)	30 EXm



New addition with **best possible linearity and precision**

A new inductive probe has been added to the Millimar range: The P2002 will simplify your measurements, regardless of whether you are measuring the conicity, concentricity, radial runouts, thickness, or diameter. The measuring probe records measured values and deviations reliably and can be used for a variety of applications.

Usually, lengths cannot be recorded linearly over the entire measuring path using an inductive probe. This is not the case with our new all-rounder – the Millimar P2002 – that offers a high level of linearity because of its perfectly coordinated measurement system.

The probe provides a maximum level of measurement accuracy and minimal linearity deviations across the entire measuring range. A revised ball-bearing guide also offers a highly accurate and easy guide.

The excellent electromagnetic shielding provides a high level of protection against external magnetic fields. It can also be used in areas close to production and is available in all leading compatibilities.



Advantages

- Highly accurate, linear probe for diameters, radial runouts, thicknesses and much more
- Universal use in the measuring room or production
- New ball-bearing guide offers highly accurate and easy handling
- Reliable EMC shielding to protect against external magnetic fields



Millimar P2002

The new P2002 plays to its strengths in all applications where you need to check the length: From brake disks and mobile phone covers through to turbine blades, the new Millimar sensor is a real all-rounder.



FEATURES

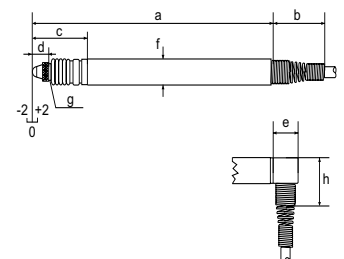
- Variant without and with pneumatic lifter or load
- Measuring pin mounted in rotary stroke bearing
- High linearity over the entire measuring range
- Excellent electromagnetic shielding (EMC)
- All probes can be easily converted from axial to radial by mounting a slip on cap, included in the scope of supply
- Chemical resistance data: resistant to oil, gasoline, water and aliphatic compounds. Moderately resistant to acids, bases, solvents and ozone
- **Package contains:** test certificate, instruction manual, cap for radial cable output, spanner for preliminary stroke setting



TECHNICAL DATA

	Order no.	5323210	5323211
Type		P2002 M	P2002 T
Measuring range	mm	± 1	
Distance to upper stop	mm...mm	1.2 . . . 2.4	
Distance to lower stop	mm...mm	-1.2 . . . 0	
Lifter / retraction		Standard model	
Measuring force	N	0.75 N +/- 0.15 N	
Sensitivity deviation	%	0.3	
Repeatability f_w	µm	0.1	
Measuring value hysteresis f_u	µm	0.3	
Error limit	µm	0.1 + 0.8 x L ³	
IP protection category		IP 64	
Cable length	m	2.5	
Temperature coefficient	µm/°C	0.15	
Compatibility		Mahr-VLDT	Tesa

Order no.	a	b	c	d	e	f	h	Connection thread
5323210	mm	mm	mm	mm	mm	mm	mm	M 2.5
5323211	88.7	28	21.3	6	9.2	8	14	M 2.5



FEATURES

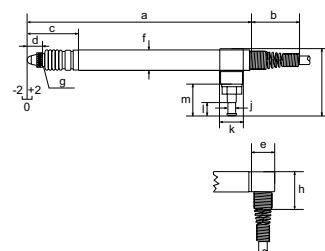
- Variant without and with pneumatic lifter or load
- Measuring pin mounted in rotary stroke bearing
- High linearity over the entire measuring range
- Excellent electromagnetic shielding (EMC)
- All probes can be easily converted from axial to radial by mounting a slip on cap, included in the scope of supply
- Chemical resistance data: resistant to oil, gasoline, water and aliphatic compounds. Moderately resistant to acids, bases, solvents and ozone
- **Package contains:** test certificate, instruction manual, cap for radial cable output, spanner for preliminary stroke setting



TECHNICAL DATA

Order no.	5323220	5323221
Type	P2002 MA	P2002 TA
Measuring range	mm	± 1
Distance to upper stop	mm...mm	1.2 . . . 2.4
Distance to lower stop	mm...mm	-1.2 . . . 0
Lifter / retraction		Vacuum lifter
Measuring force	N	0.75 N +/-0.15 N
Increase in measuring force	N/mm	0.2 N/mm
Sensitivity deviation	%	0.3
Repeatability f_w	μm	0.1
Measuring value hysteresis f_u	μm	0.3
Error limit	μm	$0.1 + 0.8 \times L^3$
IP protection category		IP 64
Cable length	m	2.5
Temperature coefficient	$\mu\text{m}/^\circ\text{C}$	0.15
Compatibility		Mahr-VLDT Tesa

Order no.	a	b	c	d	e	f	h	i	j	k	l	m	Connection thread
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
5323220	88.7	28	21.3	6	9.2	8	14	26.5	3.6	9	8.3	12.5	M 2.5
5323221	88.7	28	21.3	6	9.2	8	14	26.5	3.6	9	8.3	12.5	M 2.5



