MARSURF | MOBILE SURFACE ROUGHNESS MEASUREMENT

PS 10 / M 300 / M 300 C

Mahr

EXACTLY
IN THE PAST THERE WAS THE FINGERNAIL TEST.
TODAY, THERE IS MARSURF

The latest information on MARSURF products can be found on our website:
www.mahr.com, WebCode 158

Wherever surface structures influence the function, processing or appearance of components or products, careful testing is essential. But how can surfaces be tested? At the beginning of the 20th Century, experts still had to test by eye and touch. A practiced eye can detect features in the μm range, and even the much maligned thumbnail test delivered perfectly acceptable results. Now however, we live in an age of interchangeable parts and globalization, where subjective tests like this are no longer adequate. Today, computer-aided measuring instruments provide objective data. Measurement and evaluation have become considerably easier. For decades, Mahr has been a worldwide pioneer in this area, as demonstrated by the company’s numerous innovations and patented solutions in the field of surface roughness metrology. The interplay between the stylus, drive and measuring setup plays a key role in influencing the quality of surface measurement tasks. This is where Mahr’s core expertise comes in, as demonstrated by the company’s numerous innovations and patented solutions. Over this time, we have succeeded in perfecting the stylus method, which is now in widespread use throughout the world. We can meet even the most demanding requirements for non-contact measurement, e.g. where extremely soft materials or ultra-short measuring times are involved, thanks to the range of optical sensors offered in the MarSurf product family. Developed with Mahr quality, expertise and know-how, MarSurf is the solution for all your surface metrology needs.
MarSurf. Mobile Surface Roughness Measuring Instruments

Mobile Surface Roughness Measuring Instruments

Overview

MarSurf PS 10

MarSurf M 300

MarSurf M 300 C

Drive Unit MarSurf RD 18

Drive Unit MarSurf RD 18 C2 for transverse tracing

Optional Probes for MarSurf PS 10 / M 300 / M 300 C

Accessories

MarSurf PS. 10 / M 300

MarSurf PS 10 / M 300 / M 300 C

Software

MarSurf available parameters
## MarSurf. Mobile Surface Roughness Measuring Instruments

### OVERVIEW

<table>
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</tr>
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<tbody>
<tr>
<td>Measuring principle</td>
<td>Skid probe system</td>
</tr>
<tr>
<td>Probe system</td>
<td>PHT probe range</td>
</tr>
<tr>
<td>Probe</td>
<td>Inductive skidded probe, 2 μm stylus tip, measuring force ca. 0.7 mN</td>
</tr>
<tr>
<td>Traversing length</td>
<td>ISO/JIS: 1.5 mm, 4.8 mm, 16 mm; automatic, Nxl, freely selectable&lt;br&gt;MOTIF: 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm</td>
</tr>
<tr>
<td>Measuring range</td>
<td>350 μm</td>
</tr>
<tr>
<td>Profile resolution</td>
<td>8 nm</td>
</tr>
<tr>
<td>Evaluation lengths</td>
<td>1.25 mm, 4.0 mm, 12.5 mm</td>
</tr>
<tr>
<td>Number of parameters available</td>
<td>31</td>
</tr>
<tr>
<td>Parameters</td>
<td>DIN / ISO&lt;br&gt;Ra, Rq, Rz, Rmax, Rp, Rpκ, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPC, Rmr, RSm, Rsk, CR, CF, CL, R, AR, Rx&lt;br&gt;JIS&lt;br&gt;Ra, Rq, Ry (equiv. to Rz), RzJIS, tp (equiv. to Rmr), RSm, S&lt;br&gt;ASME&lt;br&gt;Rp, Rpm, RpC, Rsk, tp (equir. to Rmr)&lt;br&gt;MOTIF&lt;br&gt;R, AR, Rx, CR, CF, CL</td>
</tr>
<tr>
<td>Bluetooth</td>
<td>—</td>
</tr>
<tr>
<td>Large color display</td>
<td>Yes</td>
</tr>
<tr>
<td>Built-in printer</td>
<td>—</td>
</tr>
<tr>
<td>Integrated roughness standard for Standard probe PHT 6-350</td>
<td>Yes</td>
</tr>
<tr>
<td>Cylindrical drive unit with hand-held Vee-block</td>
<td>Yes</td>
</tr>
<tr>
<td>Drive unit with transverse tracing (optional)</td>
<td>Yes</td>
</tr>
<tr>
<td>Internal memory</td>
<td>3900 Profiles, 1500 pdf-files, 500000 Results, memory can be extended with microSD-Card up to 32 GB</td>
</tr>
<tr>
<td>Software (optional)</td>
<td>MarCom, MarSurf XR 20</td>
</tr>
<tr>
<td>Order no.</td>
<td>6910230</td>
</tr>
<tr>
<td>MarSurf M 300</td>
<td>MarSurf M 300 C</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>8 Skid probe system</td>
<td>9 Skid probe system</td>
</tr>
<tr>
<td>PHT probe range</td>
<td>PHT probe range</td>
</tr>
<tr>
<td>Inductive skidded probe, 2 μm stylus tip, measuring force ca. 0.7 mN</td>
<td>Inductive skidded probe, 2 μm stylus tip, measuring force ca. 0.7 mN</td>
</tr>
<tr>
<td>ISO/JIS: 1.75 mm, 5.6 mm, 17.5 mm; automatic MOTIF: 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm</td>
<td>ISO/JIS: 1.75 mm, 5.6 mm, 17.5 mm; automatic MOTIF: 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm</td>
</tr>
<tr>
<td>350 μm</td>
<td>350 μm</td>
</tr>
<tr>
<td>8 nm</td>
<td>8 nm</td>
</tr>
<tr>
<td>1.25 mm, 4.0 mm, 12.5 mm</td>
<td>1.25 mm, 4.0 mm, 12.5 mm</td>
</tr>
<tr>
<td>DIN / ISO</td>
<td>DIN / ISO</td>
</tr>
<tr>
<td>Ra, Rq, Rz, Rmax, Rp, Rv, Rp, Rvk, Rk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, Rp, Rm, RSk, R, AR, Rx, W, CR, CF, CL</td>
<td>Ra, Rq, Rz, Rmax, Rp, Rv, Rp, Rvk, Rk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, Rp, Rm, RSk, R, AR, Rx, W, CR, CF, CL</td>
</tr>
<tr>
<td>JIS</td>
<td>JIS</td>
</tr>
<tr>
<td>Ra, Rq, Ry (equiv. to Rz), RzJIS, Rp, Rv, Rp, Rvk, Rk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rm), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL</td>
<td>Ra, Rq, Ry (equiv. to Rz) RzJIS, Rp, Rv, Rp, Rvk, Rk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rm), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL</td>
</tr>
<tr>
<td>ASME</td>
<td>ASME</td>
</tr>
<tr>
<td>RpA, Rpm, Rmr, RSm, Rsk</td>
<td>RpA, Rpm, Rmr, RSm, Rsk</td>
</tr>
<tr>
<td>MOTIF</td>
<td>MOTIF</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>(External roughness standard is included in the scope of supply)</td>
<td>RD 18 C2</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>max. 30 Profiles</td>
<td>max. 30 Profiles</td>
</tr>
<tr>
<td>max. 40000 Results</td>
<td>max. 40000 Results</td>
</tr>
<tr>
<td>Explorer, MarSurf XR 20</td>
<td>Explorer, MarSurf XR 20</td>
</tr>
<tr>
<td>6910401</td>
<td>6910431</td>
</tr>
</tbody>
</table>
Mobile Surface Roughness Measuring Instrument MarSurf PS 10 "SMAHRT Surf" - easy, smart and mobile

