► | MarSurf. Surface Metrology

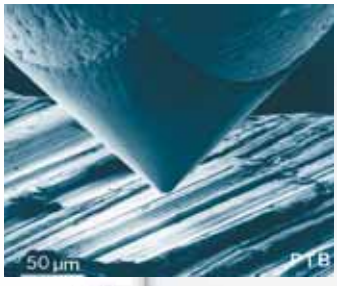
MarSurf. The Surface Metrology System for all Your Industry's Needs

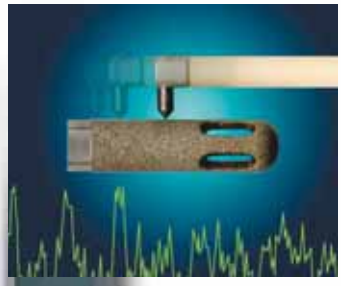
THE RIGHT SOLUTION FOR EVERY TASK

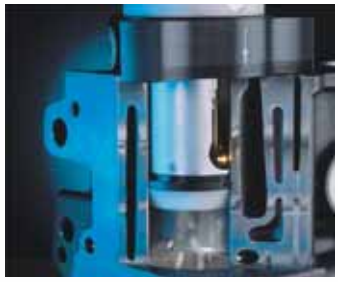
► | MarSurf has a universal range of applications. Key industries include:

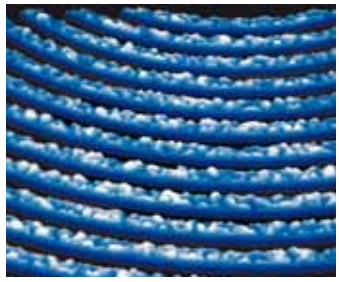
- Automotive industry
- Electronics industry
- Mechanical engineering industry
- Medical industry
- Optics industry

| ◄

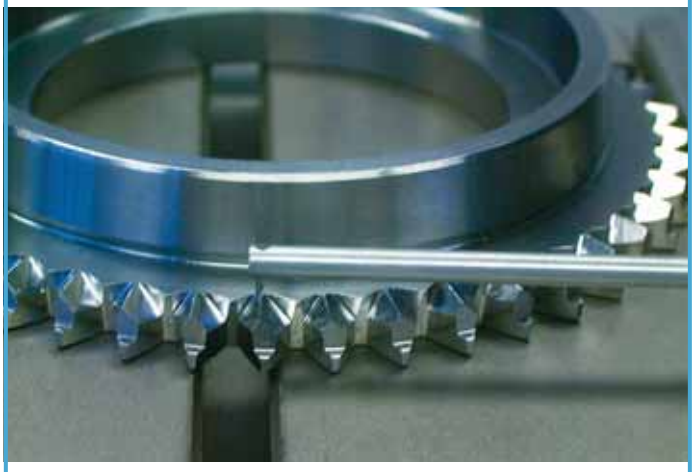








Automotive Industry



Measurements on synchronous rings

The automotive industry is often at the forefront of surface and contour measurement. Typical applications include measurements on crankshafts, camshafts, transmission components and engine parts. The measurement of the root geometry including roughness measurement for synchronous rings ensures both easy and smooth gear changing and a long service life.

WebCode 331

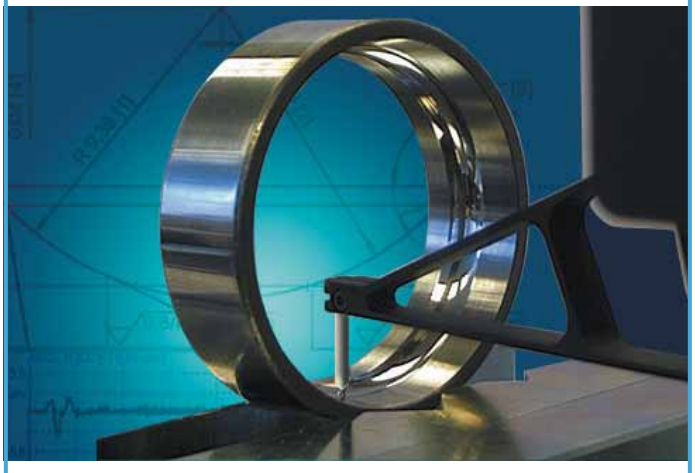
Electronics Industry

Measurements on wafer surfaces

Measurements can be performed in no time at all using optical sensors such as the **MarSurf WS1** system in this example, which uses the principle of white light interferometry. The vertical resolution of 0.1 nm (0.004 µin) ensures maximum precision. The powerful MarWin software platform with the **MarSurf XT 20** allows quick and easy topography evaluation.

