# New Products 2018

## DIMENSIONAL METROLOGY NEW PRODUCTS

- 0 +

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

That is what EXACTLY means to us!

Mahr

EXACTLY

## 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!

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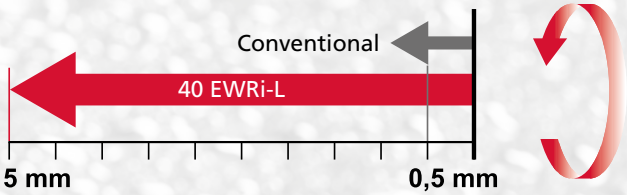
# Micromar. The digital Micrometer Micromar 40 EWRi-L

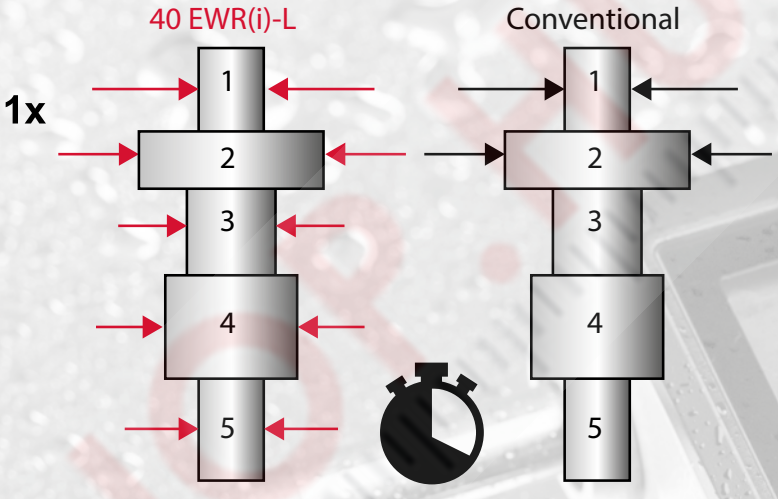
## Waterproof Micrometer with Integrated Wireless with sliding quick adjusment

## 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

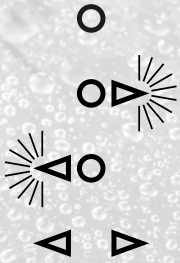
- Best ergonomics for one-handed operation
- Largest display of your class!
- Read out without error, even under unfavorable conditions light

## 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

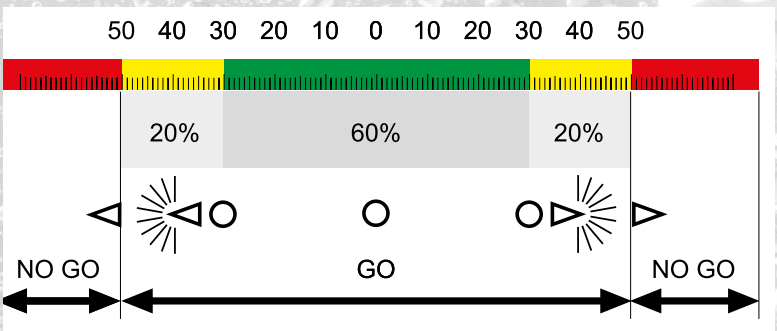


Measured value within tolerance limits

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

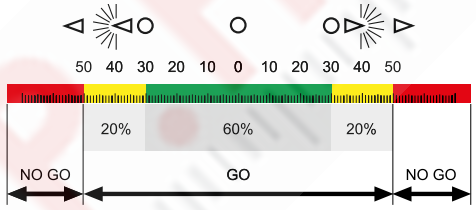


# Micromar 40 EWRi-L. Digitale Bügelmessschraube

## 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)

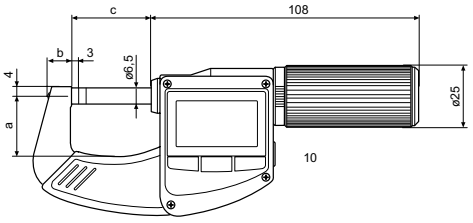
- Quick adjustment (5 mm per turn)
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Ratchet is integrated in the thimble
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (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