Features

- Small and lightweight; ideal as mobile surface roughness measuring instruments
- Large illuminated 4.3” TFT touch display
- Display can be rotated
- Simple to operate (smartphone!)
- Increased flexibility due to the removable drive unit
- Start button is simultaneously the home button for direct access to the start screen
- Direct access to your customized functions with favorites
- 31 parameters: offer the same range of functions as a laboratory instrument
- Data is saved in the device, e.g. TXT, X3P, CSV and PDF file
- Evaluation of most common parameters conforming to standards and in accordance to ISO / JIS as well as parameter lists
- Integrated, removable roughness standard for the standard pick-up PHT 6-350
- Dynamic calibration function
- Select standards (DIN-ISO/JIS/ASME/MOTIF)
- Automatic cutoff selection (patented) to ensure correct measuring results
- Individual sampling lengths and shortened cutoff can be selected
- Setting of unsymmetric intersection lines for peak count calculation
- Phase-correct profile filter (Gaussian filter) acc. To DIN EN ISO 16610-21 (before DIN EN ISO 11562), special filter acc. to DIN EN ISO 13565-1, Is-filter acc. to DIN EN ISO 3274 (disengageable)
- Tolerance monitoring
- Lock settings and/or password protection
- Date and/or time of measurement
- Integrated memory to store approx. 500000 results, 3900 profiles and 1500 pdf-files
- Data transmission via the USB interface to a PC or via microSD-Card
- MarConnect interface, to connect e.g. a PC via the MarCom Software
- Main free operation: the built-in rechargeable battery can used for up to 1200 measurements before being recharged

Supplied with:

- MarSurf PS 10 base unit
- Drive unit (removable)
- 1 standard pick-up PHT 6-350 (conforming to standards)
- Built-in battery
- Roughness standard integrated (removable) into base unit incl. Mahr calibration certificate
- Pick-up protection
- Charger / mains adapter with 3 mains power adapters
- Operating instructions
- Carrying case with shoulder strap
- USB cable
- Extension cable drive unit
- Height adjustment accessory (integrated)