FEATURES

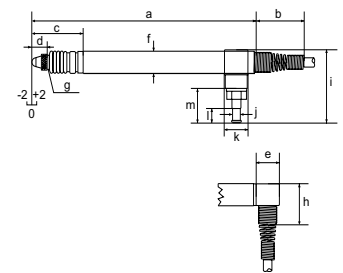
- Variant without and with pneumatic lifter or load
- Measuring pin mounted in rotary stroke bearing
- High linearity over the entire measuring range
- Excellent electromagnetic shielding (EMC)
- All probes can be easily converted from axial to radial by mounting a slip on cap, included in the scope of supply
- Chemical resistance data: resistant to oil, gasoline, water and aliphatic compounds. Moderately resistant to acids, bases, solvents and ozone
- **Package contains:** test certificate, instruction manual, cap for radial cable output, spanner for preliminary stroke setting



TECHNICAL DATA

Order no.	5323230	5323231
Type	P2002 MB	P2002 TB
Measuring range	± 1	
Distance to upper stop	1.2 ... 2.4	
Distance to lower stop	-1.2 ... 0	
Lifter / retraction	Compressed air retraction (max. 1 bar)	
Measuring force	Dependent on compressed air	
Sensitivity deviation	0.3	
Repeatability f_w	0.1	
Measuring value hysteresis f_u	0.3	
Error limit	0.1 + 0.8 x L ³	
IP protection category	IP 64	
Cable length	2.5	
Temperature coefficient	0.15	
Compatibility	Mahr-VLDT	Tesa

Order no.	a	b	c	d	e	f	h	i	j	k	l	m	Connection thread
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
5323230	88.7	28	21.3	6	9.2	8	14	26.5	3.6	9	8.3	12.5	M 2.5
5323231	88.7	28	21.3	6	9.2	8	14	26.5	3.6	9	8.3	12.5	M 2.5



ACCESSORIES

Order no.	For measuring instrument	Description	Type
5313419	P2002 MA, P2002 TA	Pneumatic foot switch for max. 4 probes	1340/1F
5313420	P2002 MA, P2002 TA	Pneumatic hand lifter for 1 probe	1340/1
5323130	P2002 MA, P2002 MB, P2002 M	Extension cable 2.5 m (Mahr VLDT)	C2025 M
5323131	P2002 T, P2002 TB, P2002 TA	Extension cable 2.5 m (Tesa)	C2025 T
5323140	P2002 MA, P2002 MB, P2002 M	Extension cable 5 m (Mahr VLDT)	C2050 M
5323141	P2002 T, P2002 TB, P2002 TA	Extension cable 5 m (Tesa)	C2050 T
5323150	P2002 MA, P2002 MB, P2002 M	Extension cable 7.5 m (Mahr VLDT)	C2075 M
5323151	P2002 T, P2002 TB, P2002 TA	Extension cable 7.5 m (Tesa)	C2075 T
5323160	P2002 MA, P2002 MB, P2002 M	Extension cable 10 m (Mahr VLDT)	C2100 M
5323161	P2002 T, P2002 TB, P2002 TA	Extension cable 10 m (Tesa)	C2100 T
7021546	P2002 T, P2002 MA, P2002 M, P2002 TA	Sealing bellows for probes with measuring spring	
7025505	P2002 T, P2002 MA, P2002 M, P2002 TA	Measuring spring 1.25 N	
7025579	P2002 T, P2002 MA, P2002 M, P2002 TA	Measuring spring 1.0 N	
7026827	P2002 T, P2002 MA, P2002 M, P2002 TA	Measuring spring 0.25 N	
7026828	P2002 T, P2002 MA, P2002 M, P2002 TA	Measuring spring 0.5 N	
7026849	P2002 T, P2002 MA, P2002 M, P2002 TA	Measuring spring 0.75 N	
7028220	P2002 TB, P2002 MB	Sealing bellows for probes with air retraction	

Simple, innovative, flexible – modern surface metrology to be used by hand

Mobile recording and evaluation of measuring data has never been this easy. The MarSurf M 410 is convenient and flexible to use – just like a modern smartphone. It has a practical touch display, an integrated PDF memory, innovative accessories, and can transfer data via Bluetooth – all of which effectively simplify your workload.

Benefit from functions that only Mahr can offer you. In addition to the practical and efficient design and the flexibility this offers, the MarSurf M 410 also has an automatic filter setting by detecting the surface structure. This automatic contacting also guarantees the unmatched reliability of your measurements. The magnetic 3-point holder for the probe arm and the freely combinable accessories offer additional process security.

Possible to separate the display and probe system

Optionally, you can use the measuring instrument as a mini mobile measuring station, for example by simply attaching the display to the wall using the supplied pivoted docking station.