WebCode 333

Mechanical Engineering Industry



Measurements on ball rings

Ball races today need high-precision radii and minimum form deviation. Roughness measurement ensures smooth running and long service life with as little running noise as possible. MarSurf meets these requirements through user-friendly evaluation software and extremely quiet drive units.

WebCode 9773

Medical Technology

Measurements on hip joints

Hip joint measurements need to be extremely accurate. Both the contour and roughness of the ball and/or socket affect the durability and performance of the joint.

WebCode 334

MarSurf. Handy and Precise for On-site Roughness Measurements

MOBILE ROUGHNESS MEASUREMENT DEVICES

► I Mahr has played a key role in ensuring the success of mobile roughness measurement devices. As early as the 1980s, Mahr was setting new standards with the M4P. The products have developed in line with changing production monitoring requirements. Today's devices meet the highest international standards. Mobile roughness measurement devices from Mahr are lightweight with a handy shape for flexible handling. They offer high-precision measurements in different positions and easy positioning using V-blocks, a practical shape and light weight. I ◄

Request a brochure or see WebCode 2409.

Pocket Surf®* the portable surface roughness gage

* *US-patent no. 4.776.212*

Optional Accessory:
Statistics Printer MSP 2,

Order No. 4102040

Requires connection cable

Order No. 4102046

Features

- Pocket-sized economically priced, completely portable instrument which performs traceable surface roughness measurements on a wide variety of surfaces; can be used confidently in production, on the shop floor and in the laboratory
- Solidly built, with a durable cast aluminum housing, to provide years of accurate, reliable surface finish gaging.
- Can be used to measure any one of four, switch-selectable, parameters: R_a, R_{max}/R_y, R_z
- Selectable traverse length 1, 3 or 5 cut-offs of 0.8 mm/.030"
- Operates in any position – horizontal, vertical, and upside down
- Four switchable probe positions – axial (folded) or at 90°, 180° or 270°
- Even difficult-to-reach surfaces such as inside and outside diameters are accessible
- Integrated data output for SPC-processing units that is compatible with the most common data processing systems
- Easy-to-read LCD readout presents the measured roughness value, in microinches or micrometers, within half a second after the surface is traversed.
- Out-of-range (high or low) and "battery low" signals are also displayed

Technical Data

Dimensions	140 mm x 76 mm x 25 mm/ ***5.5" x 3" x 1"***
Weight	435 g / 14 oz
Measuring Ranges	R_a 0.03 µm to 6.35 µm / ***1 µinch to 250 µinch*** R_y 0.2 µm to 25.3 µm / ***8 µinch to 999 µinch*** R_{max} 0.2 µm to 25.3 µm / ***8 µinch to 999 µinch*** R_z 0.2 µm to 25.3 µm / ***8 µinch to 999 µinch***
Display Resolution	0.01 µm / ***1 µin***
Measurement Accuracy	Meets ASME-B46.1, ISO, DIN standards and MIL specifications
Digital Readout	LCD with, "Battery low" signal; "H" and "L" (measured values out-of-range)

Pocket Surf

Technical Data

Probing and Traverse Lengths

Parameters	Traverse Length (Nominal)	Evaluation Length	Number of Cutoffs/ Switch Position
R_a/R_y	2.0 mm/ ***.075"*** 3.5 mm/ ***.135"***	0.8 mm/ ***.030"*** 2.4 mm/ ***.090"***	1 3
$R_a/R_z/R_{max}$	5.0 mm/ ***.195"***	4.0 mm/ ***.150"***	5

Traverse Speed	5.08 mm/ ***.2"*** per second
Cutoff	0.8 mm/ ***.030"*** ASME 2 RC-filter
Probe Type	Piezoelectric
Maximum Stylus Force	15.0 mN / 1500 mgf
Power	Consumer-type alkaline battery, 9 Volt
Battery Capacity	Approx. 2500 measurements, depending on frequency of use and output option
Operating Temperature	10° to 45°C / 50° to 113° F
Storage Temperature	-20° to 65°C / -4° to 149° F

Pocket Surf Sets

Order no.		
EMD-1500-311	EGH-1019	Probe, 90°, 10 µm radius, PMD-90101 Certified Specimen, incl. Test Certificate
EMD-1500-312	EGH-1019	Probe, 90°, 10 µm radius, EMD-90010 Precision Specimen
EMD-1500-321	EGH-1026	Probe , 90°, 5 µm radius, PMD-90101, Certified Specimen, incl. Test Certificate
EMD-1500-322	EGH-1026	Probe, 90°, 5 µm radius, EMD-90010 Precision Specimen

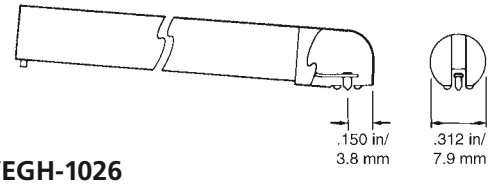
A Pocket Surf kit is furnished complete in a fitted case, and includes a Pocket Surf unit with a General Purpose Probe** and a 3.2 µm/***125 µinch*** (nominal) Reference Specimen**, 9 Volt battery, Riser Plate and screwdriver.

