New Products 2018

DIMENSIONAL METROLOGY NEW PRODUCTS

- 0 +

Mahr

EXACTLY

To ensure that you are always up-to-date,
Mahr continuosly invests in new developments.

That is what EXACTLY means to us!

MarSurf CD SERIES
CONTOUR MEASUREMENT IN A NEW DIMENSION

- Innovative workpiece mount
- Fast measurments
- Automatic probe arm recognition

That is what EXACTLY means to us!

INDEX

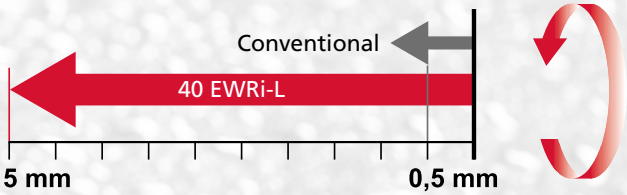
Micromar. The digital Micrometer Micromar 40 EWRi-L

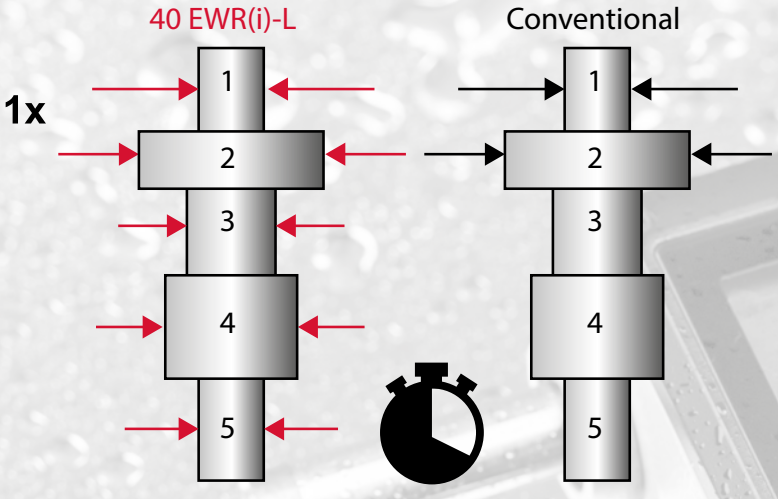
Waterproof Micrometer with Integrated Wireless with sliding quick adjusment

Considerably shortened measuring times by quick adjustment

The spindle makes a measuring way of 5 mm in a single turn. The 10 times faster spindle speed, compared to conventional micrometers, significantly reduces the measuring times.

The non-rotating spindle has a touching touch, which can prevent scratch marks on sensitive and finely machined surfaces.





Large freedom of movement

MarConnect integrated wireless

Integrated Wireless clearly gives you more freedom of movement. When used with a digital micrometer in conjunction with a indicating measuring instruments, for example when measuring on or at the machine or with large workpieces you are not obstructed by any cables.

Security due to the LOCK function

The digital micrometer Micromar 40 EWRi Reference is equipped with a LOCK function. With this keylock the zero position is secured and operating error is avoided.

With the integrated wireless interface and the free software MarCom, it's posibile features also be locked individually.

Egonomic design

The most compact measuring screw with quick adjustment

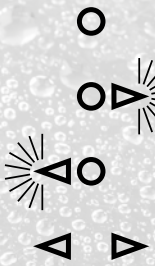
- Best ergonomics for one-handed operation
- Largest display of your class!
- Read out without error, even under unfavorable conditions light

Unrestricted use

IP65 Excellent resistance against dust, coolants and lubricants

Code Initials	IP	International Protection
First digit	6	Dustproof
Second digit	5	Protected against powerful water jets

Timely detection of manufacturing deviations
Tolerance function with warning limits

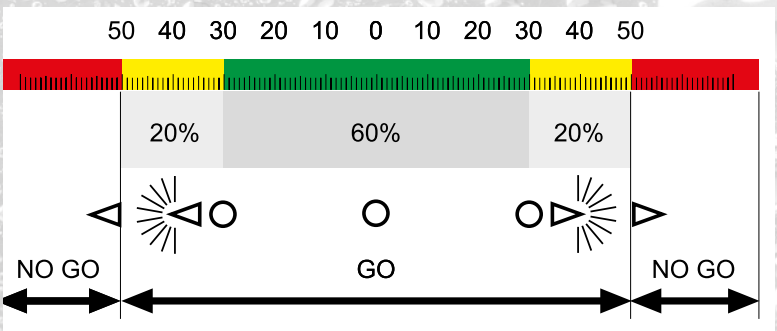


Measured value within tolerance limits

Warning limit: flashing arrow, if upper warning limit is reached

Warning limit: flashing arrow, if lower warning limit is reached

Measured value out of tolerance

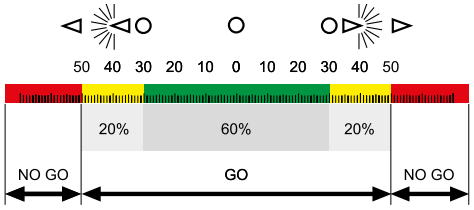


Micromar 40 EWRi-L. Digitale Bügelmessschraube

Functions

- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
- LOCK function (key lock)
- TOL (Tolerance and warning limits)
- DATA (data transmission via connection cable)
- HOLD (storage of measured values)

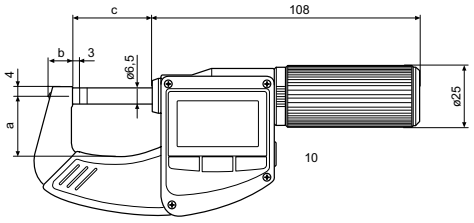
- Quick adjustment (5 mm per turn)
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Ratchet is integrated in the thimble
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** Integrated wireless
- **Energy supply:** Battery life approx. 2 years (approx. 0.5 in wireless mode)
- **IP protection category:** IP 65
- **Package contains:** instruction manual, battery, setting standard (measuring range of 25–50 mm), case



Technical Data

Order no.	Product type	Measuring range	Resolution	Error limit	Parallelism	Flatness	Spindle thread pitch	Measuring force	Standard
		mm	mm/inch	µm	µm	µm	mm	N	
4157120	40 EWRi-L	0 –25	0,001 / .00005"	2	2	0,6	5	5 –10	Factory standard
4157121	40 EWRi-L	25 –50	0,001 / .00005"	2	2	0,6	5	5 –10	Factory standard
4157122	40 EWRi-L	50 –75	0,001 / .00005"	3	3	0,6	5	5 –10	Factory standard
4157123	40 EWRi-L	75 –100	0,001 / .00005"	3	3	0,6	5	5 –10	Factory standard