Advantages

- Increased efficiency thanks to large integrated memory: More than 500,000 measuring programs and 1,500 PDF reports, can be expanded by 32 GB (microSD)
- Skidless probes ensure that the roughness and waviness can be measured without an additional measuring station being required – determination of R-, W-, and P-parameters
- Safe measuring results thanks to automated cutoff option
- Automatic zeroing ensures process and material safety
- IATF ready – simply activate/deactivate in the menu by automatically transferring the item and serial number of the measuring instrument
- Free MarCom software to transfer data



Magnetic probe holder

Probe arms can be changed quickly without tools and with additional protection: The magnetic 3-point holder ensures that the probe will not be broken in the event of a collision; it will simply be released by the magnetic holder.

Simple alignment of the probe system

The inclination is easy to correct via the menu-driven, graphic instructions.

Intuitive operation via touch display

Easy to operate just like a smartphone so that no training or introduction to the operating functions is required – you can just get started.

Creation of PDFs directly on the device

Practical: The device creates a complete PDF file without the need for additional software or transfer to a computer. Information can be added to the PDF files directly on the device.

Wireless data transmission

Connect your measuring instrument to a PC via Bluetooth and transfer your data wirelessly to Excel or another software application, for example.

Importing information using a scanner

Simply start your measuring program by scanning a QR or barcode. You do not need to enter any profile information as your saved measuring programs are linked with a corresponding code.



Flexible all-rounder **with various accessories**



Print directly, document easily

Measuring results in paper form? Despite sounding a little outdated, even in the digital age it is sometimes the fastest way to simply transfer data or documents. In this case, a mobile Bluetooth printer is the perfect addition to your MarSurf M 410. It will enable you to save your work results directly on thermal paper.



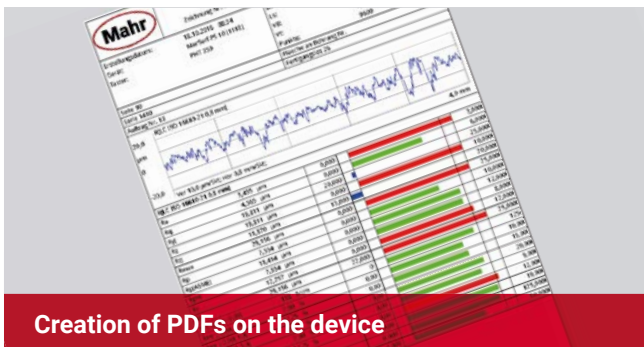
Scan measuring programs quickly and reliably

Save measuring programs and link them directly to a QR or barcode. Or scan additional profile information into your program. The barcodes or QR codes can be easily mapped onto a drawing or workpiece for this purpose. Saves time and avoids errors during measurement – a real benefit for your quality assurance.

Scope of delivery

Remain flexible, especially when taking measurements. In addition to various practical accessories, the MarSurf M 410 already comes with a comprehensive scope of delivery that is tailored to your requirements.

- Docking station
- Probe protection
- Thermal paper
- Sturdy hard case
- Mains adapter with three adapters



Creation of PDFs on the device

Avoid additional work steps. The practical PDF function enables the device to create a complete PDF file directly without the need for additional software or transfer to a computer. Information can be added to the PDF files directly on the device. This will not only save you time but will also eliminate any potential error sources (e.g., due to incorrect assignment).

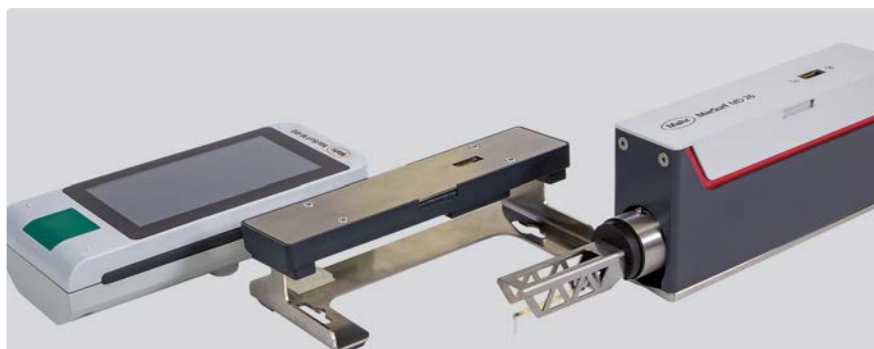


External control via mini USB port

In production lines the M 410 can, for example, be controlled remotely by ASCII commands via the mini USB port. This ensures that the quality can be checked on a continuous basis by the external software, which in addition to increasing the flexibility also guarantees an increased level of process safety.