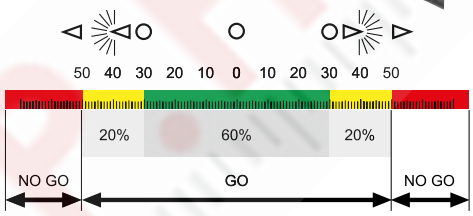
| Order no. | Product description | Product type |
|---|---|---|
| | | |
| **4102220** | Receiver | i-Stick |
| **4102520** | Battery 3 V, CR 2032 | |
| **4158000** | Stand, for holding outside micrometers | 41 H |

# 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)
- TOL (Tolerance and warning limits)
- DATA (data transmission via connection cable)
- HOLD (storage of measured values)

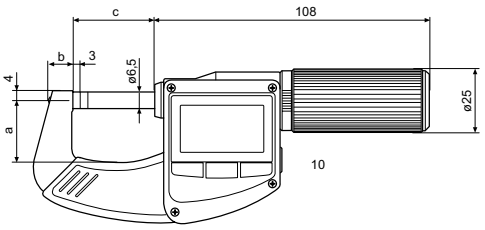
- Quick adjustment (5 mm per turn)
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** 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

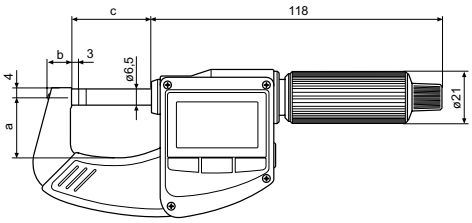
- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
- LOCK function (key lock)
- TOL (Tolerance and warning limits)
- DATA (data transmission)
- HOLD (storage of measured values)

- 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

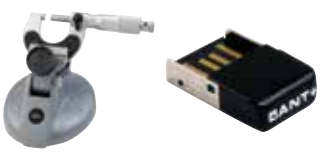
| Order no. | Product type | Measuring range | Resolution | Error limit | Parallelism | Flatness | Spindle thread pitch | Measuring force | Standard |
|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm/inch | µm | µm | µm | mm | N | |
| **4157100** | 40 EWRi | 0 –25 | 0,001 / .00005" | 2 | 2 | 0,6 | 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 |

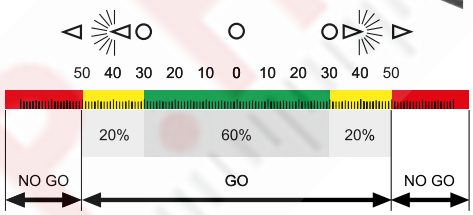


# Micromar 40 EWR. Digital Micrometer

## 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)
- LOCK function (key lock)
- TOL (Tolerance and warning limits)
- DATA (data transmission via connection cable)
- HOLD (storage of measured values)

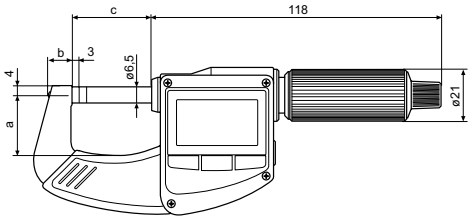
- High contrast analog display
- Stainless spindle is hardened throughout and ground
- Spindle and anvil are carbide tipped
- Rapid drive
- Ratchet is integrated in the thimble
- Lacquered steel frame, heat insulated
- SoftwareMarCom Professional free download: **www.mahr.com/marcom** (only for Mahr data cables and wireless systems with USB and RS232 interface)
- **Height of digits:** 10 mm
- **Data interface:** USB, Digimatic
- **Energy supply:** Battery life approx. 2 years
- **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 | |
| **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

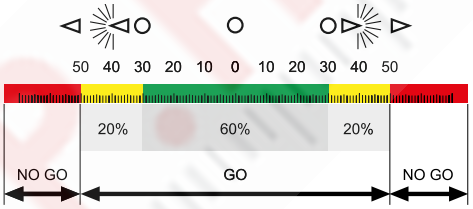
| Order no. | Product description | Product type |
|---|---|---|
| | | |
| **4102520** | Battery 3 V, CR 2032 | |
| **4102603** | Data cable USB bi-directional (2 m) | DK-U1 |
| **4102606** | Digimatic data cable (2 m) | DK-D1 |
| **4158000** | Stand, for holding outside micrometers | 41 H |