*** Part Numbers listed in table above.*

Probes

General Purpose Probes

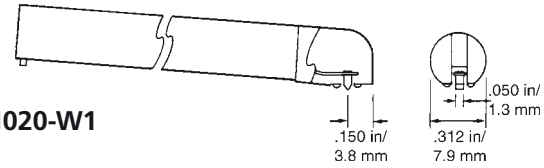
EGH-1019/EGH-1026
For most surface roughness applications.
EGH-1026
With a 90° conical diamond stylus, 5 µm/ .0002" radius*.
EGH-1019
With a 90° conical diamond stylus, 10 µm/ .0004" radius.



EGH-1019/EGH-1026

Transverse Chisel Probe

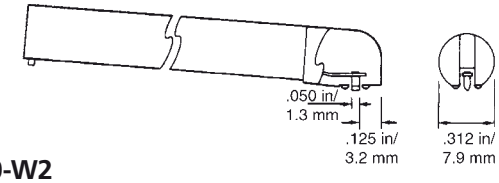
EGH-1020-W1
For gaging sharp edges or small O.D.'s where probe is aligned with (in 180° or closed position) to axis of traverse. 90° sapphire chisel, 10 µm./ .0004" radius.



EGH-1020-W1

Parallel Chisel Probe

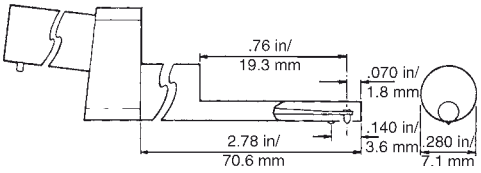
EGH-1020-W2
For gaging sharp edges or small O.D.'s where probe is perpendicular (in 90°- or 270° position) to axis of traverse. 90° sapphire chisel, 10 µm. / .0004" radius. Also used with EAS-2421 Vee fixture for O.D.'s smaller than 6,35 mm / .25".



EGH-1020-W2

Small Bore Probe

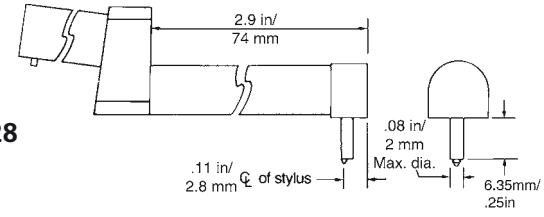
EGH-1021/EGH-1027
For gaging small bores (3,2 mm/ .125" minimum I.D.) up to a depth of 19 mm/ .75".
EGH-1027
With a 90° conical diamond stylus, 5 µm/ .0002" radius*.
EGH-1021
With a 90° conical diamond stylus, 10 µm/ .0004" radius.



EGH-1021/EGH-1027

Groove Bottom Probe

EGH-1028
For measuring the bottom of grooves, recesses and small holes to depths of 6.35 mm/ .25".
Also used for short lands and shoulders.
With 90° conical diamond stylus, 10 µm/ .0004" radius.
NOTE: Small Bore and Groove Bottom Probes can only be used in 180° position with the Pocket Surf unit supported in a height stand or other fixture.



EGH-1028

* *Yellow dot at connector end signifies 5 µm/ .0002" radius.*

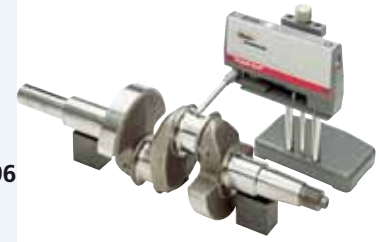
Using the Groove Bottom Probe to check an "O" ring groove.

Applications and Accessories

Height Stand EAS-2496

A compact, convenient fixture with a bracket to hold the Pocket Surf gage. Designed for making measurements on a granite surface plate or on any suitable, flat working surface to a maximum height of about 111mm/4.375".

Order no. **EAS-2496**



Bore Adapter Kit EAS-2839

For timesaving hand-held measurement of bores without having to fix the workpiece. Accommodates all inside diameters from 25 mm/ 1" to 150 mm/ 6"; depths from 25 mm/ 1" to 60 mm/ 2.4".