Order no.	a	b	c
	mm	mm	mm
4157120	24	9,5	32
4157121	36	11	57
4157122	45	13	82
4157123	57	13	107



Accessories

Order no.	Product description	Product type
4102220	Receiver	i-Stick
4102520	Battery 3 V, CR 2032	
4158000	Stand, for holding outside micrometers	41 H

Micromar 40 EWR-L. Digitale Bügelmessschraube

Functions

- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
- LOCK function (key lock)
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- DATA (data transmission via connection cable)
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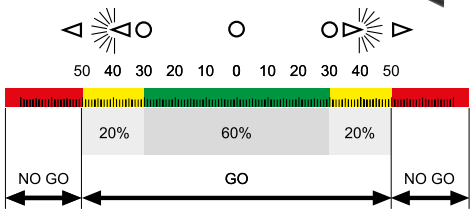
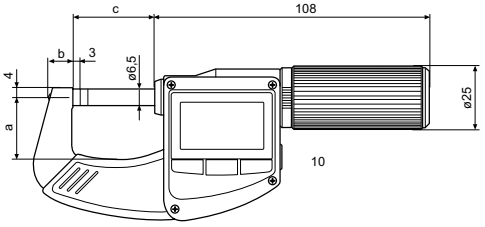
- Quick adjustment (5 mm per turn)
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marco**m (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** USB, Digimatic
- **Energy supply:** Battery life approx. 2 years
- **IP protection category:** IP 65
- **Package contains:** battery, instruction manual, setting standard (measuring range of 25–50 mm), case



Technical Data

Order no.	Product type	Measuring range	Resolution	Error limit	Parallelism	Flatness	Spindle thread pitch	Measuring force	Standard
		mm	mm/inch	µm	µm	µm	mm	N	
4157020	40 EWR-L	0 –25	0,001 / .00005"	2	2	0,6	5	5 –10	Factory standard
4157021	40 EWR-L	25 –50	0,001 / .00005"	2	2	0,6	5	5 –10	Factory standard
4157022	40 EWR-L	50 –75	0,001 / .00005"	3	3	0,6	5	5 –10	Factory standard
4157023	40 EWR-L	75 –100	0,001 / .00005"	3	3	0,6	5	5 –10	Factory standard

Order no.	a	b	c
	mm	mm	mm
4157020	24	9,5	32
4157021	36	11	57
4157022	45	13	82
4157023	57	13	107



Accessories

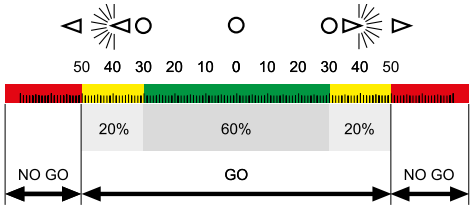
Order no.	Product description	Product type
4102520	Battery 3 V, CR 2032	
4102603	Data cable USB bi-directional (2 m)	DK-U1
4102606	Digimatic data cable (2 m)	DK-D1
4158000	Stand, for holding outside micrometers	41 H

Micromar 40 EWRi. Digital Micrometer

Functions

- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
- LOCK function (key lock)
- TOL (Tolerance and warning limits)
- DATA (data transmission)
- HOLD (storage of measured values)

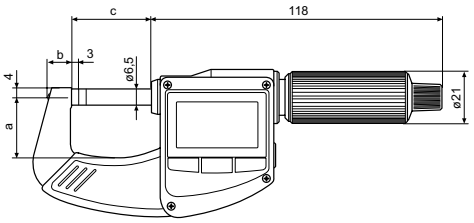
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Rapid drive
- Ratchet is integrated in the thimble
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** Integrated wireless
- **Energy supply:** Battery life approx. 2 years (approx. 0.5 in wireless mode)
- **IP protection category:** IP 65
- **Package contains:** instruction manual, battery, setting standard (measuring range of 25–50 mm), case



Technical Data

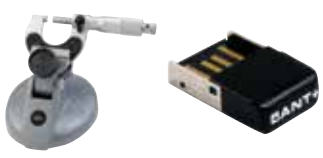
Order no.	Product type	Measuring range	Resolution	Error limit	Parallelism	Flatness	Spindle thread pitch	Measuring force	Standard
		mm	mm/inch	µm	µm	µm	mm	N	
4157100	40 EWRi	0 –25	0,001 / .00005"	2	2	0,6	0,5	5 –10	Factory standard
4157101	40 EWRi	25 –50	0,001 / .00005"	2	2	0,6	0,5	5 –10	Factory standard
4157102	40 EWRi	50 –75	0,001 / .00005"	3	3	0,6	0,5	5 –10	Factory standard
4157103	40 EWRi	75 –100	0,001 / .00005"	3	3	0,6	0,5	5 –10	Factory standard
4157104	40 EWRi	100 –125	0,001 / .00005"	6	3	0,6	0,5	5 –10	DIN 863–1
4157105	40 EWRi	125 –150	0,001 / .00005"	6	3	0,6	0,5	5 –10	DIN 863–1
4157106	40 EWRi	150 –175	0,001 / .00005"	7	4	0,6	0,5	5 –10	DIN 863–1
4157107	40 EWRi	175 –200	0,001 / .00005"	7	4	0,6	0,5	5 –10	DIN 863–1

Order no.	a	b	c
	mm	mm	mm
4157100	24	9,5	32
4157101	36	11	57
4157102	45	13	82
4157103	57	13	107
4157104	73	13	132
4157105	82	13	157
4157106	95	13	182
4157107	106	13	207



Accessories

Order no.	Product description	Product type
4102220	Receiver	i-Stick
4102520	Battery 3 V, CR 2032	
4158000	Stand, for holding outside micrometers	41 H



Micromar 40 EWR. Digital Micrometer

Functions

- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
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- HOLD (storage of measured values)