# Micromar 40 EWR. Digital Micrometer

## Functions

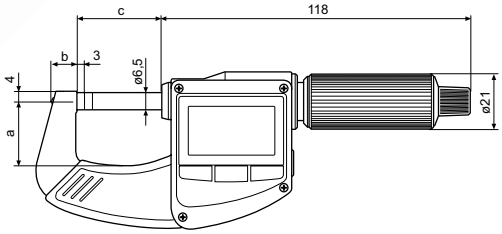
- RESET (set display to zero)
- ABS (display can be set to zero without losing reference to ORIGIN)
- mm/inch
- ORIGIN (for entering a numerical value)
- LOCK function (key lock)
- TOL (Tolerance and warning limits)
- DATA (data transmission via connection cable)
- HOLD (storage of measured values)

- 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:** 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 |

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# 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

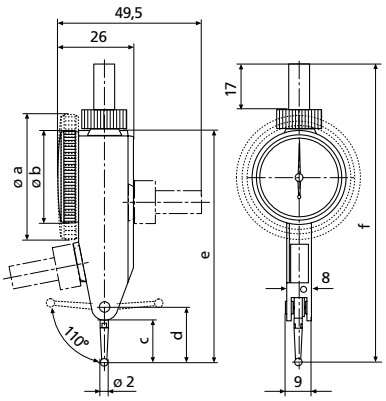
Application:

- 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

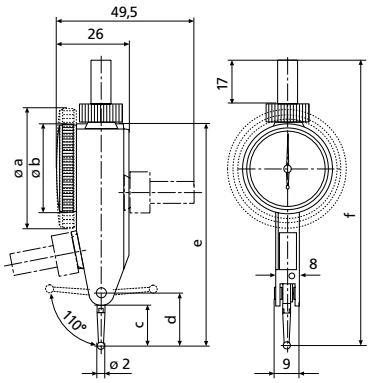
Application:

- 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

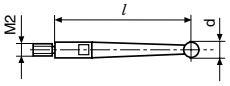
| Order no. | | 4308205 |
|---|---|---|
| Product type | | 800 SGM-R |
| Measuring range | mm | ± 0,1 |
| Readings | mm | 0,002 |
| Measuring surface | | Ruby |
| Scale diameter | mm | 38 |
| Type of dial face | | 100–0–100 |
| Dial color | | yellow |
| Measuring force | N | 0,15 |
| Range per rev. | 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 | |

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# 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<br>Horizontal bar graph<br>Analog display or round scale<br>Digital display<br>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)<br>Upper and lower warning limit (per feature) |
| Compatibility | | USB, Integrated wireless, Millimar N 1700 |
| Measuring combination | | Predefined formula templates for standard features<br>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<br>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<br>Horizontal bar graph<br>Analog display or round scale<br>Digital display<br>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)<br>Upper and lower warning limit (per feature) |
| Compatibility | | USB, Integrated wireless, Millimar N 1700 |
| Measuring combination | | Predefined formula templates for standard features<br>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<br>Data connection cable USB (2 m) | 2000 USB |
| **4102331** | Millimar - USB Adapter cable RS232-USB (0,2 m) | Millimar - USB |

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# 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 |

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# 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<br>ESD protected, short-circuit proof |

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# 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)<br>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<br>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<br>1500 µm (±750 µm) for probe arm length 135 mm |
| Resolution | Measuring range 1: 7.6 nm<br>Measuring range 2: 0.76 nm |
| Guide deviation | 0.07 µm / 20 mm<br>0.2 µm / 60 mm<br>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)<br>67.5 mm (x 1,5)<br>90 mm (x 2)<br>112.5 mm (x 2,5)<br>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

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# 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<br>500 µm (±250 µm) for probe arm length 45 mm<br>1500 µm (±750 µm) for probe arm length 135 mm<br><br>with probe system C 11<br>70 mm with probe arm length 350 mm<br>max. 100 mm with probe arm length 490 mm |
| Guide deviation | 0.07 µm / 20 mm (with probe system BFW 250)<br>0.35 µm / 60 mm<br>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