Applications

- On-site surface roughness measurement
- Measuring during the production process
- Universal use on processing machinery
- For incoming goods inspection
### Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit of measurement</strong></td>
<td>Metric / inch</td>
</tr>
<tr>
<td><strong>Measuring principle</strong></td>
<td>Stylus method</td>
</tr>
<tr>
<td><strong>Pick-up</strong></td>
<td>Inductive skidded pick-up, 2 μm (80 μin) stylus tip, measuring force ca. 0.7 mN</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td>DIN / ISO: Ra, Rq, Rz, Rmax, Rp, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPC, Rmr, RSm, Rsk, CR, CF, CL, R, AR, Rx</td>
</tr>
<tr>
<td></td>
<td>JIS: Ra, Rq, Rv (equiv. to Rz), RzJIS, tp (equiv. to Rmr), RSm, S</td>
</tr>
<tr>
<td></td>
<td>ASME: Rp, Rpm, RPCI, Rsk, tp (enquir. to Rmr)</td>
</tr>
<tr>
<td></td>
<td>MOTIF: R, AR, Rx, CR, CF, CL</td>
</tr>
<tr>
<td><strong>Languages</strong></td>
<td>English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish, Czech, Polish, Russian, Japanese, Chinese, Korean, Turkish, Hungarian, Romanian</td>
</tr>
<tr>
<td><strong>Measuring range</strong></td>
<td>350 μm</td>
</tr>
<tr>
<td><strong>Profile resolution</strong></td>
<td>8 nm</td>
</tr>
<tr>
<td><strong>Filter</strong></td>
<td>Phase-correct profile filter (Gaussian filter) according to DIN EN ISO 16610-21 (before ISO 11562)</td>
</tr>
<tr>
<td></td>
<td>Special filter according to DIN EN ISO 13565-1</td>
</tr>
<tr>
<td></td>
<td>Is filter according to DIN EN ISO 3274 (can be disabled)</td>
</tr>
<tr>
<td><strong>Cutoff lc</strong></td>
<td>mm (inch): 0.25 / 0.8 / 2.5 (0.010&quot; / 0.030&quot; /0.100&quot;), automatic</td>
</tr>
<tr>
<td><strong>Traversing length Lt</strong></td>
<td>mm (inch): 1.5 / 4.8 /15 (0.06&quot; / 0.192&quot; / 0.6&quot;), automatic</td>
</tr>
<tr>
<td><strong>Traversing length (according to MOTIF)</strong></td>
<td>mm (inch): 1 / 2 / 4 / 8 / 12 / 16 (0.040&quot; / 0.080&quot; / 0.160&quot; / 0.320&quot; / 0.480&quot; / 0.640&quot;)</td>
</tr>
<tr>
<td><strong>Short cutoff</strong></td>
<td>Selectable</td>
</tr>
<tr>
<td><strong>Evaluation length In</strong></td>
<td>mm (inch): 1.25 / 4.0 / 12.5 (0.050&quot;, 0.15&quot;, 0.50&quot;)</td>
</tr>
<tr>
<td><strong>Number n of sampling lengths</strong></td>
<td>Selectable: 1 to 16</td>
</tr>
<tr>
<td><strong>Calibration function</strong></td>
<td>Dynamic</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>3900 profiles, 500000 results, 1500 pdf-files, memory can be extended with microSD-Card up to 32 GB</td>
</tr>
<tr>
<td><strong>Additional functions</strong></td>
<td>Lock settings / password protection, Date/Time</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>mm (inch): 160 × 77 × 50 (6.29&quot; × 3.03&quot; × 1.97&quot;)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>500 g (1.10 lbs)</td>
</tr>
<tr>
<td><strong>Rechargeable battery</strong></td>
<td>Li-ion battery, 3.7 V, rating 11.6 Wh</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>USB-Device, MarConnect (RS232, USB), micro SD Slot for SD™ / SDHC-Cards up to 32 GB</td>
</tr>
<tr>
<td><strong>Long-range power supply</strong></td>
<td>100 V to 264 V</td>
</tr>
</tbody>
</table>

**Order no.**

- 6910230
- 6910232 (5 μm probe tip)

*In accordance to ISO/JIS*
Features

- Bluetooth wireless connection between the evaluation unit and drive unit (up to 4 m)
- Bright, illuminated color display
- Automatic selection of filter and traversing length conforming to standards
- Integrated thermal graphics printer of high print quality
- Print the R-profile via the thermal graphics printer
- Printed log either by pressing a button or automatically
- Data transfer of results and profiles via USB-interface to your PC
- Evaluation of most common parameters conforming to standards and in accordance to ISO/JIS as well as characteristic curves, parameter lists (e.g. material ratio curve)
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record
- Measuring units (μm/μinch) and standards (ISO/JIS/ASME/MOTIF) are selectable
- Tolerance monitoring
- Integrated memory for the results of up to 40000 measurements and 30 profiles
- Setting of unsymmetric intersection lines for peak count calculation
- Individual sampling lengths and short cutoff can be selected
- Key pad lock and/or password protection for instrument settings
- Built-in rechargeable battery with power management
- Integrated roughness standard for the standard pick-up PHT 6-350
- Dynamic calibration function
- Date and/or time of measurement
- Software MarSurf PS1/M300 Explorer for recording measurements (option)
- Supplied with: Evaluation unit M 300, drive unit RD 18 with integrated roughness standard, standard pick-up PHT 6-350/2μm (conforming to standards), charger / mains adapter with 3 mains power adapters, height adjustment accessory, pick-up protection, pick-up protection with prismatic underside, end face vee-block, 2 x USB cables, 1 roll of thermal paper, shoulder strap, carrying case, Mahr calibration certificate, operating instructions

Applications

- On shafts, housing parts
- On large scale machines
- For large workpieces
- On milling and turning parts
- For use on grinding and honing components
- On the production line, or directly upon a machine. Ideal for rapid testing of the surface roughness of a workpiece in or on a machine
- A simple universal measuring station for checking surface roughness
Mobile Surface Roughness Measuring Instrument MarSurf M 300 C