Hard case including thermal paper



Docking station

MarSurf M 410

Mobile surface measuring instrument

FEATURES

Simple, innovative, flexible – modern surface metrology for handheld use

- Handy roughness tester for mobile use
- Simple and intuitive operation: As easy as operating a smartphone
- Large, backlit 4.3" TFT touch display
- Rotatable display
- Magnetic probe holder: Fast probe arm change without tools
- Thanks to skidless probe: measurements of roughness as well as waviness – no extra measuring station required, determination of R, W and P parameters
- Simple alignment of the probe system: The inclination can be easily corrected using the menu-guided graphic instructions.
- Process and material safety thanks to automatic zeroing
- Micro USB interface for remote control via ASCII commands, e.g. via software for statistical process control
- USB-A interface for connecting e.g. a USB Bluetooth adapter or the USB Bluetooth printer
- Wireless transmission of measurement results via Bluetooth stick to the free MarCom software
- Remote start of measurement via cable or Bluetooth
- Connection of a scanner for automatic start of the measuring programs or reading of protocol texts via barcode or QR code
- Specification of the profile section level C in μm or in % of Rz for the characteristic values Rmr and tp/li>
- Data backup as TXT, X3P, CSV and PDF file
- Transmission of measurement protocols and data optionally via Bluetooth or cable
 - IATF 16949 compliant secure traceability with MarConnect.
- Print directly to the mobile printer (as an option or directly in the set with printer)
- Creation of finished PDF protocols directly in the measuring device
- Customer-specific comments for the PDF log are entered directly on the MarSurf M 410
- MRK and ADK curve display and printing
- Measuring programs are saved (Quick & Easy)
- Mains-independent operation: over 1200 measurements without having to recharge the device
- Everything in the palm of your hand. Small size and low weight (approx. 500 g)
- Flexible device: Removable drive unit
- More than 50 parameters: Offer a performance range like a laboratory instrument.



Application:

Mechanical engineering

Bearings, shafts, racks, valves, various components from the engineering and precision mechanics industries

Automotive

Steering, brake systems, transmissions, crankshafts, camshafts, cylinder heads, cylinder blocks, turbochargers

Medical

Roughness measurement on hip and knee endoprotheses

Aerospace

Turbine components

Optics

Diverse optical components

TECHNICAL DATA

Order no.	6910290	6910291
IP protection category:		IP 40
Type		M 410
Parameters	Ra, Rq, Rz, Rz (JIS), Rz (Ry (JIS) entspr. Rz), Rmax, Rp, Rp (ASME), Rpm (ASME), Rv, R3z, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, RPC, Rmr (tp (JIS, ASME) entspr. Rmr), RSm, RS, Rdq, RSk, Rku, Rdc, RHtp, Pdc, Pa, Pt, PMr, Wa, Wq, WSm, WSk, Wt, CR, CF, CL, R, Ar, Rx, W, AW (MOTIF), Wx (MOTIF), Wte (MOTIF), NW (MOTIF), NCRX (MOTIF), CPM (MOTIF)	
Stylus	2 μm ; 5 μm	
Storage capacity	min. 3900 profiles, min. 500,000 results, min. 1500 PDF logs, expandable with microSD card up to 32 GB (increases storage capacity by a factor of 320)	
Languages	German, English, French, Italian, Spanish, Portugese, Dutch, Swedish, Russian, Polish, Czech, Japanese, Chinese, Korean, Hungarian, Turkish, Romanian	
Other	Lock/code word protection, date/time	
Data interface:	USB A, MarConnect (RS-232), Micro SD slot for SD / SDHC cards up to 32 GB	
Relative humidity	30 % to 85 %, non-condensing!	
System of protection	IP 40	
Rechargeable batteries	Li-Ion battery, 3.7 V, nominal capacity 11.6 Wh, min. 500 measurements	
Wide range power supply	100 to 264 V	
H x W x D	mm	198 mm x 77 mm x 97 mm
(L x W x H) for drive unit		194 mm x 38 mm x 72 mm
(L x W x H) for measuring instrument		162 mm x 77 mm x 35 mm
Measuring principle	tactile stylus method	
Probe	inductive skidless probe system	
Measuring range	mm	500 μm ($\pm 250 \mu\text{m}$) for probe arm length 45 mm to 1500 μm ($\pm 750 \mu\text{m}$) for probe arm length 135 mm
Filter according to ISO/JIS	Gaussian filter according to DIN EN ISO 16610-21, robust Gaussian filter according to DIN EN ISO 16610-31, special filter according to DIN EN ISO 13565-1, Is filter according to DIN EN ISO 3274 (can be switched off)	
Cutoff lc according to ISO/JIS	0.08 mm, 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	
Measuring force	N	0.00075
Measuring speed	0.1 mm/s; 0.5 mm/s; 1.0 mm/s	
Positioning speed	3 mm/s	
Weight drive unit	1120 g	
Weight measuring instrument	300 g	

- Quick access to your desired functions through favorites storage in the display
- Automatic cutoff selection: ensures correct measurement results even for the non-measuring technician
- Free software "MarWin EasyRoughness Viewer" for further documentation (statistics, multiple profiles and results on one page

etc.) available for download on the Mahr website.