Order no. **EAS-2839**

Vee-Adapter Kit EAS-2739

Attaches to bottom of Pocket Surf unit, permitting convenient, hand-held measurements of hard-to-reach cylindrical surfaces, such as crankshaft journals without having to fix the workpiece. Suitable for parts with diameters from 5.0 mm/ .19" to 125 mm/ 5".

Order no. **EAS-2739**

Universal Stand EAS-2426

A heavy-duty stand equipped with an adjustable bracket to hold the Pocket Surf for measuring of workpieces, up to 213 mm / 8.375 in tall.

Order no. **EAS-2426**

Portable vee fixture EAS-2421

For measuring small parts with outside diameters from 3.1 mm/.125" to 25 mm/ 1" for lengths of 25 mm/ 1" minimum - includes PS-145 setting pin.

Order no. **EAS-2421**

Bottom Plate EAS-2584

For measuring cylindrical workpieces too short (less than 89 mm/3.5" long) for the "closed" probe position; for workpieces with short O.D.'s from 6.35 mm/ .25" (minimum 38 mm/ 1.5" long).

Order no. **EAS-2584**

EAS-3048 Mounting Bracket for use with height gages

For mounting the Pocket Surf to most standard height gages. The bracket includes a rectangular bar that is 11.5 mm x 6.35 mm (0.45" x 0.25") to fit the holder of the height gage. A swivel feature is included to permit the Pocket Surf to be set anywhere within a 360° rotation.

Order no. **EAS-3048**

Height Stand with Swivel

A compact, convenient fixture with an adjustable bracket to hold the Pocket Surf, anywhere within a 360° rotation, for making measurements on a surface plate or on any suitable, flat working surface.

Order no. **2236687**

MarSurf PS1. Absolute Mobility in Surface Metrology

Entry-level roughness measurement

Description

The **MarSurf PS1** lives up to its claim of "**Absolute mobility**" in all manner of ways, providing:

- **Mains-independent operation**
  Over 500 measurements without having to recharge the instrument
- **An all-in-one solution** that is no larger than a digital camera. Small and lightweight (400 g / 0.88 lbs)
- **Instrument flexibility**
  The standard range of functions is sufficient for this all-purpose smart little instrument to perform your measuring tasks
- **All the measuring positions you need**
  Can be used horizontally, vertically, upside down or in any other position required by the component
- **25 parameters**
  Offer the same range of functions as a laboratory instrument
- **Error-free operation** thanks to an integrated roughness standard
- **Automatic cutoff selection** (patented) so that even non-specialists are ensured correct measuring results
- **Simple operation**
  The brief guide in pocket diary format reflects how simple the PS1 is to use. You quickly get to grips with the essential features, enabling you to complete your measuring tasks with excellent results

MarSurf PS1. The Set

The **MarSurf PS1** comes in a complete set. Thanks to the carrying case, you always have your surface roughness measuring instrument with you as you pass through the production floor. Quick and reliable on-the-spot measurements ensure your quality requirements are met during the production process or incoming goods inspection.

The set contains:
- MarSurf PS1 base unit
- Drive unit
- 1 standard probe conforming to standards
- Built-in battery
- Roughness standard integrated into casing
- Height adjustment accessory
- Probe protection
- AC adapter
- Operating instructions
- Carrying case with shoulder strap and belt loop
- USB cable
- Mahr calibration certificate.

Order No. 6910210

WebCode 10778

MarSurf PS1. Technical Data

Unit of measurement	Metric, inch
Measuring principle	Stylus method
Probe	Inductive skidded probe, 2 µm (80 µin) stylus tip, measuring force approx 0.7 mN
Parameters (25, with tolerance limits)	Ra, Rq, Rz (Ry (JIS) corr. to Rz), Rz (JIS), Rmax, Rp, Rp (ASME), Rpm (ASME), Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr (tp (JIS, ASME) corr. to Rmr), RSm, R, Ar, Rx
Languages	14 including 3 Asian languages
Measuring range	350 µm, 180 µm, 90 µm (0.014 in, 0.007 in, 0.004 in)
Profile resolution	32 nm, 16 nm, 8 nm (1.3 µin, 0.6 µin, 0.3 µin)
Filter*	Phase-correct profile filter (Gaussian filter) as per DIN EN ISO 11562, special filter as per DIN EN ISO 13565-1, ls filter as per DIN EN ISO 3274 (can be disabled)
Cutoff lc*	0.25 mm, 0.8 mm, 2.5 mm; automatic (0.010 in, 0.030 in, 0.100 in)
Traversing length Lt*	1.75 mm, 5.6 mm, 17.5 mm; automatic (0.069 in, 0.22 in, 0.69 in)
Traversing length (MOTIF)	1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm (0.04 in, 0.08 in, 0.16 in, 0.32 in, 0.48 in, 0.64 in)
Short cutoff*	Selectable
Evaluation length ln*	1.25 mm, 4.0 mm, 12.50 mm (0.050 in, 0.15 in, 0.50 in)
Sampling lengths*	Selectable: 1 to 5
Calibration function	Dynamic
Memory capacity	Max. 15 profiles, max. 20,000 results
Other functions	Blocking of settings (code-protected), date/time
Dimensions	140 mm × 50 mm × 70 mm (5.51 in × 1.97 in × 2.76 in)
Weight	400 g (0.88 lbs)
Battery	Li-ion battery
Interfaces	USB, MarConnect (RS232)
Long-range power supply	100 V to 264 V