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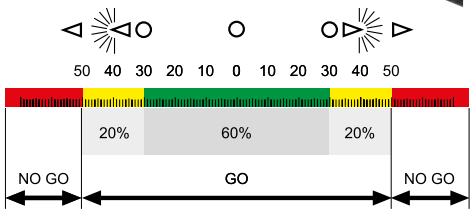
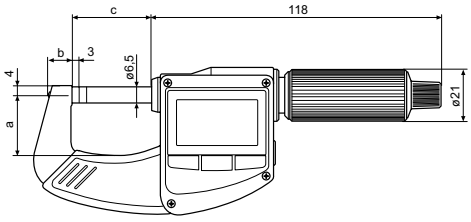


Technical Data

Order no.	Product type	Measuring range	Resolution	Error limit	Parallelism	Flatness	Spindle thread pitch	Measuring force	Standard
		mm	mm/inch	µm	µm	µm	mm	N	
4157000	40 EWR	0 –25	0,001 / .00005"	2	2	0,6	0,5	5 –10	Factory standard
4157001	40 EWR	25 –50	0,001 / .00005"	2	2	0,6	0,5	5 –10	Factory standard
4157002	40 EWR	50 –75	0,001 / .00005"	3	3	0,6	0,5	5 –10	Factory standard
4157003	40 EWR	75 –100	0,001 / .00005"	3	3	0,6	0,5	5 –10	Factory standard
4157004	40 EWR	100 –125	0,001 / .00005"	6	3	0,6	0,5	5 –10	DIN 863–1
4157005	40 EWR	125 –150	0,001 / .00005"	6	3	0,6	0,5	5 –10	DIN 863–1
4157006	40 EWR	150 –175	0,001 / .00005"	7	4	0,6	0,5	5 –10	DIN 863–1
4157007	40 EWR	175 –200	0,001 / .00005"	7	4	0,6	0,5	5 –10	DIN 863–1

Order no.	a	b	c
	mm	mm	mm
4157000	24	9,5	32
4157001	36	11	57
4157002	45	13	82
4157003	57	13	107
4157004	73	13	132
4157005	82	13	157
4157006	95	13	182
4157007	106	13	207



Accessories

Order no.	Product description	Product type
4102520	Battery 3 V, CR 2032	
4102603	Data cable USB bi-directional (2 m)	DK-U1
4102606	Digimatic data cable (2 m)	DK-D1
4158000	Stand, for holding outside micrometers	41 H

Micromar 40 EWR. Digital Micrometer

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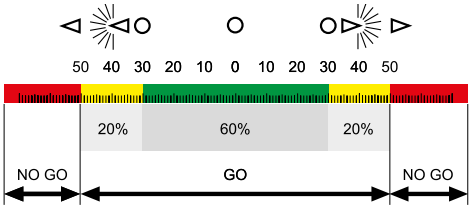
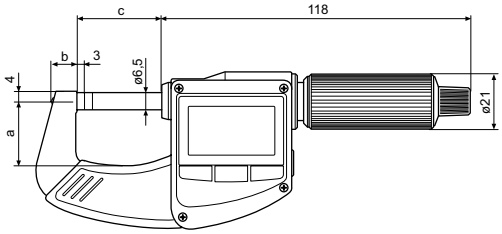
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** USB, Digimatic
- **Energy supply:** Battery life approx. 2 years
- **IP protection category:** IP 65
- **Package contains:** instruction manual, battery, setting values, case



Technical Data

Order no.	Product type	Measuring range	Resolution	Spindle thread pitch	Measuring force	Standard	Number of micro-meters
		mm	mm/inch	mm	N		
4157015	40 EWR	0 –100	0,001 / .00005"	0,5	5 –10	Factory standard	4



Accessories

Order no.	Product description	Product type
4102520	Battery 3 V, CR 2032	
4102603	Data cable USB bi-directional (2 m)	DK-U1
4102606	Digimatic data cable (2 m)	DK-D1
4158000	Stand, for holding outside micrometers	41 H

MarTest 800 S-R / 800 SG-R. Test indicators with ruby stylus

Standard model

- High-contrast dial face, sealed with O-ring
- Mineral glass viewing panelfor best protection against cracking, scratching, hot shavings and optimal resistance to solvents
- Matt chrome plated protective casing with three integrated dovetail guide rails
- Shockproof measuring mechanism
- Anti-magnetic model
- Automatic adjustment to the contacting direction ensures infallible readings
- Ball bearing mounted double lever
- Friction clutch overload protection
- **Package contains:** case, instruction manual, spanner for changing the styli, stylus dia. ø 2 mm, mounting shaft 800a8

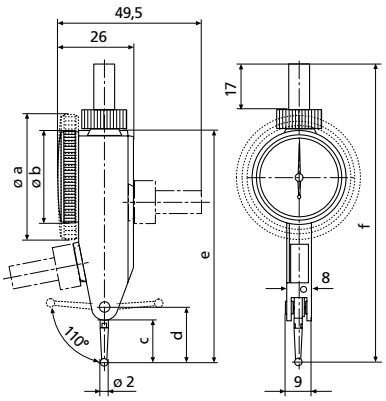
Application:

- Measurement of concentricity, alignment, parallelism and flatness
- Centering of bores and shafts
- Parallel or perpendicular alignment of work pieces

Technical Data

Order no.		4305205	4307205
Product type		800 S-R	800 SG-R
Measuring range	mm	± 0,4	
Readings	mm	0,01	
Measuring surface		Ruby	
Scale diameter	mm	28	38
Type of dial face		40–0–40	
Dial color		yellow	
Measuring force	N	0,15	
Range per rev.	mm	0,8	
Span of error f_e	µm	10	
Total span of error f_{ges}	µm	13	
Hysteresis f_u	µm	3	
Local span f_t	µm	5	
Repeatability f_w	µm	3	
Standard		DIN 2270	

Order no.	a	b	c	d	e	f	Stylus length
	mm	mm	mm	mm	mm	mm	mm
4305205		30	13,6	17,8	75	99	14,5
4307205	40,5		13,6	17,8	75	99	14,5



MarTest 800 SGM-R. Test indicators with ruby stylus

For high-precision measurements

- High-contrast dial face, sealed with O-ring
- Mineral glass viewing panelfor best protection against cracking, scratching, hot shavings and optimal resistance to solvents
- Matt chrome plated protective casing with three integrated dovetail guide rails
- Shockproof measuring mechanism
- Anti-magnetic model
- Automatic adjustment to the contacting direction ensures infallible readings
- Ball bearing mounted double lever
- Friction clutch overload protection
- **Package contains:** case, instruction manual, spanner for changing the styli, stylus dia. ø 2 mm, mounting shaft 800a8