Package contents:

- MarSurf M 410 operating unit
- Drive unit MD 26
- 1 standard probe arm BFW A 10-45-2/90°, standardized
- Docking station for operating unit
- Probe protection

- Built-in rechargeable battery
- Charger / 3 mains adapters
- Height adjustment (integrated)
- USB cable
- Extension cable for drive unit (length 1.2 m)
- Operating instructions

MarSurf M 410

Mobile surface measuring instrument

ACCESSORIES

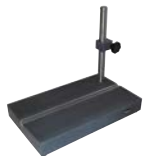
Order no.	Description	Type
6910271	Printer set for MarSurf M 310, MarSurf M 410 and Digmar 817 CLT	DP-B1
4102603	Data cable USB bidirectional (2 m)	DK-U1
3028620	USB 2D scanner Honeywell Xenon 1900	Handset scanner cable
3003856	USB Bluetooth adapter	USB BT
3028820	2D scanner Bluetooth Zebra DS2278	Handset scanner BT
6852403	Probe arm	BFW
6910294	Measuring stand mount MD 26	
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
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
4413000	Measuring tripod with triangular pedestal 300 mm	815 GN
4413001	Measuring tripod with triangular pedestal 500 mm	815 GN
4413005	Measuring tripod with triangular pedestal 750 mm	815 GN
4416000	Measuring tripod with magnetic base	815 MA
6299436	software MarWin EasyRoughness mobile	M 310 PC
6299443	Software	Software
6910240	Protective films for LCD, real glass (3 pieces)	SF LCD
6850500	Magnetic fixture PS 10 / M 310	MH
680000DKS	Geometric standard, sinusoidal profile	MGs 1
680000KAL	Geometric standard, sinusoidal profile	MGs 1
680001DKS	Geometric standard, sinusoidal profile	MGs 3
680001KAL	Geometric standard, sinusoidal profile	MGs 3
680002DKS	Geometric standard, sinusoidal profile	MGs 10
680002KAL	Geometric standard, sinusoidal profile	MGs 10
6820901DKS	Roughness standard	MRS 1,5
6820901KAL	Roughness standard	MRS 1,5
6820903DKS	Roughness standard	MRS 3
6820903KAL	Roughness standard	MRS 3



ST-D



ST-F



ST-G



814 Sh



814 SR



109 PS

Clever combination: High performer for surface measurements

Combine the new MarSurf M 410 with the tried and tested MarWin EasyRoughness software and use it as a drive unit for your surface measurements. This extends the measuring spectrum by many parameters enabling you to complete even more comprehensive evaluations.

This combines the handiness of the MarSurf M 410 with the wider range of software functions.

The measuring instrument can be easily connected to the computer by cable or Bluetooth wireless technology. The MarWin EasyRoughness software is your first choice for all MarSurf applications thanks to its versatile customization and design options, and comprehensive functions thus providing you with functions to cut profiles, export data, complete multiple measurements, and much more.



Advantages

- Numerous functions already included in the software, such as cutting profiles, exporting data, and completing multiple measurements
- Software can be expanded to include a variety of options, such as "OS-STAT", "Digital I/O", or "Profile processing"
- User administration for logging on and administering users with different rights
- Automatic export of profile files, results files, and records in PDF format
- Interactive zoom to specify a profile section to be evaluated and recalculate selected parameters



Highlights at a glance

Multiple measurement

Measurement of twin contours and multiple measurements with segmentations. Depending on the drive unit selected and the measuring stand, it is possible to perform an automatic zenith search, implement absolute and relative positioning, and program automatic processes. The software provides a measuring station view with operating messages and sometimes photos between measurements.

Profile processing

This function makes it possible to process profiles, such as cutting out valleys or peaks, simulating spheres, mirroring profiles, rotating profiles, adding ranges, or merging two or more profiles into a new one. In addition, edge filters hide topics that should not be evaluated.

Virtual rulers

Interactive setting of distances in X and Z direction in the profile field make it possible to view defined profile sections.

Start program sequences using function keys

Simply click to activate results, profiles, globally standardized parameters, and characteristic curves. They can then simply be output in the record. The entries can be selected directly from the "Surface parameters", "Evaluation", "Measuring record", and "Record preview" tabs, making the system quick and easy to use.



MarSurf M 410 / MD 26 with Software Easy Roughness

Mobile surface measuring instrument

FEATURES

- Handy roughness tester for mobile use
- Magnetic probe holder: Fast probe arm change without tools
- Thanks to skidless probe: measurements of roughness as well as waviness – no extra measuring station required, determination of R, W and P parameters
- Connection of a scanner for automatic start of the measuring programs or reading of protocol texts via barcode or QR code
- More than 80 parameters for R, P, W profiles according to current standard ISO/JIS or MOTIF (ISO 12085)
- Bandpass filter Ls according to current standard, Ls can also be switched off or freely varied
- Extensive logging
- Quick & Easy measuring programs can be created quickly in the learning procedure
- Automatic function for standard-compliant selection of cutoff and scanning distance
- Support of different calibration methods (static and dynamic) with presetting of the parameter Ra or Rz
- Adjustable maintenance and calibration intervals
- Many measuring station configurations are possible for individual applications
- Flexibility of the system through various options
- Different user levels protect against incorrect operation of the device and ensure that no unauthorized users can use the device

Package contents:

- MarSurf M 410 operating unit
- Drive unit MD 26
- 1 standard probe arm BFW A 10–45–2/90°, standardized
- Docking station for operating unit
- Probe protection
- Built-in rechargeable battery
- Charger / 3 mains adapters
- Height adjustment (integrated)
- USB cable
- Extension cable for drive unit (length 1.2 m)
- Software MarWin EasyRoughness mobile
- Operating instructions



TECHNICAL DATA

Order no.	6910290 + 6299436	6910292 + 6299436
Type	M 410 + Software Easy Roughness	MD 26 + Software Easy Roughness
Stylus		2 µm; 5 µm
Rechargeable batteries		Li-Ion battery, 3.7 V, nominal capacity 11.6 Wh, min. 1200 measurements
(L x W x H) for drive unit		194 mm x 38 mm x 72 mm
Measuring principle		skidless probe system
Probe		inductive skidless probe system
Measuring range	mm	500 µm (±250 µm) for probe arm length 45 mm to 1500 µm (±750 µm) for probe arm 135 mm
Filter according to ISO/JIS		Gaussian filter according to DIN EN ISO 16610–21, robust Gaussian filter according to DIN EN ISO 16610–31, special filter according to DIN EN ISO 13565–1, Ls filter according to DIN EN ISO 3274 (can be switched off)
Cutoff lc according to ISO/JIS		0.08 mm, 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		variable
Measuring force	N	0.0007
Measuring speed		0.1 mm/s; 0.5 mm/s; 1.0 mm/s
Positioning speed		3 mm/s
Weight drive unit		1120 g

Application:

Mechanical engineering

Bearings, shafts, racks, valves, various components from the engineering and precision mechanics industries

Automotive

Steering, brake systems, transmissions, crankshafts, camshafts, cylinder heads, cylinder blocks, turbochargers

Medical

Roughness measurement on hip and knee endoprostheses

Aerospace

Turbine components

Optics

Diverse optical components

MarSurf M 410 / MD 26 with Software Easy Roughness

Mobile surface measuring instrument

ACCESSORIES

Order no.	Description	Type
6910271	Printer set for MarSurf M 310, MarSurf M 410 and Digmar 817 CLT	DP-B1
4102603	Data cable USB bidirectional (2 m)	DK-U1
3028620	USB 2D scanner Honeywell Xenon 1900	Handset scanner cable
3003856	USB Bluetooth adapter	USB BT
3028820	2D scanner Bluetooth Zebra DS2278	Handset scanner BT
6852403	Probe arm	BFW
6910294	Measuring stand mount MD 26	
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
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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
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4413005	Measuring tripod with triangular pedestal 750 mm	815 GN
4416000	Measuring tripod with magnetic base	815 MA
6299443	Software	Software
6910240	Protective films for LCD, real glass (3 pieces)	SF LCD
6850500	Magnetic fixture PS 10 / M 310	MH
6800000DKS	Geometric standard, sinusoidal profile	MGS 1
6800000KAL	Geometric standard, sinusoidal profile	MGS 1
6800001DKS	Geometric standard, sinusoidal profile	MGS 3
6800001KAL	Geometric standard, sinusoidal profile	MGS 3
6800002DKS	Geometric standard, sinusoidal profile	MGS 10
6800002KAL	Geometric standard, sinusoidal profile	MGS 10
6820901DKS	Roughness standard	MRS 1,5
6820901KAL	Roughness standard	MRS 1,5
6820903DKS	Roughness standard	MRS 3
6820903KAL	Roughness standard	MRS 3
6910205	Software	SW PS1/ M300 Explorer



ST-D



ST-F



ST-G



814 Sh



814 SR



109 PS

Automated measurements with robot loading

You requested and we have responded: Our department Mahr Engineered Solutions (MES) has developed a cost-effective solution to automate recurring measurements. A collaborative robot loads measuring stations into the measuring room or close to the production area without the need for an operator, thus significantly increasing the efficiency of your measuring station and drastically reducing the overall costs.

The new solution was first implemented on a MarSurf contour and roughness measuring station. It is particularly useful for you if you wish to check a high number of recurring workpieces on a continuous and prompt basis. The system has a workpiece store that comprises removable magazines which contain the parts to be measured. The MarSurf measuring station is positioned on the workpiece store, while a robotic arm is attached to the side so that it can easily access the magazines. The robotic arm then positions the removed component on the workpiece holder of the MarSurf device and the measurement starts automatically. Once the measurement has been completed successfully, the robot returns the part back to the workpiece store.

We are currently designing the robot for MarSurf configurations. However, in future it is also conceivable that it could be implemented for other measuring stations, such as form measurements using our MarForm MMQ range. By the way, the solution is not just suitable for new Mahr systems, you can also upgrade existing devices with it.