Features

- Bright, illuminated color display
- Automatic selection of filter and traversing length conforming to standards
- Integrated thermal graphics printer of high print quality
- Easy to use due to the large color display and the operator guidance
- Printing of R-profiles with the thermo printer
- Printed log either by pressing a button or automatically
- Data transfer of results and profiles via USB-interface to your PC
- Evaluation of most common parameters conforming to standards and in accordance to ISO/JIS as well as characteristic curves, parameter lists (e.g. material ratio curve)
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record
- Measuring units (μm/μinch) and standards (ISO/JIS/ASME/MOTIF) are selectable
- Integrated memory for the results of up to 40000 measurements and 30 profiles
- Tolerance monitoring
- Setting of unsymmetric intersection lines for peak count calculation
- Cylindrical drive unit with handheld vee block and PHT pick-up protection
- Individual sampling lengths and short cutoff can be selected
- Lock instrument settings
- Date and/or time of measurement
- Can be expanded to be an stationary measuring station
- Software MarSurf PS1/M 300 Explorer for recording measurements (option)
- Supplied with:
  Evaluation unit M 300 C, cylindrical drive unit RD 18 C incl. 1.8 m data connection cable, handheld vee block with height adjustable feet, standard pick-up PHT 6-350/2μm (conforming to standards), roughness standard PRN 10 with Mahr calibration certificate, 1 roll of thermal paper, pick-up protection with prismatic underside, dia. 8 mm mounting clamp for drive unit, charger / mains adapter with 3 mains power adapters, 1 x USB cable (for connection to a PC), shoulder strap, carrying case, operating instructions

Applications

- On shafts, housing parts
- On large scale machines
- For large workpieces
- On milling and turning parts
- For use on grinding and honing components
- On the production line, or directly upon a machine. Ideal for rapid testing of the surface roughness of a workpiece in or on a machine
- A simple universal measuring station for checking surface roughness
### Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring principle</td>
<td>Stylus method</td>
</tr>
<tr>
<td>Traversing speed</td>
<td>mm (inch) 0.5 mm/s (0.02&quot;/s)</td>
</tr>
<tr>
<td>Measuring range</td>
<td>350 μm (0.014&quot;)</td>
</tr>
<tr>
<td>Profile resolution</td>
<td>8 nm</td>
</tr>
<tr>
<td>Filter</td>
<td>Gaussian filter, Ls-Filter (switchable)</td>
</tr>
<tr>
<td>Cutoff</td>
<td>0.25, 0.8, 2.5 (0.010&quot;, 0.032&quot;, 0.100&quot;)</td>
</tr>
<tr>
<td>Short Cutoff</td>
<td>wählbar</td>
</tr>
<tr>
<td>Traversing lengths as per DIN / ISO / ASME / JIS</td>
<td>1, 2, 4, 8, 12, 16</td>
</tr>
<tr>
<td>Traversing lengths as per EN ISO 12085 (MOTIF)</td>
<td>mm (inch) 1.25, 4, 12.5 (0.05&quot;, 0.16&quot;, 0.5&quot;)</td>
</tr>
<tr>
<td>Evaluation lengths</td>
<td>1-5</td>
</tr>
<tr>
<td>Number of sampling lengths selectable: Parameters</td>
<td>DIN / ISO: Ra, Rq, Rz, Rmax,Rp, Rv, Rp, Rvk, Rv,k, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPA, Rpm, Rmr, RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL</td>
</tr>
<tr>
<td></td>
<td>JIS: Ra, Rq, Ry (equiv. to Rz), Rz,JIS, Rp, Rv, Rp, Rk, Rvk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rmr), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL</td>
</tr>
<tr>
<td></td>
<td>ASME: RpA, Rpm, Rmr, RSm, Rsk</td>
</tr>
<tr>
<td></td>
<td>MOTIF: R, AR, Rx, W, CR, CF, CL</td>
</tr>
<tr>
<td>Vertical scale</td>
<td>Automatic/selectable</td>
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<tr>
<td>Horizontal scale</td>
<td>Depending on the cutoff</td>
</tr>
<tr>
<td>Record contents</td>
<td>R-profile, MRK, P-profile (MOTIF), results</td>
</tr>
<tr>
<td>Printing</td>
<td>Automatic/manual</td>
</tr>
<tr>
<td>Surface hardness</td>
<td>Record with time</td>
</tr>
<tr>
<td>Calibration function</td>
<td>Ideal for surface hardness &gt;50 Shore</td>
</tr>
<tr>
<td>Memory</td>
<td>Integrated memory</td>
</tr>
<tr>
<td>Measuring units</td>
<td>For the storage up to 40000 measurements and up to 30 profiles</td>
</tr>
<tr>
<td>Languages selectable:</td>
<td>μm/μinch selectable</td>
</tr>
<tr>
<td>Blocking instrument settings</td>
<td>English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish,</td>
</tr>
<tr>
<td></td>
<td>Czech, Polish, Russian, Japanese, Chinese, Korean, Turkish</td>
</tr>
<tr>
<td>LCD</td>
<td>Yes</td>
</tr>
<tr>
<td>Password protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Printer</td>
<td>High resolution color display, 3.5&quot;, 320 x 240 pixel</td>
</tr>
<tr>
<td>Printing speed</td>
<td>Thermal printer, 384 points/horizontal line, 20 characters/line</td>
</tr>
<tr>
<td>Thermal paper</td>
<td>ca. 6 lines/second corresponds to approx. 25 mm/s (1&quot;/s)</td>
</tr>
<tr>
<td>Interface</td>
<td>Dia. 40.0 mm-1.0 mm, width 57.5 mm-0.5 mm, coated</td>
</tr>
<tr>
<td>Power supply</td>
<td>USB, MarConnect</td>
</tr>
<tr>
<td>Power management</td>
<td>NiMH battery, capacity: approx. 500 measurements (depending on the</td>
</tr>
<tr>
<td>Connections</td>
<td>number and length of record printouts), plug-in power pack with three</td>
</tr>
<tr>
<td>Protection class</td>
<td>mains plugs, for input voltages from 90 V to 264 V</td>
</tr>
<tr>
<td>Temperature range for storage</td>
<td>Yes</td>
</tr>
<tr>
<td>Temperature range for operation</td>
<td>Drive unit, power pack, USB, MarConnect</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>Yes</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>M 300 / M 300 C 190 x 140 x 75 mm (75&quot; x 5.5&quot; x 3&quot;)</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>RD 18 130 x 70 x 50 mm (5.1&quot; x 2.7&quot; x 2&quot;)</td>
</tr>
<tr>
<td>Dimensions (L x dia.)</td>
<td>RD 18 C 139 x 26 mm (5.5&quot; x 1&quot;)</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>RD 18 C* 82 x 34 x 59 mm (3.2&quot; x 1.3&quot; x 2.3&quot;)</td>
</tr>
<tr>
<td>Weight</td>
<td>M 300 / M 300 C ca. 1 kg</td>
</tr>
<tr>
<td></td>
<td>RD 18 ca. 300 g</td>
</tr>
<tr>
<td></td>
<td>RD 18 C ca. 165 g</td>
</tr>
<tr>
<td></td>
<td>RD 18 C* ca. 55 g</td>
</tr>
</tbody>
</table>