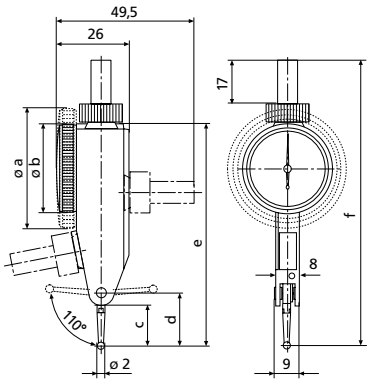
Application:

- Measurement of concentricity, alignment, parallelism and flatness
- Centering of bores and shafts
- Parallel or perpendicular alignment of work pieces
- Ruby stylus are used for measurments on surfaces which are sensitive against scratches
- Ruby stylus are ideal for use on erosion machines, as the ruby is not electrically conductive

Technical Data

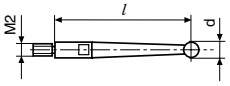
Order no.		4308205
Product type		800 SGM-R
Measuring range	mm	± 0,1
Readings	mm	0,002
Measuring surface		Ruby
Scale diameter	mm	38
Type of dial face		100–0–100
Dial color		yellow
Measuring force	N	0,15
Range per rev.	mm	0,2
Span of error f_e	µm	3
Total span of error f_{ges}	µm	4
Hysteresis f_u	µm	2
Local span f_t	µm	2
Repeatability f_w	µm	1,5
Standard		DIN 2270

Order no.	a	c	d	e	f	Stylus length
	mm	mm	mm	mm	mm	mm
4308205	40,5	13,6	17,8	75	99	14,5



Accessories

Order no.	Product description	Product type
4305870	Stylus ø 1,0 mm, Carbide, l = 14,5 mm	800 ts
4305850	Stylus ø 2,0 mm, Carbide, l = 14,5 mm	800 ts
4305871	Stylus ø 3,0 mm, Carbide, l = 14,5 mm	800 ts
4309051	Stylus ø 2,0 mm, Ruby, l = 14,5 mm	800 tsr
4305868	Spanner	



Millimar C 1700 PC. Gaging computer

- Interactive, touch-capable Software
- Simple and intuitive user interface
- Userfriendly setup of measuring tasks
- Simple operation via predefined formulas for most common features
- Management of measuring tasks
- Assignment of pictures or drawings per measuring task
- Static and dynamic measurements
- Supported by graphical control elements
- Live-indication of measuring values and features
- Digital and Analog displays for simultaneous indication of up to 128 features
- Connection of Millimar N 1700 modules in combination with inductive probes as well as Mahr instruments with data interface
- Connection of Mahr instruments with Integrated-Wireless
- Data export in MS-Excel or in qs-Stat-format (dfq, dfx or dfd-format)
- Password protected user levels (3 levels)
- Online-help (operating instruction) integrated in Cockpit software
- **Package contains:** Millimar Cockpit software incl. 10,1" Touch-PC, preinstalled Windows 10 IoT Enterprise, Mahr license key, installation disk, recovery-Stick 16 GB, operating instructions (online help), power source, VESA 100 standard stand

Application:

Comfortable measuring computer with an smart and universell applicable software for complex measuring tasks in the production area

Technical Data

Order no.		5312801
Product type		C 1700 PC
Display		Vertical bar graph Horizontal bar graph Analog display or round scale Digital display Any combination of display types can be chosen for each feature
Range of analog display	µm	± 10000, ± 5000, ± 2000, ± 1000, ± 500, ± 200, ± 100, ± 50, ± 20, ± 10
Resolution	µm	0,01
Length units		mm, µm, inch
Angle units		degrees, radians
Tolerance display		Upper and lower tolerance limit (per feature) Upper and lower warning limit (per feature)
Compatibility		USB, Integrated wireless, Millimar N 1700
Measuring combination		Predefined formula templates for standard features Links entered via comprehensive formula editor
Features		128
Feature types		Length, Angle, dimensionless
Dynamic functions		MAX, MIN, MAX-MIN, MAX+MIN
Classification		max. 20 classes
Measuring range	mm	Dependent on measuring instrument
Number of connectable wireless receivers for i-Stick		1
Number of connectable measuring instruments with integrated wireless		8
Number of connectable measuring instruments with USB interface		64
Data export		qs-Stat, Excel
Languages:		German, English, Chinese, French, Russian, Czech
System requirements:		2 free USB 2.0 interfaces
Hardware interfaces		1x USB 3.0, 3x USB 2.0, 2x COM port Full-PIN (RS232/485; 5V/12V), 2x COM 2x COM port 3-PIN (RX, TX, GND; RS232/485 switchable), 2× 10/100/1000Mbit RJ45 Ports; 2x W-LAN connector, VGA, Display port
Energy supply:		100–240V ACDC active switching; 12V DC-Out
IP protection category:		IP 65 (Front Panel)

Accessories

Order no.	Product description	Product type
5312802	Software option: Measure History	Cockpit
5331130	USB connecting module	N 1701 USB
5331120	Module for inductive probes	N 1702 M
5331133	Power supply module	N 1701 PS
5331134	I/O module	N 1704 I/O
4102220	Receiver	i-Stick
4102357	16 EXu Data connection cable USB (2 m)	16 EXu
4346023	2000 USB Data connection cable USB (2 m)	2000 USB
4102331	Millimar - USB Adapter cable RS232-USB (0,2 m)	Millimar - USB

Millimar Cockpit. Measuring software

- Interactive, touch-capable software
- Very simple and intuitive to use
- User-friendly creation of measuring tasks
- Access to predefined formula templates for maximum ease of use
- Management of measuring tasks (save and load function)
- Measuring task linked to images or drawings
- Static and dynamic recording of measuring values
- Supported by graphical operating elements
- Live visualization of measured values
- Simultaneous digital and analog displays of up to 128 features
- Connection of Millimar N 1700 modules in combination with inductive probes as well as Mahr measuring instruments with data interface
- Connection of Mahr measuring instruments via Integrated Wireless
- Data export in MS Excel or qs-Stat format (dfq or dfx/dfd format)
- Password-protected user levels (3 levels)
- Online help (operating instructions) can be accessed directly from the software
- **Package contains:** Mahr license key, installation disk, operating instructions (online help)