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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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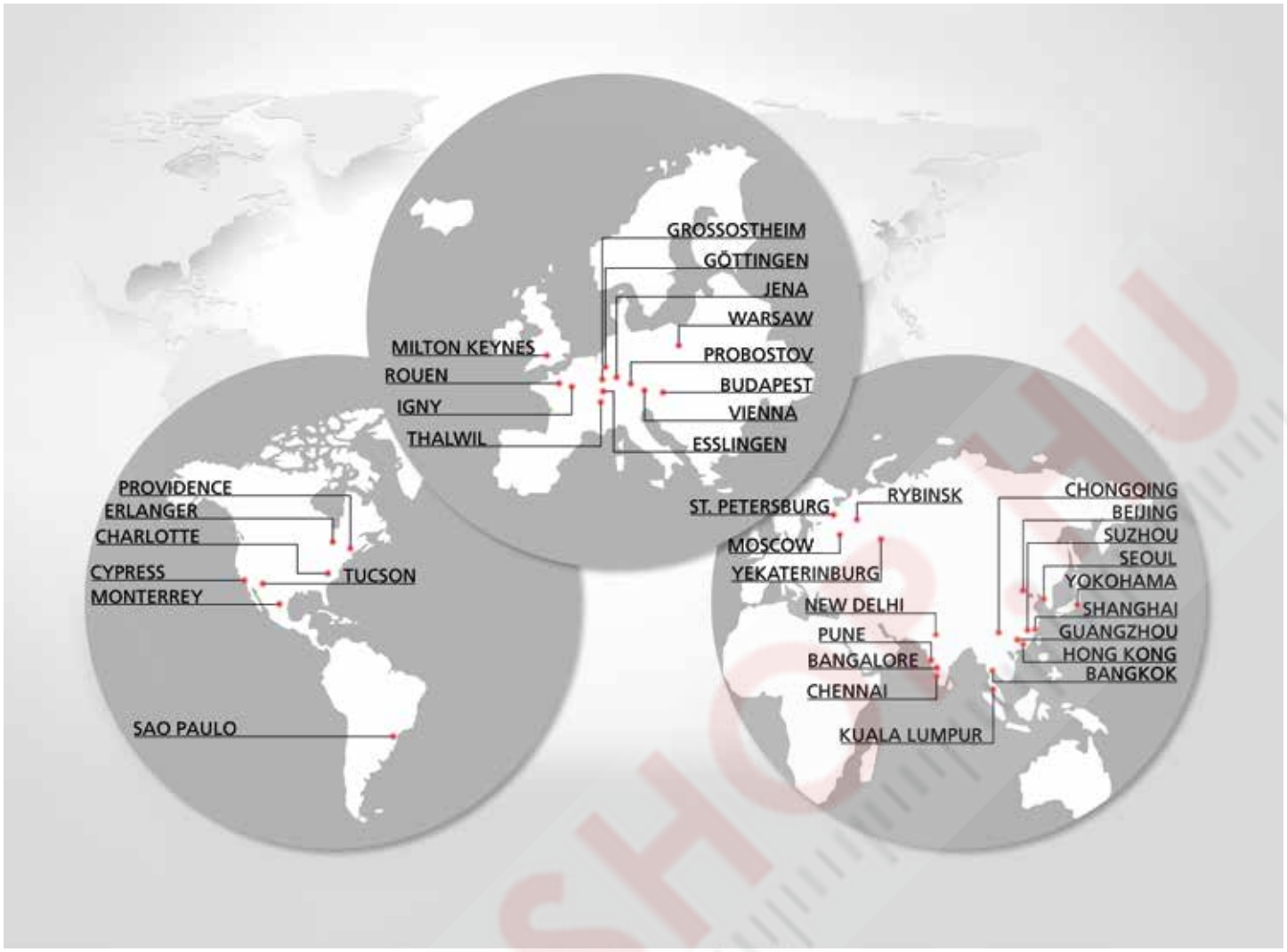


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Mahr Mérőeszközök forgalmazása | Mahr hivatalos képviselet!

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Nyitvatartás: munkanapokon 8:00 - 16:00



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