** in accordance with ISO/JIS*

MarSurf PS1 / M 300. Accessories

80 mm (3.15 in) probe extension **Order No. 6850540**
for example, for measuring points located deep within cylinders.

PHT 3-350 probe **Order No. 6111521**
for measurements in bores from dia. 3 mm (0.12 in).

PHT 11-100 probe **Order No. 6111524**
for measurements at recessed measuring points,
e.g. in grooves from 2.5 mm (0.10 in) wide and up to 7.5 mm (0.30 in) deep.

PHTR 100 probe **Order No. 6111525**
for measurements on concave and convex surfaces.

PHTF 0.5-100 probe **Order No. 6111522**
for measurements on tooth flanks.

PT 150 probe **Order No. 6111523**
Dual-skid probe for measurements on metal sheets and roller surfaces according to DIN EN 10049 (SEP).

MarSurf M 300. A step ahead!

High mobility, high-performance unit

Description

MarSurf 300, the first mobile roughness measuring unit with the possibility to use a cable-free connection (*Bluetooth*) to the drive unit.

More comfort and performance at a good price, an investment that pays off!

- Cable-free *Bluetooth* connection
- Simple use due to high-resolution color display and proven user guidance in the "automatic teller machine" style
- Integrated standard in the drive unit
- Large measuring range of 350 µm (0.14 in)
- Automatic selection of filter and traversing length conforming to standards
- Integrated memory for up to 40,000 results and 30 profiles
- 15 languages (incl. 3 Asian languages)

More possibilities with MarSurf M 300

- Integrated thermal printer with highest printing quality
- Output of the R-profile via thermal printer
- Record can be output with the push of a button or automatically
- Data transfer of the results to the PC via USB interface
- Evaluation of the most commonly used parameters as well as characteristic curves, parameter lists (e.g. material ratio)
- Integrated memory for results and profiles
- Tolerance monitoring
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record
- Setting of asymmetric intersection lines for peak count calculation
- Measuring units (µm/µinch) and standards (ISO/JIS/ASME/MOTIF) selectable
- Individual traversing lengths as well as short cutoff selectable
- Locking and/or password protection for instrument settings
- Built-in battery with power management
- AC adapter with exchangeable adapters for worldwide use
- Output of date and/or time of the measurements

Further advantages

- Can be extended to a stationary measuring station
- Use of the PHT probe series
- Software „MarSurf PS1/M 300 Explorer" for the creation of measuring records

WebCode 13279

MarSurf M 300. Application Examples

Roughness measurements on flap tracks (for landing flaps) (Airbus)

Roughness measurement on wings (Airbus)

Roughness measurement on ship propellers (Mecklenburger Metallguss)

Scope of Delivery

MarSurf M 300 Set **Order no. 6910401**

- Evaluation unit MarSurf M 300
- Drive unit MarSurf RD 18
- Standard probe PHT 6-350
- Standard (integrated in MarSurf RD 18)
- Mahr calibration certificate
- 1 roll of thermal paper
- Probe protection
- End face vee-block
- Height adjustment
- Wide-range AC adapter with 3 adapters
- 2 x USB cable (for connection to PC and use with cable)
- Allen key
- Operating instructions

The set is delivered in a practical carrying case.
For accesories, please see page 15-6: Accessories PS1

MarSurf M 300 C

Drive Unit RD 18 C

Cylindrical drive unit with hand-held support and probe from the PHT series
As a sequel to the proven mobile roughness depth measuring units, the M 300 C set contains the cylindrical drive unit RD 18 C. With this unit set you reach all measuring points on your work-piece.