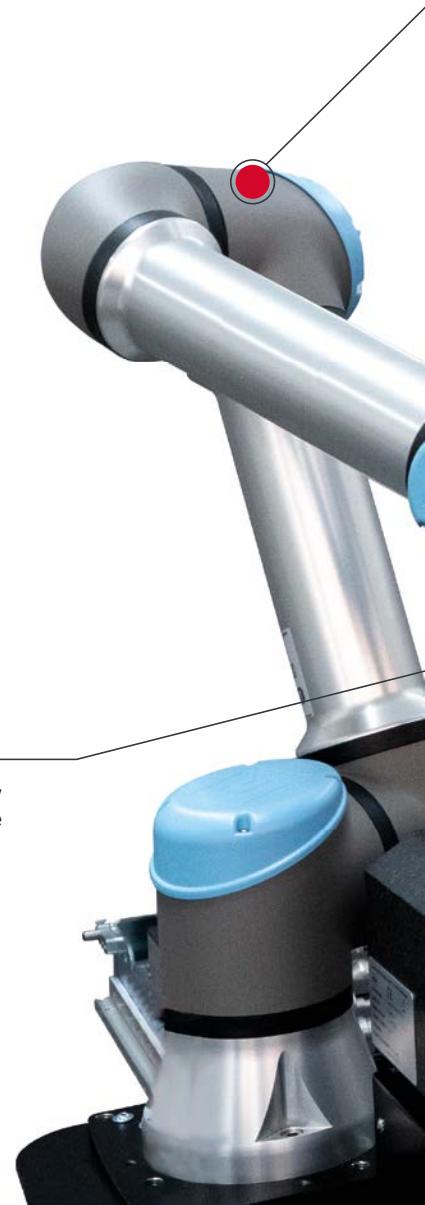


Advantages

- Cost-effective and standardized solution for pallet measurements
- Same amount of space required as a standard measuring station
- No personnel requirements, except to load the magazines
- Increased service life of the measuring instrument even with three-shift operation
- Simultaneous loading and measuring possible depending on the application
- Robot can simply be reprogrammed for other workpieces, ensuring it can be used flexibly

Automatic sequence

The robotic arm automatically positions a component for the measurement.





Automatic workpiece removal

The robot removes a component from the workpiece magazine using a gripper that was produced using a 3D printer to fit accurately.

Flexible applications

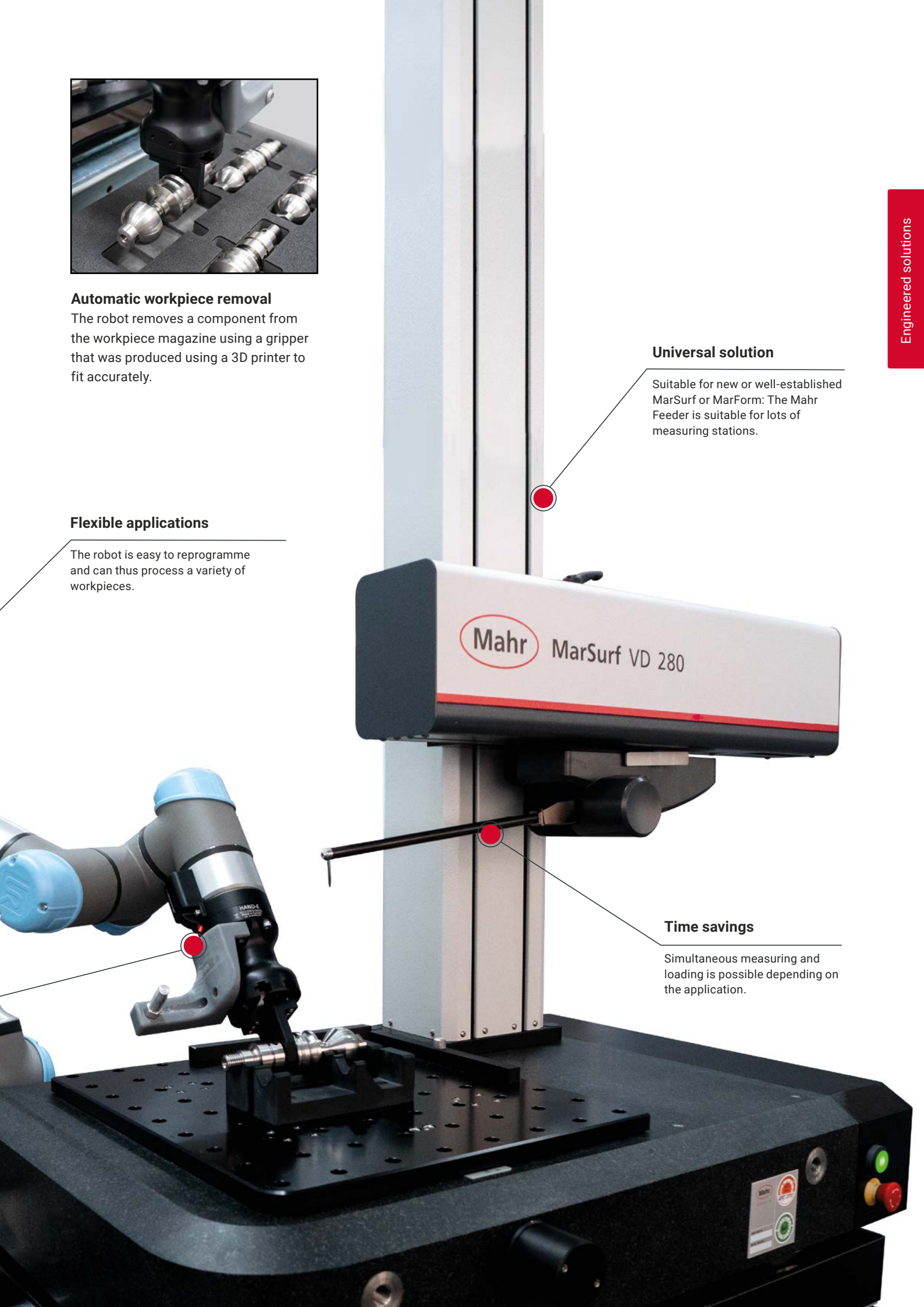
The robot is easy to reprogramme and can thus process a variety of workpieces.