Application:

Smart, universal software for complex measuring tasks in the manufacturing sector

Technical Data

Order no.		5312800
Product type		Cockpit
Display		Vertical bar graph Horizontal bar graph Analog display or round scale Digital display Any combination of display types can be chosen for each feature
Range of analog display	µm	± 10000, ± 5000, ± 2000, ± 1000, ± 500, ± 200, ± 100, ± 50, ± 20, ± 10
Resolution	µm	0,01
Length units		mm, µm, inch
Angle units		degrees, radians
Tolerance display		Upper and lower tolerance limit (per feature) Upper and lower warning limit (per feature)
Compatibility		USB, Integrated wireless, Millimar N 1700
Measuring combination		Predefined formula templates for standard features Links entered via comprehensive formula editor
Features		128
Feature types		Length, Angle, dimensionless
Dynamic functions		MAX, MIN, MAX-MIN, MAX+MIN
Classification		max. 20 classes
Measuring range	mm	Dependent on measuring instrument
Number of connectable wireless receivers for i-Stick		1
Number of connectable measuring instruments with integrated wireless		8
Number of connectable measuring instruments with USB interface		64
Data export		qs-Stat, Excel
Languages:		German, English, Chinese, French, Russian, Czech
System requirements:		MS Windows 10, MS Windows 8, MS Windows 7, 2 free USB 2.0 interfaces

Millimar Cockpit. Measuring software

Accessories

Order no.	Product description	Product type
5312802	Software option: Measure History	Cockpit
5331130	USB connecting module	N 1701 USB
5331120	Module for inductive probes	N 1702 M
5331133	Power supply module	N 1701 PS
5331134	I/O module	N 1704 I/O
4102220	Receiver	i-Stick
4102357	16 EXu Data connection cable USB (2 m)	16 EXu
4346023	2000 USB Data connection cable USB (2 m)	2000 USB
4102331	Millimar - USB Adapter cable RS232-USB (0,2 m)	Millimar - USB

Millimar N 1702 M. Module for inductive probes

- Flexibel combination of RS485-Bus-Modules
- Capable modules for the evaluation of measurings sensors
- Synchronous data enquiry of multiple connected sensors
- Ability to connect the N 1700 modules to the smart & universally applicable Millimar Cockpit Software
- Connection of all types of measuring sensors within the same compatibility
- Modular and customizable selection of product combinations for solving each customer specific measuring tasks
- Theoretical Bus data rate of max. 4189 values per second (depending on the number of connected channels)
- **Package contains:** instruction manual

Application:

Smart and flexible combination of modules and software for solving each customer specific measuring task.

Technical Data

Order no.		5331120
Product type		N 1702 M
Resolution	µm	0,1
Measuring range, inductive probe	µm	± 2000, ± 5000
Probe inputs		2
Compatibility		Mahr, Mahr 1340, Mahr half-bridge, Mahr LVDT, Mahr VLDT
Data transmission rate	Werte pro Sekunde	4189
Error limit		0,3 % (min. 0,2 µm)
Data interface:		RS485
Current consuption	mA	110

Accessories

Order no.	Product type	g
5313010	1301	
5313030	1303	
5313049	1304 K	
5313180	1318	
5313400	1340	
4400180	P1300 MA	
4400182	P1300 MA ohne Kabel	
4400181	P1300 MB	
4400183	P1300 MB ohne Kabel	
5323040	P2001 M	
5323010	P2004 M	M 2,5
5323020	P2004 MA	M 2,5
5323030	P2004 MB	M 2,5
5324010	P2010 M	M 2,5
5324020	P2010 MA	M 2,5
5324030	P2010 MB	M 2,5
5324070	P2104 MA	M 2,5
5324080	P2104 MB	M 2,5

Millimar N 1701 PS. Power supply module

- Flexibel combination of RS485-Bus-Modules
- Capable modules for the evaluation of measurings sensors
- Synchronous data enquiry of multiple connected sensors
- Ability to connect the N 1700 modules to the smart & universally applicable Millimar Cockpit Software
- Connection of all types of measuring sensors within the same compatibility
- Modular and customizable selection of product combinations for solving each customer specific measuring tasks
- Theoretical Bus data rate of max. 4189 values per second (depending on the number of connected channels)
- **Package contains:** power source, instruction manual

Application:

Smart and flexible combination of modules and software for solving each customer specific measuring task.

Technical Data

Order no.		5331133
Product type		N 1701 PS
Data interface:		RS485
Current supply	mA	2000
Energy supply:		230 V/115 V; 50/60 Hz

Millimar N 1701 USB. USB connecting module

- Flexibel combination of RS485-Bus-Modules
- Capable modules for the evaluation of measurings sensors
- Synchronous data enquiry of multiple connected sensors
- Ability to connect the N 1700 modules to the smart & universally applicable Millimar Cockpit Software
- Connection of all types of measuring sensors within the same compatibility
- Modular and customizable selection of product combinations for solving each customer specific measuring tasks
- Theoretical Bus data rate of max. 4189 values per second (depending on the number of connected channels)
- **Package contains:** end module, instruction manual, USB cable

Application:

Smart and flexible combination of modules and software for solving each customer specific measuring task.

Technical Data

Order no.		5331130
Product type		N 1701 USB
Data interface:		RS485
Current supply	mA	430

Accessories

Order no.	Product description	Product type
4102058	Foot switch to trigger data transmission	16 ESf

Millimar N 1704 I/O. I/O module

- Flexibel combination of RS485-Bus-Modules
- Capable modules for the evaluation of measurings sensors
- Synchronous data enquiry of multiple connected sensors
- Ability to connect the N 1700 modules to the smart & universally applicable Millimar Cockpit Software
- Connection of all types of measuring sensors within the same compatibility
- Modular and customizable selection of product combinations for solving each customer specific measuring tasks
- Theoretical Bus data rate of max. 4189 values per second (depending on the number of connected channels)
- **Package contains:** plug connectors, instruction manual

Application:

Smart and flexible combination of modules and software for solving each customer specific measuring task.