* Handheld Vee block
**Mobile Surface Roughness Measuring Instrument MarSurf M 300**

**Drive Unit MarSurf RD 18**

**Bluetooth Technology**

**Unique:** Cable-free connection between evaluation unit and drive unit!
A further advantage is the connection of several drive units to only one evaluation unit.

**Features**

- The well-proven PHT-skid probes are implemented in the drive unit.
- Can be connected via a cable
- Supplied with: Drive unit RD 18 with integrated roughness standard

**Technical Data**

- Tracing direction: Longitudinal
- Traversing length: adjustable on M 300
  - as per DIN/ISO: 1.75 mm, 5.6 mm, 17.5 mm (0.07”, 0.22”, 0.7”)
  - as per EN ISO 12085: 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm
- Traverse speed: 0.5 mm/s
- Dimensions (w/o pick-up protection): dia. 24 mm, L = 112 mm up to 4 m
- Bluetooth range: up to 4 m
- Order no.: 6910403

**Drive Unit MarSurf RD 18 C2 for transverse tracing for M 300 C / PS 10**

**Features**

- During the manufacturing process, surface measurements of work pieces usually require special tools to find the right solution for a particular task; e.g. transverse scanning on a crank or camshafts, or measuring bearings. For such tasks the drive unit RD 18 C2 is available for transverse scanning.
- The well-proven PHT-skid probes are implemented in the drive unit.
- The drive unit RD 18 C2 is attached in the same way as the RD 18.
- By being able to use both types of drive units the range of application offered by the mobile MarSurf M 300 C and MarSurf PS 10 is broadened.
- Supplied with: Drive unit RD 18 C2, pick-up protection with prismatic underside, pick-up protection and a screwdriver

**Technical Data**

- Tracing direction: Transverse
- Traversing length: adjustable on M 300
  - as per DIN/ISO: 1.75 mm, 5.6 mm (0.07”, 0.22”)
  - as per EN ISO 12085: 1 mm, 2 mm, 4 mm
- Traverse speed: 0.1 mm/s and 0.5 mm/s
- Dimensions (w/o pick-up protection): dia. 24 mm, L = 142 mm
- Bluetooth range: up to 4 m
- Order no. RD 18 C2: 6910426
- Order no. chuck: 6850738

**Unique:** Cable-free connection between evaluation unit and drive unit!
A further advantage is the connection of several drive units to only one evaluation unit.
Optional probes for MarSurf PS 10 / M 300 / M 300 C

Probes for various measuring tasks

The P-probes are characterized by special construction features:

- Stylus tip geometry as per EN ISO 3274, standard 2 μm/90°
- Measuring force of approx. 0.7 mN (as per EN ISO 3274)
- Reliable inductive converter
- Robust, rigid housing
- Self-aligning, elastic bearings
- Reliable plug and socket connections

Pick-up PHT 6-350 (standard probe)

System: Single-skid pick-up with spherical skid
Skid radius: in traversing direction 25 mm (.984")
Contact point: 0.8 mm (.0315") in front of the stylus
Meas. range: 350 μm (.014")
Specification: for plane surfaces, bores with a dia. larger than 6 mm (.236") and a max. depth of 17 mm (.669"), grooves with a width larger than 3 mm (.118")