Universal solution

Suitable for new or well-established MarSurf or MarForm: The Mahr Feeder is suitable for lots of measuring stations.

Time savings

Simultaneous measuring and loading is possible depending on the application.



Fast and precise **measure- ment during production**

The cylinder coordinate measuring machines from the Mar4D PLQ product range measure rotationally symmetrical workpieces with more flexibility and more conveniently than ever before. They also operate at the highest speed and level of precision providing fast and reliable measuring results.

The Mar4D PLQ 4200-T2 and Mar4D PLQ 4200-T4 variants offer high-performance measurement solutions for complex rotationally symmetrical workpieces. The multisensor technology covers a particularly broad range of dimensional measuring tasks. The machines also have a particularly sturdy design enabling measurements to be completed directly during production, providing you with shorter processing times and thus increasing your throughput and productivity rates extraordinarily. They are also equipped with a motorized tailstock enabling them to also adjust workpieces between the centering tips. The equipment provided as standard includes a C-axis measuring machine. This machine guarantees highly accurate roundness and radial runout measurements with deviations of <40 nm.



Advantages

- Future-proof thanks to combined measuring technology: optical and tactile solution in one machine
- Versatile: Inspection of several features including the length, diameter, form, position, contour, roundness, roughness, or 3D geometries, such as the symmetry, during a single measuring run.
- Fast and precise: Unique speed and optimum axis accuracy even as the tolerances become smaller achieved thanks to specially developed control architecture
- Ergonomic operation and unique safety concept





Mar4D | PLQ 4200-T4

Unique centering and tilting table: A guarantee of precision and speed

The outstanding equipment feature of the Mar4D PLQ 4200-T4 model is the fully automated centering and tilting table that we have newly developed. It aligns workpieces, that are not manufactured and measured between two tips, in the shortest amount of time and with an accuracy of micrometers, for example from 4 mm to 1 µm in just 30 seconds. This completely arithmetic method of correcting alignment errors is thus far superior.

Comparison of Mar4D PLQ models

Model	Axes	Sensor technology	Motorized tailstock	Centering and tilting table	Workpiece size
Mar4D PLQ 4200-T2	C, X1, X2, Z	optical, tactile	x		Ø 200 mm length 730/1,000 mm 20/50 kg
Mar4D PLQ 4200-T4	C, X1, X2, Z	optical, tactile	x	x	Ø 200 mm length 450 mm 20/50 kg

Process reliability when measuring

Monitoring systems in the machine record and compensate for external influences in real time, such as temperature and vibration.

More secure

The motorized tailstock with clamping force monitor secures the workpieces mounted in the centering tips perfectly in alignment without operator intervention.

Versatile

The multisensor technology of the Mar4D PLQ 4200-T2/T4 enables the measurement of various rotationally symmetrical workpieces directly during production.

Reliable software

Thanks to its clearly structured user interface, the MarWin platform software is very user friendly: learn once, apply again and again.

Ergonomic design

The sophisticated mechanical engineering guarantees easy and safe operation.



<https://metrology.mahr.com/en/mar4d-plq>

A variety of products for numerous industries

For more than 160 years the name "Mahr" has stood for modern technology, maximum precision and pioneering inventions. Today, the Mahr Group is a global operation, supporting customers in a wide range of industrial segments. A long-term focus is key to reliable, high-quality products, and sustainable customer relations. Close cooperation with our customers leads to a comprehensive understanding of the special requirements and technical challenges associated with these industries.

7
Industries



Automotive



Aviation



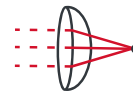
Electronics



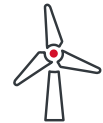
Machines &
Tools



Medical



Optics



New Energies

More than

20

Product groups

Whatever the measuring task you are facing, the right measuring technology will help you tackle the most complex applications. Take advantage of Mahr's full range of measuring technology: We have everything you need in over 20 different product groups, from manual calipers to customized fully-automated, robot-controlled measuring stations.

For

160 years

premium quality by Mahr



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