Possibilities MarSurf M 300 C

- Automatic selection of filter and traversing length conforming to standards
- Integrated thermal graphics printer of high print quality
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record
- Data transfer of results and profiles via USB-interface to your PC
- Cutoffs - 0.25/0.8/2.5 mm (0.010/0.032/0.100 in)
- Integrated memory for the results of up to 40,000 measurements and 30 profiles
- Tolerance monitoring in display and measuring record
- Vertical scale: automatic/selectable
- Dynamic calibration function
- 15 languages
- Standards: ISO/ASME/JIS and MOTIF selectable
- Number of sampling lengths selectable from 1 to 5
- Locking and/or password protection for instrument settings
- Units µm/µinch selectable
- AC adapter with three mains adapters, for input voltages from 90 V to 264 V
- Output of date and/or time of the measurements

Drive unit set with probe system

Example: upside down measurement

Example: measurement on end face vee

Further advantages

- Expandable to a stationary measuring station
- Usable with the PHT series probes
- Software "MarSurf PS1/M 300 Explorer" to create measuring records

MarSurf M 300 C on measuring stand ST-D

Example: Measurement with height adjustment

WebCode 13830

MarSurf M 300 C

Scope of delivery

- Evaluation unit MarSurf M 300C
- Cylindrical drive unit MarSurf RD 18 C
- Hand-held support with vee-block faces
- Standard probe PHT 6-350
- 1 chart paper roll
- Probe protection
- Mount for drive unit with clamping shaft diameter 8 mm
- Power pack with 3 mains plugs
- 1 x USB cable (connectable on PC)
- Allen key
- Operating instructions

All items come in a carrying case.

MarSurf M 300 C set: **Order no. 6910431**

Efficient Application Aids for Manufacturing

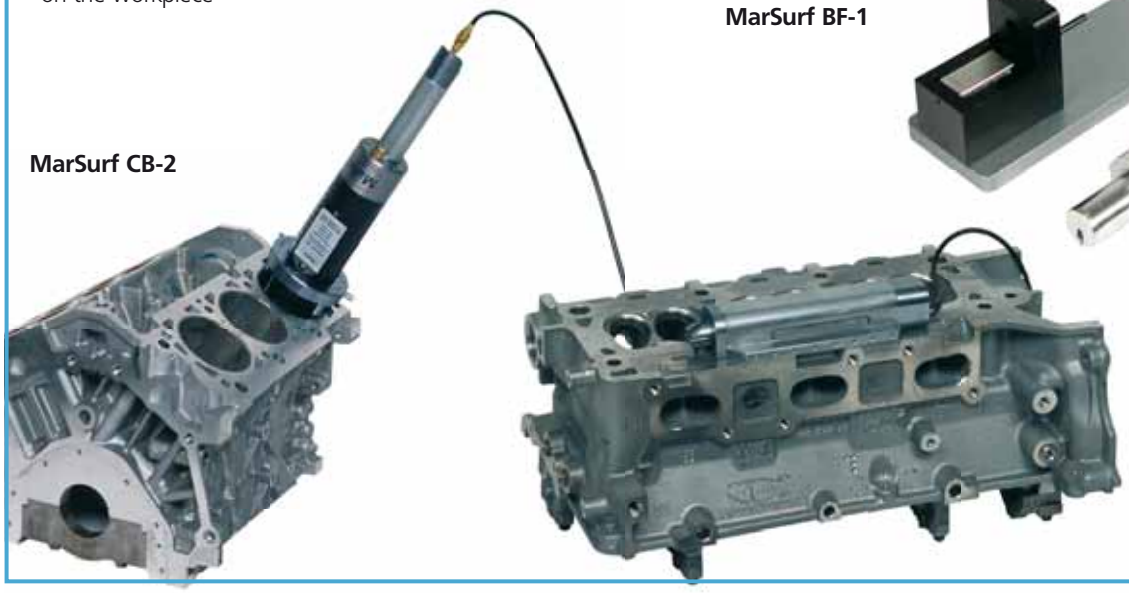
Tough manufacturing environments require quick and easy roughness measurements. The shop floor is particularly demanding on measuring instruments. **Application aids** from **Mahr** are the perfect solution.
They work together with the evaluation units of the M 300 series. A calibration / resting station is already included in the scope of delivery.

- Special design allows precise, easy positioning of measuring instrument
- Easy to use even without specialist metrological knowledge
- Drive unit protected from environmental influences that might disrupt the measurement
- Probe protection, i.e. probe is only extended during measurement
- Surface protection material ensures measurement leaves no marks on the workpiece

MarSurf TF-1

MarSurf BF-1

MarSurf CB-2



MarSurf DR-1

WebCode 10483

MarSurf M 400. Mobile and Stationary Surface Metrology for the Production Area

The best of the "mobiles".
Easy. Fast. Innovative. With skidless tracing and automatic zero setting.