Order no. 6111520*
* Included in the scope of supply

Pick-up PHT 11-100

System: Single-skid pick-up with spherical skid
Skid radius: in traversing direction 25 mm (.984")
Contact point: 0.8 mm (.0315") in front of the stylus
Meas. range: 100 μm (.00394")
Specification: for plane surfaces, bores with a dia. larger than 11 mm (.433") and a max. depth of 14 mm (.551"), grooves with a width larger than 2.5 mm (.098")

Order no. 6111524

Pick-up PT 150

System: Dual-skid pick-up with spherical skid
Skid radius: in traversing direction 50 mm (1.969")
Contact point: 4.5 mm (.177") in front of the stylus
Meas. range: 150 μm (.006")
Specification: for measurements on metal sheets and roller surfaces according to DIN EN 10049 (SEP)

Order no. 6111523
## Pick-up PHT 3-350

<table>
<thead>
<tr>
<th>System</th>
<th>Single-skid pick-up with spherical skid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skid radius</td>
<td>in traversing direction 25 mm (.984&quot;), at right angles</td>
</tr>
<tr>
<td>Contact point</td>
<td>0.9 mm (0.0354&quot;) in front of the stylus</td>
</tr>
<tr>
<td>Meas. range</td>
<td>350 μm (0.014&quot;)</td>
</tr>
<tr>
<td>Specification</td>
<td>for bores with a dia. larger than 3 mm (118&quot;) and a max. depth of 17 mm (.669&quot;)</td>
</tr>
<tr>
<td></td>
<td>min. workpiece length = traversing length + 1 mm (0.0394&quot;)</td>
</tr>
<tr>
<td>Order no.</td>
<td>6111521</td>
</tr>
</tbody>
</table>

## Pick-up extension PHT (80 mm) for P probes

| Order no.               | 6850540                                                                                              |

## Pick-up PHTF 0.5-100

<table>
<thead>
<tr>
<th>System</th>
<th>Single-skid pick-up with spherical skid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skid radius</td>
<td>in traversing direction 0.3 mm (.012&quot;)</td>
</tr>
<tr>
<td>Contact point</td>
<td>0.6 mm (0.0236&quot;) at the side the stylus</td>
</tr>
<tr>
<td>Meas. range</td>
<td>100 μm (0.00394&quot;)</td>
</tr>
<tr>
<td>Specification</td>
<td>e.g. for gear tooth flanks with a modulus larger than 0.8</td>
</tr>
<tr>
<td>Calibration</td>
<td>via Geometric standard PGN</td>
</tr>
<tr>
<td>Order no.</td>
<td>6111522</td>
</tr>
</tbody>
</table>

## Pick-up PHTR-100

<table>
<thead>
<tr>
<th>System</th>
<th>Single-skid pick-up with lateral, spherical skid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skid radius</td>
<td>in traversing direction 0.3 mm (.012&quot;)</td>
</tr>
<tr>
<td>stylus radius</td>
<td>2 μm (0.0008&quot;), 90°</td>
</tr>
<tr>
<td>Specification</td>
<td>for measurements on concave and convex surfaces</td>
</tr>
<tr>
<td>Calibration</td>
<td>via Geometric standard PGN</td>
</tr>
<tr>
<td>Order no.</td>
<td>6111525</td>
</tr>
</tbody>
</table>
MarSurf PS 10 / M 300 Accessories

Measuring stand MarStand 815 GN

MarStand measuring stands offer high stability which ensures precise measurements.

- Rugged base ensures both maximum stability and sturdiness
- The upper side of the base has a convenient hand grip
- Support arm can be finely adjusted

<table>
<thead>
<tr>
<th>total height with base</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td>4413000</td>
</tr>
<tr>
<td>500 mm</td>
<td>4413001</td>
</tr>
<tr>
<td>750 mm</td>
<td>4413005</td>
</tr>
</tbody>
</table>

Stand adapter for MarSurf PS 10 / RD 18 C

Mount for cylindrical drive unit PS 10 / RD 18 C on measuring stand / height measuring instrument Ø 8 mm

<table>
<thead>
<tr>
<th>Order no.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand adapter</td>
<td>6910435</td>
</tr>
</tbody>
</table>

Hand-held support for MarSurf PS 10 / RD 18 C

The hand-held support with its multiple contact surfaces offers various application possibilities.

<table>
<thead>
<tr>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-held support for MarSurf PS 10 / RD 18 C</td>
</tr>
<tr>
<td>Height adjustment device suitable for hand-held (pair)</td>
</tr>
</tbody>
</table>

Pick-up protection for PS 10 / RD 18 / RD 18 C

<table>
<thead>
<tr>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick-up protection, steel</td>
</tr>
<tr>
<td>Pick-up protection with header vee-block, steel</td>
</tr>
<tr>
<td>Pick-up protection, plastic*</td>
</tr>
<tr>
<td>Pick-up protection header vee-block, plastic**</td>
</tr>
</tbody>
</table>

* With M 300 Set included in the scope of supply
** With M 300 and M 300 C Set included in the scope of supply
## MarSurf PS 10 / M 300 / M 300 C Accessories

### Mount for measuring stand ST

Accessories for measuring stands (these are not included in the measuring stands scope of supply):

**Mount for MarSurf PS 10 / RD 18**

The drive unit RD 18 can in the mount be pivoted and locked in any position (±15°)

**Order no.** 6910201

**Mount for MarSurf RD 18 C**

The drive unit RD 18 C can in the mount be pivoted and locked in any position (±15°)

**Order no.** 6851304

### Measuring stand ST

**Measuring stand ST-D**

Height adjustment: 0 to 300 mm, with a hand wheel

Dimensions (L x W x H): 175 x 190 x 385 mm

Weight: ca. 3 kg

**Order no.** 6710803

**Measuring stand ST-F**

Granite plate. The required measuring height can be adjusted with a hand wheel for convenient and accurate positioning of the drive unit.