Technical Data

Order no.		5331134
Product type		N 1704 I/O
Data interface:		RS485
Current consuption	mA	70
Control inputs		4 inputs, 10 –30 V
Control outputs		4 Ausgänge, 10 –30 V ESD protected, short-circuit proof

MarSurf CD 140 / 280. Contour Measuring Station

Contour measuring in a new dimension

The new MarSurf CD series from Mahr sets new standards when it comes to contour testing. With the new MarSurf CD series, manufacturing companies are entering a new dimension in order to reliably secure and improve the manufacturing quality of workpieces in the measuring room or close to production. The new measuring station concept combines speed, reliability and flexibility. The aim is to increase the profitability of the system for your company.

Innovative technologies:

Fast axes
- Positioning speeds up to 200 mm/s in X
- 25x faster than the predecessors MarSurf PCV and MarSurf CD 120
- All measuring stations of this series have a fully CNC-capable Z-axis
- The Z-axis is approx. twice as fast as previous Mahr Z-axes
- Up to 5x faster than the X-axes usually found on the market

Highly dynamic, intelligent probe system
- Probe arm recognition via integrated chip
- Standard measuring range up to 70 mm; max. 100 mm with 490 mm probe arms
- Magnetic probe arm mount, probe arm change without tools
- The probe system combines robustness with dynamics
- Optional: Expansion for roughness evaluation

Innovative workpiece clamping system
- Mounting plate 390 x 430 mm with bore size 50 mm
- Integrated 60 mm TY adjustment
- The combination of mounting plate and integrated TY adjustment omits the needs for an additional XY table
- Low workpiece set-up leads to an advantageously short measuring circuit, which positively affects the measuring results

Technical Data

MarSurf CD 140 / 280	
Measuring range	70 mm (in Z with 350 mm probe arm) max. 100 mm (with 490 mm probe arm)
Measuring force	4 mN to 30 mN, in Z+ and Z-, adjustable via software
Resolution	max. 6 nm (with 210 mm probe arm)
Guide deviation	0.125 µm / 60 mm 0.3 µm / 140 mm
Measuring speed	0.1–10 mm/s
Positioning speed	0.1–200mm/s
Probe arm length	210 mm; 350 mm; 490 mm

Applications

Mechanical engineering
- Bearings, threads, threaded rods, ball spindles, shafts, racks

Measurements close to production
- Semi-automatic contour measurement

Automative Industry
- Steering, brake system, transmission, crankshaft, camshaft, cylinder head

Medical technology
- Contour of the hip and knee endoprostheses, contour on medical screws, contour on dental implants

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

MarSurf GD 140 / 280. Roughness Measuring Station

MarSurf GD: The new reference measuring station for roughness and waviness

The new measuring stations of the MarSurf GD series from Mahr set new standards. In addition to surface roughness evaluations, profile and waviness evaluations can also be carried out. With the new MarSurf GD series, manufacturing companies are reaching a new dimension in order to reliably secure and improve the production quality of workpieces in the measuring room or close to production.

The new measuring station concept combines speed, reliability and flexibility. The aim is to increase the profitability of the system for your company.

The measuring stations are operated with the user-friendly MarWin software (MarWin EasyRoughness or MarWin ProfessionalRoughness)

Innovative technologies:

Fast axes
- Positioning speeds up to 200 mm/s in X
- 40 x faster than its predecessor MarSurf GD 120
- The Z-axis is fully CNC-capable by default
- The Z-axis is approx. twice as fast as previous Mahr Z-axes
- Up to 5 times faster than standard Z-axes on the market
- Contacting and zeroing via the Z-axis

New flexible probe system mount with BFW probe system
- Simple probe arm change and probe arm protection by means of magnetic probe arm holder
- Probe arm holder allows the change from standard to transverse measurement without tools or adapters
- Extensions for the touch probe are possible

Innovative workpiece clamping system
- Mounting plate 390 x 430 mm with bore dimension 50 mm
- Integrated 60 mm TY adjustment
- The combination of mounting plate and integrated TY adjustment makes an additional XY table superfluous
- Low workpiece setup supports a favorable short measurement loop, which has a positive effect on the measurement results

Technical Data

MarSurf GD 140 / 280	
Measuring range	500 µm (±250 µm) for probe arm length 45 mm 1500 µm (±750 µm) for probe arm length 135 mm
Resolution	Measuring range 1: 7.6 nm Measuring range 2: 0.76 nm
Guide deviation	0.07 µm / 20 mm 0.2 µm / 60 mm 0.4 µm / 140 mm
Measuring speed	Up to 10 mm/s
Positioning speed	0.02 –200 mm/s (in X)
Probe arm length	45 mm (x 1) 67.5 mm (x 1,5) 90 mm (x 2) 112.5 mm (x 2,5) 135 mm (x 3)

Applications

Mechanical engineering
- Bearings, threads, threaded rods, ball spindles, shafts, racks

Measurements close to production
- Semi-automatic contour measurement

Automative Industry
- Steering, brake system, transmission, crankshaft, camshaft, cylinder head

Medical technology
- Contour of the hip and knee endoprostheses, contour on medical screws, contour on dental implants

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

MarSurf VD 140 / 280. Roughness and Contour Measuring Station

MarSurf VD Series - The MarSurf family is complemented:

The easy change between roughness and contour tracing system

Depending on the measuring task, either the BFW roughness probe system for surface roughness or the C 11 contour probe system for contour measurements can be changed by the operator (hot-plug capable). The new system offers the advantages of combining the highly dynamic C 11 contour probe system with the high-precision BFW probe system, which is particularly suitable for fine surfaces.

The new measuring station concept combines speed, reliability and flexibility.
The aim is to increase the profitability of the system for your company.
The measuring stations are operated with the user-friendly MarWin software (MarWin EasyRoughness & Contour or MarWin Professional Roughness & Contour).
Innovative technologies:

Fast axes
- Positioning speeds up to 200 mm/s in X
- Contour measurements are 25 x faster than with its predecessor MarSurf PCV or MarSurf CD 120
- Surface measurements are 40 x faster than with the MarSurf GD 120
- By default, the Z-axis is fully CNC-capable
- The Z-axis is approx. twice as fast as previous Mahr Z-axes
- Up to 5 times faster than standard Z-axes on the market

Two reference probe systems for your measuring tasks

Contour probe system C 11
- Probe arm recognition via integrated chip
- Standard measuring range up to 70 mm; Max. 100 mm with 490 mm probe arm length
- Magnetic probe arm holder, probe arm change without tools
- The touch probe combines robustness with dynamics
- Optional: Possibility to extend the roughness value determination to contours