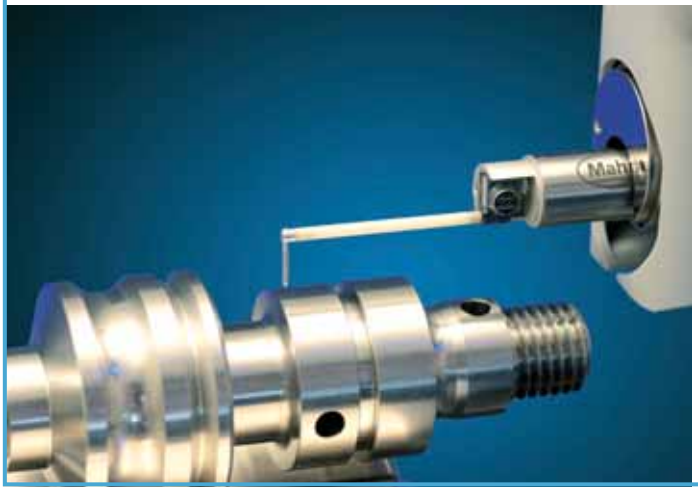
Bluetooth

Description

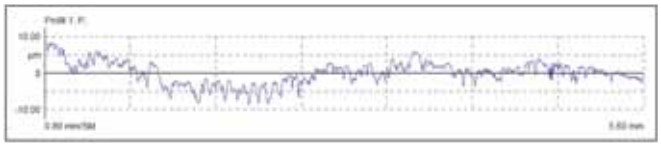
The need for high quality surface metrology already in the mobile area is increasing. In many cases, a skidded measurement is no longer sufficient and skidless tracing is required instead. Especially when determining parameters from the unfiltered P profile or waviness parameters, a skidless measurement is absolutely necessary. MarSurf M 400 fulfills these characteristics completely and additionally has the advantage of easy operation even for complex measuring tasks.

The automatic zero setting option spares the user complicated manual zero setting. After pressing the start button, zero setting and subsequent measurement are started right away.

Measuring in production

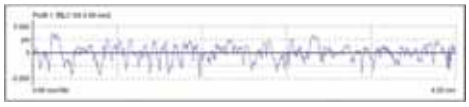


P profiles



W profiles

R profiles



MarSurf M 400. The Best of the "Mobiles"

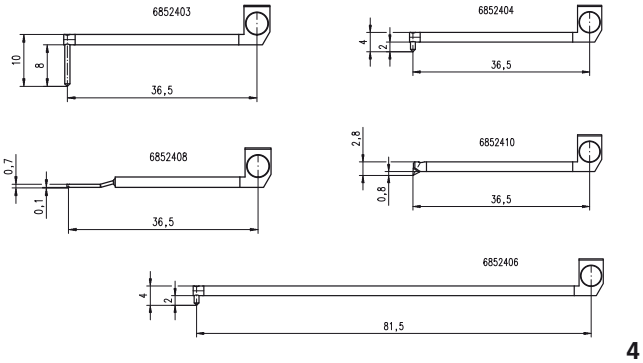
High performance with high mobility

Drive Unit SD 26 and Probe System BFW-250


1


2


3



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The possibility to expand the mobile surface measuring unit to a small stationary work station can be easily and quickly realized by adding only a few components from the line of MarSurf accessories.

Fast and easy alignment of the drive unit relative to the testpiece thanks to the inclination adjustment option.

The MarSurf M 400 enables the evaluation of parameters from the P, W and R profiles.

Features

- **Skidless tracing** with high precision probe system (1)
- **Fast probe arm change** due to magnetic probe arm holder (2, 3, 4)
- **Protection from damage**
- **Only a few seconds of setting time required** due to motorized height adjustment of the drive unit with automatic zero setting
- **Flexible handling** with cable-free *Bluetooth* connection
- **Concise, clear and easy** due to brilliant color display for the depiction of results and operator guidance
- **Mobile use** due to operation with AC adapter or built-in battery
- **Internationally up to date** with all common parameters as per ISO, JIS, ASME, many integrated languages
- **Documentation with quality** with integrated thermal printer for printout of profile and results
- **Standardized measuring point** density despite increased measuring speed

Upside down measurement with vee-block
Automatic zero setting of the BFW-250

MarSurf measuring station with measuring stand ST-G

MarSurf M 400. The Best of the "Mobiles"

MarSurf M 400 Set. Scope of Delivery

Scope of delivery
- Evaluation unit MarSurf M 400
- Drive unit MarSurf SD 26 incl. probe system BFW-250
- Standard probe arm (6852403)
- 1 thermo paper roll
- Wide-range AC adapter mit 3 adapters
- 2 x USB cables (to connect to PC and for use with cable)
- Operating instructions

All items are delivered in a practical carrying case.