Height adjustment: 0 to 300 mm, with a hand wheel

Dimensions (L x W x H): 400 x 300 x 415 mm

Weight: ca. 3.5 kg

**Order no.** 6710806

**Measuring stand ST-G**

Granite plate with a 10 mm (.39 in) T-slot for mounting work pieces. The required measuring height can be adjusted with a hand wheel for convenient and accurate positioning of the drive unit.

Height adjustment: 0 to 300 mm, with a hand wheel

Dimensions (L x W x H): 500 x 300 x 415 mm

Weight: ca. 3.5 kg

**Order no.** 6710807
MarSurf PS 10 / M 300 Accessories

Mounting bracket for Digimar 814 SR

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>814 Sh</td>
<td>Adjustable mounting bracket to connect the PS 10 / RD 18 to a 814 SR</td>
</tr>
</tbody>
</table>

Functions:
- **RESET** (Set the display to zero for relative measurement),
- **ABS** (Switch between relative and absolute measurement),
- **mm/inch, Reference-Lock/Unlock, PRESET** (To enter a numerical value),
- **DATA** (Data transmission via connection cable),
- **Auto-ON/OFF**

- Max. measuring speed 1.5 m/s (60”/s)
- High contrast Liquid Crystal Display with 12 mm high digits
- Sturdy heavy-duty base, easy to handle
- Hardened and lapped contact surface which produce both a smooth and even movement
- Slide and beam made of hardened stainless steel
- Hand crank for positioning and measuring
- Fine adjustment
- Locking screw
- Interchangeable scriber point, carbide tipped
- Supplied with:
  - Scribe point, cardboard box, battery and operating instructions

Height Measuring and Scribing Instrument Digimar 814 SR for MarSurf PS 10 / RD 18

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>814 SR</td>
<td>Measuring range 350 mm</td>
</tr>
<tr>
<td>814 SR</td>
<td>Measuring range 600 mm</td>
</tr>
<tr>
<td>814 Sh</td>
<td>Adjustable mounting bracket to connect the PS 10 / RD 18 to a 814 SR</td>
</tr>
</tbody>
</table>

MarSurf.
Mobile Surface Roughness Measuring Instruments
## MarSurf PS 10 / M 300 / M 300 C Accessories

### Vee-block PP

With four different prisms for mounting axis-symmetrical workpieces with diameters from 1 mm to 160 mm (0.0394" to 6.30”).

- **Dimensions (L x W x H)**: 80 x 100 x 40 mm 3.91” x 3.15” x 1.58”
- **Weight**: 1.5 kg / 3.31 lb
- Including clamping springs for holding light workpieces in the prism.

**Order no.** 6710401

### Parallel vice PPS

For mounting rectangular and cylindrical workpieces

- **Jaw width**: 70 mm / 2.76”
- **Jaw height**: 25 mm / 0.984”
- **Span**: 40 mm / 1.58”
- **Total height**: 58 mm / 2.28”
- **Weight**: 2 kg / 4.41 lb

**Order no.** 6710604

### XY table CT

For mounting and aligning workpieces. Can be adjusted in two coordinates by 15 mm (0.591”).

- **Table surface**: 120 x 120 mm Table surface 4.728” x 4.728” with two brackets.

**Order no.** 6710529

### Mini Precision Vise 109 PS as set

With mini precision vises. Depending on the version with prism jaws, carrier plates, stands and mini dividing attachment. Included in a plastic case

- **Width of jaws**: 15 / 25 / 35 mm

**Order no.** 4246819

### Roughness standard PRN 10

With Mahr calibration certificate. Roughness standard with turned profile, chromed. Profile depth ca. 10 μm (394 μinch), for checking the roughness measuring station.

**Order no.** 6820420*

* With the M 300 C Set this is included in the scope of supply.

### Geometric Standard PGN

Surface standard with sinusoidal groove profile for dynamic monitoring of the roughness measuring station. Ra, Rz, Rmax. Optical flat. The following versions are available:

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>6820602</td>
<td>PGN 1</td>
</tr>
<tr>
<td>6820601</td>
<td>PGN 3</td>
</tr>
<tr>
<td>6820605</td>
<td>PGN 10</td>
</tr>
<tr>
<td>9027715</td>
<td>Mahr-calibration certificate for PGN</td>
</tr>
<tr>
<td>6980102</td>
<td>DKD (German Calibration Service) calibration certificate for PGN</td>
</tr>
</tbody>
</table>

---

**MarSurf. Mobile Surface Roughness Measuring Instruments**
MarSurf PS 10 / M 300 / M 300 C Accessories

MarCom Software for PS 10 / M 300 / M 300 C

Software MarCom Professional
- Measured values can be directly transferred into MS Excel (from version 97) or into a text file or key code
- The measured values from each instrument can be sent to a different column, table or folder in Excel
- Data transmission via USB and/or 2 serial COM interfaces
- Flexible and comfortable data transmission: you can either press the “Data” button on the measuring instrument or on the data cable; via a computer keyboard, timer; or by activating a foot switch connected to an USB interface

Software MarCom Standard
(included with the USB Data Cable, for free download)
Features and system requirements are identical to MarCom Professional, except that it only has one USB and one serial COM interface.