Technical Data

MarSurf VD 140 / 280	
Measuring range	with probe system BFW 250 500 µm (±250 µm) for probe arm length 45 mm 1500 µm (±750 µm) for probe arm length 135 mm with probe system C 11 70 mm with probe arm length 350 mm max. 100 mm with probe arm length 490 mm
Guide deviation	0.07 µm / 20 mm (with probe system BFW 250) 0.35 µm / 60 mm 0.4 µm / 140 mm
Measuring speed	Up to 10 mm/s
Positioning speed	0.02 –200 mm/s (in X)

Roughness probe system BFW
- Easy probe arm change and probe arm protection by means of magnetic probe arm holder
- Probe arm mount allows the change from standard to transverse measurement without tools or adapter
- Extensions for the probe system possible

Innovative workpiece clamping system
- Mounting plate 390 x 430 mm with hole dimension 50 mm
- Integrated 60 mm TY adjustment
- The combination of mounting plate and integrated TY adjustment makes an additional XY table superfluous
- Low workpiece setup supports a favorable short measurement loop, which has a positive effect on the measurement results

Applications

Mechanical engineering
- Bearings, threads, threaded bars, ballschrews, shafts, racks

Production metrology
- Contour measurement in a semi-automatic process

Automotive industry
- Steering, brake system, gearbox, crankshaft, camshaft, cylinder head

Medical technology
- Contour of hip and knee endoprostheses, contour of medical screws, contour of dental implants

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

MarGear GMX 600 W. Universal Gear Measuring Center

The new cylinder coordinate measuring machine GMX 600 W

The successful combination of diameter, gear and form measurement in one clamping saves additional investment, maintenance costs and time. Full functionality as a Cylinder coordinate measuring machine and form tester up to an outer diameter of 600 mm.

The **MarGear GMX 600 W,** as a complete solution, can also be used for measuring hydraulic parts, crankshafts, camshafts and pistons.

Combining **gear measuring** tasks with various **diameter, form & position features** has never been easier. Thanks to high precision scales and smooth drive units even contour measurements and waviness analysis are possible.

With over 6000 units sold, the **MarWin** environment is a clear and simple way of creating complete programs in Teach In mode.

This improves programming efficiency and reduces the possibility of incorrect use.

Proven GMX realtime machine error correction is also used for positioningmovements with the new MarEcon control unit, guaranteeing maximum speed and precision throughout the entire measuring and movement sequence.

The **high-precision 3D scanning sensor** combinedwith fully automated swivelling unit leads to highest flexibility even regarding future measuring tasks.

The use of **standardized interfaces** leads to universal communication in terms of Industry 4.0. The following interfaces are available:

- GDE interface for inner and outer gears
- Data export to QS-STAT
- ASCII

Technical Data

GMX 600 W	
Measuring path X (mm)	300
Measuring path Y (mm)	600
Measuring path Z (mm)	700
Diameter max.* [mm]	600
Distance between peaks [mm]	1000
Mass [kg]	2250
Max. workpiece weight [kg]	300 (on fixed base plate)100 (on centering and tilting table)
Accuracy	Accuracy class I for gear measurement according to VDI/VDE 2612/2613 Group 1 at 20°C ±2°C
Axial runout deviation (µm+µm/mm measuring radius)	0.07 µm + 0.0008 µm/mm
Radial run-out deviation (µm in table height)	≤ 0.1 µm

*max. diameter of spur gears

Applications

Fully automatic testing of:

- Diameter and distance
- Straight and helical toothed cylindrical gears
- Synchronizing gear
- Form and location (also with centering and tilting table)
- 3D geometries like line form
- Optional: camshafts, crankshafts and pistons

Accessories

- Probe arm changer (4 boxes)
- Anti vibration damping system
- XXL centering and tilting table (centering path up to ± 72 mm !)

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

MarGear GRP1. Roughness Probe

- **Expansion package roughness measurement and analysis on gears**

- In the field of gear metrology, Mahr already offers highly accurate reference systems that combine gear measurement with the measurement of diameters or form. Moreover in the field of surface metrology, we at Mahr have meanwhile brought the worldwide styling method to perfection.

- So what could be more obvious than to measure and document roughness parameters such as Ra and Rz when testing your workpieces with a gear measuring device?
- As a specialist for inductive probes, Mahr combines the advantages of its self-developed universal 3D probe with the precision of the proven roughness probe PHT. Gear and roughness measurement grow together.
- Combine the gear analytical measurement with roughness characteristics monitoring on the MarGear GMX series gauging centers. Simultaneously document typical roughness parameters such as Ra and Rz during inspection without reclamping the workpiece on another measuring station. The superior positioning accuracy of the MarGear GMX combined with the new motorized swivel axis of the MarGear roughness probe ensures maximum reproducibility.

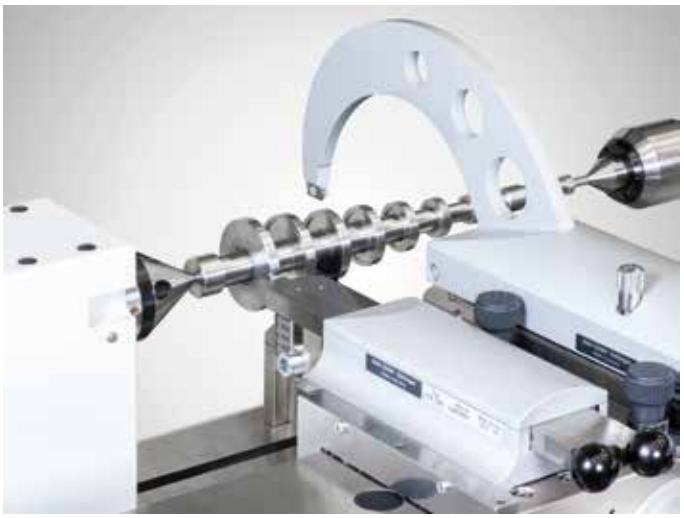
Your advantages:

- Miniaturized roughness probe for toothing from module 0.8
- The MarWin platform concept allows the use of the worldwide known roughness software from the field of Mahr surface metrology at the gear measuring center
- Automatic swivel axis of the roughness probe enables standard surface measurement even on helical gears
- Characteristic values e.g. according to ISO 4287 or ISO 13565–2