Order no. 6910205

Software MarSurf M 300 Explorer
- The Software can be used to secure and document your measuring results and profiles (simply use Drag & Drop)
- The stored data can for example, be printed out on an A4 sheet or in any other format
- The measuring data can be displayed in different forms: profile and results, results, profile + MRC + results, statistics, and much more

Order no. 6299054

Evaluation Software MarSurf XR 20
- An easy way to evaluate and document data based on MarWin
- Evaluation and documentation of the results can be conducted independently and away from the measuring station
- Filing including documentation is made simple
- Workstation version available

Order no. 6299054
## MarSurf Available Parameters

### Parameters for MarSurf PS 10 / M 300 / M 300 C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Output</th>
<th>Meaning</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rq</td>
<td>RQ</td>
<td>Root mean square roughness Rq</td>
<td></td>
</tr>
<tr>
<td>Rz</td>
<td>RZ</td>
<td>Mean peak-to-valley height Rz (acc. to ISO) or Ry (acc. to JIS)</td>
<td></td>
</tr>
<tr>
<td>Rz (JIS)</td>
<td>RZ1</td>
<td>Mean height Rz of profile elements</td>
<td>JIS B 0601 : 2001 (früher: ISO 4287/1 : 1984)</td>
</tr>
<tr>
<td>Rmax</td>
<td>RMAX</td>
<td>Maximum roughness depth Rmax</td>
<td>DIN 4768 : 1990</td>
</tr>
<tr>
<td>RpA (ASME)</td>
<td>RP</td>
<td>Maximum profile peak height Rp</td>
<td>ASME B46</td>
</tr>
<tr>
<td>Rpm (ASME)</td>
<td>RPM</td>
<td>Mean profile peak height Rp</td>
<td></td>
</tr>
<tr>
<td>RpK</td>
<td>RPK</td>
<td>Reduced peak height Rpk</td>
<td></td>
</tr>
<tr>
<td>Rk</td>
<td>RK</td>
<td>Core roughness depth Rk</td>
<td></td>
</tr>
<tr>
<td>Rvk</td>
<td>RVK</td>
<td>Reduced valley depth Rvk</td>
<td></td>
</tr>
<tr>
<td>Mr1</td>
<td>MR1</td>
<td>Smallest material ratio Mr1 of roughness core profile</td>
<td></td>
</tr>
<tr>
<td>Mr2</td>
<td>MR2</td>
<td>Largest material ratio Mr2 of roughness core profile</td>
<td>DIN EN ISO 13565-2 : 1998</td>
</tr>
<tr>
<td>A1</td>
<td>A1</td>
<td>Material-filled profile peak area A1</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>A2</td>
<td>Lubricant-filled profile valley area A2</td>
<td></td>
</tr>
<tr>
<td>Vo</td>
<td>VO</td>
<td>Oil-retaining volume Vo</td>
<td></td>
</tr>
<tr>
<td>Rt</td>
<td>RT</td>
<td>Total height Rt of R-profile</td>
<td>DIN EN ISO 4287 : 1998</td>
</tr>
<tr>
<td>R3z</td>
<td>R3Z</td>
<td>Arithmetic mean third peak-to-valley R3z</td>
<td>DB N 31007 : 1983</td>
</tr>
<tr>
<td>RpC</td>
<td>RPC</td>
<td>Peak count RpC is the number of profile elements (see Rsm) per cm that exceed the set upper profile section level c1 and then fall short of the lower c2.</td>
<td>EN 10049 : 2005; ASME B46</td>
</tr>
<tr>
<td>Rsk</td>
<td>RSK</td>
<td>Skewness Rsk of the profile</td>
<td>DIN EN ISO 4287. ASME B46.1</td>
</tr>
<tr>
<td>S</td>
<td>S</td>
<td>Mean spacing S of local profile peaks</td>
<td>JIS B 0601 : 1994</td>
</tr>
<tr>
<td>CR</td>
<td>CR</td>
<td>Zone width CR of the profile peak zone (French „critère de rodage“) (dependent on intersection lines Scr1 and Scr2)</td>
<td></td>
</tr>
<tr>
<td>CL</td>
<td>CL</td>
<td>Zone width CL of the profile valley zone (French „critère de lubrification“) (dependent on intersection lines Scl1 and Scl2)</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>R</td>
<td>Mean depth R of roughness motifs</td>
<td>ISO 12085 : 1996</td>
</tr>
<tr>
<td>Ar</td>
<td>AR</td>
<td>Mean width Ar of roughness motifs</td>
<td></td>
</tr>
<tr>
<td>Rx</td>
<td>RX</td>
<td>Maximum depth Rx of profile irregularity</td>
<td></td>
</tr>
</tbody>
</table>

### Additional parameters for MarSurf M 300 / M 300 C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Output</th>
<th>Meaning</th>
<th>Standards</th>
</tr>
</thead>
</table>