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

MarShaft MAN Shaft Measuring Instruments

- The MarCheck ***plus*** control electronic is designed exclusively for the operation of MarShaft MAN units (sizes 400 mm to 2400 mm) with the MarWin EasyShaft MAN measurement and evaluation software. The control electronic is available in the basic version (4 channels) or premium version (9 channels). The Premium version has two additional connections fortemperature sensors required for the optional temperature compensation.
- With the new evaluation software MarWin EasyShaft MAN, Mahr again sets new standards in manual shaft measurement technology on the market.
- The software operation concept was largely taken over by the very successful evaluation software of the optical Mahr shaft measuring devices of the MarShaft SCOPE ***plus*** product line.
- The very simple, intuitive operation minimizes the training requirements. The evaluation software MarWin EasyShaft MAN can be mastered in a very short time. No programming knowledge is required; the creation of measuring programs is done in Teach-In mode. The individual characteristics are simply measured one after the other and subsequently this measurement sequence is stored as a measurement program.
- A robust panel PC with 15.6" touchscreen monitor (including stand) is suitable for use in production.

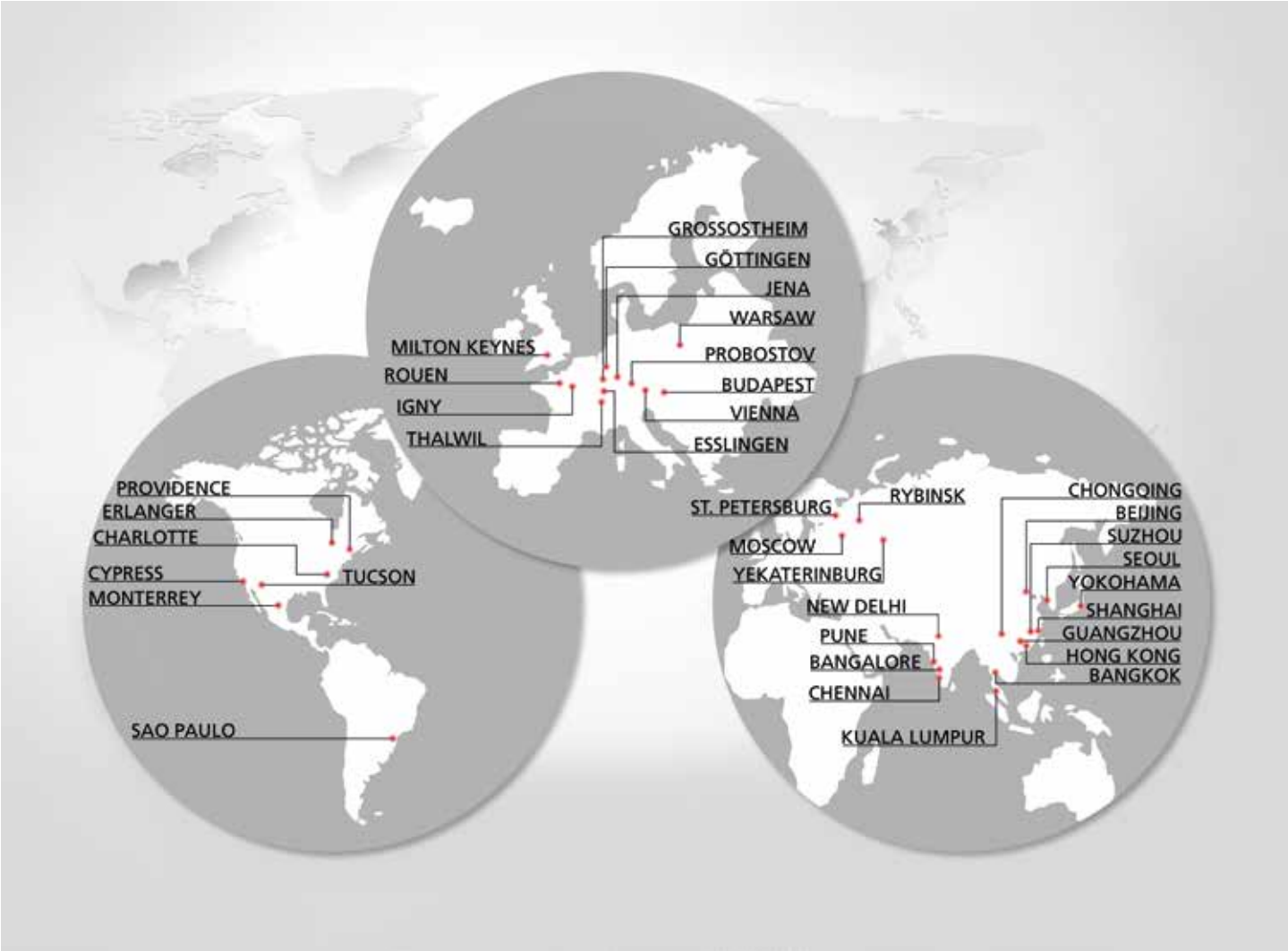


Features
- Robust panel PC suitable for production with 15.6" touchscreen monitor (including stand)
- Protection class IP54 (dustproof and splash-proof)
- TFT 15.6" touchscreen
- i5 CPU 3337U, 1.8GHz, DDR3 SO-DIMM max. 8GB, SSD SATA 2.5 „256GB, RAM4GB
- Operating system Windows 10
- 4 measuring channels (MarCheck basic) and 9 measuring channels (MarShaft premium)
- Designed for the manual shaft measuring machines MarShaft MAN 400 to MAN 2400
- Can be retrofitted to all MarShaft MAN shaft machines

Measurement and programming functions
- Absolutely simple operation
- Fast measurement without measuring program
- Teach-In programming
- Barcode connection
- Data export to statistics programs extends the scope of services,
- QS-Stat and QS-Stat plus interface
- The well-known Windows® user interface ensures short processing times
- Uniform Mahr software across all products (e.g. MarWin EasyShaft Scope or MarWin EasyForm)
- Overview of structure through window technology
- Easy handling thanks to 100% touchscreen functionality
- Many functions can be directly selected via symbols (icons)
- Comfortable and state-of-the-art measurement program management
- Precise test reports - black or white or colored - on all Windows® printers
- Future-proof investment, runs under Windows 10

Weitere Informationen finden Sie auf unserer Website: www.mahr.com

NOTICE



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