MarSurf M 400 set: **Order no. 6910404**

Technical Data

MarSurf M 400 set

Profile determination	Primary, waviness and roughness profile
Probes	inductive skidless probe system with exchangeable probe inserts, 2 µm probe tips, measuring force approx. 0.7 mN (standard)
Filters (as per DIN/JIS)	Gaussian filter, Ls filter
Standards	DIN/ISO/JIS/ASME/MOTIF
Parameters	DIN/ISO: Ra, Rq, Rz, Rmax, Rp, Rv, Rpk, Rk, Rvk,Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr (3x), HSC, RSm, Rsk, Rdc, Rdq, Rku Pa, Pt, Pmr (3x), Pdc, Wa, Wq, Wt, WSm, Wsk, JIS: Ra, Rz, RzJIS94, Sm, S, ASME: RpA, Rpm MOTIF: R, AR, W, AW, Rx, Wx, Wte, CR, CL, CF, NR, NCRX, NW, CPM
Cutoff *lc* (as per ISO/JIS):	0.25 mm, 0.8 mm, 2.5 mm, automatic,
Traversing lengths *Lt* (as per ISO/JIS)	1.75 mm, 5.6 mm, 17.5 mm, automatic, free entry
Traversing lengths (as per MOTIF)	1 mm, 4 mm, 8 mm, 12 mm, 16 mm
Evaluation lengths *lm* (as per ISO/JIS)	1.25 mm, 4.0 mm, 12.5 mm
Number *n* of sampling lengths (as per ISO/JIS):	selectable: 1 to 5
Shortened cutoff (as per ISO/JIS)	selectable
Tracing speed	0.2 mm/s, 1 mm/s
Profile resolution	Measuring speed: ±250µm = 8 nm, ±25 µm = 0.8 nm, (standard probe arm length) (±500 µm = 16 nm (double probe arm length)
Languages	15, 3 of them Asian
Memory	Max. 30 profiles, max. 40,000 results
Other	lock/code word protection, date/time, integrated printer, dynamic calibration function

Drive Unit SD 26

Traversing length	26 mm
Measuring speed	0.2 mm/s; 1 mm/s
Positioning speed in X	5 mm/s
Height adjustment Z	7.5 mm, motorized
Positioning speed in Z	2 mm/s
Zero setting of probe system	Automatically to zero or to specified value in the probe measuring range
Inclination adjustment	±1.5° (alignment function with user guidance in the evaluation unit)
Temperature (storage)	-15° C to +55° C
Temperature (operation)	+5° C to +40° C
Rel. humidity	30% to 85%, non-condensing
Weight	M 400: approx. 1.0 kg SD 26: approx. 0.9 kg
Interfaces	USB Slave, MarConnect (RS232)
Wide-range AC adapter	90 – 264 V

WebCode 13834

MarSurf. PC-based Stationary Surface Measuring Stations
VERSATILE, HIGH-PERFORMANCE UNITS FOR INSPECTION ROOM AND LABORATORY

► | In surface metrology, a distinction is made between mobile units, stationary shop-floor units and PC-based surface measuring instruments. The latter provide the very best measurement and evaluation performance for surface measurement tasks. They fulfill all the key requirements of a state-of-the-art PC-based measuring and evaluation system, including compliance with international standards, versatile evaluation methods, comprehensive documentation, large storage capacity, data export and import and networking with other systems. Comprehensive QA procedures ensure the highest quality and stability of software and hardware. | ◄

Request a brochure or see WebCode 2564.

MarSurf XR 20

Roughness and waviness measurement made easy

Description

MarSurf XR 20 is the perfect unit for moving into top-flight surface metrology. This PC-based unit supplies all the common parameters and profiles in accordance with international standards, both in the inspection room and on the shop floor. The high-performance **MarSurf XR 20** is the fruit of decades of surface metrology experience combined with forward-looking technology, clear symbols and straightforward operating aids.

Features

- Over 100 parameters may be selected for R, P and W profiles as per ISO / JIS / ASME or MOTIF (ISO 12085)
- Tolerance monitoring and statistics for all parameters
- Fast creation of Quick & Easy measuring programs using Teach-in mode
- Comprehensive logging
- Automatic function for selecting standard-compliant selection of filters and traversing lengths (patented)
- Support for different calibration methods (static / dynamic) with specification of Ra or Rz parameter
- Adjustable servicing and calibration intervals
- Simulation mode to help users familiarize themselves with the system quickly
- Numerous measuring station configurations for customized applications
- Different user levels can be set up
- Flexible system thanks to various options and creation of customer-specific parameters
- Different user levels protect unit from operator error and ensure that no unauthorized users are able to operate the device

Accessories

- Connection options for Mahr **PZK**, **GD 25**, **PGK 20**, **PGK 120** and **PRK** drive units
- Dominant Waviness option available
- Software can also be used as evaluation software for **M** and **S** units
- Optional **qs-STAT**-based data transfer

WebCode 2997

MarSurf XC 2

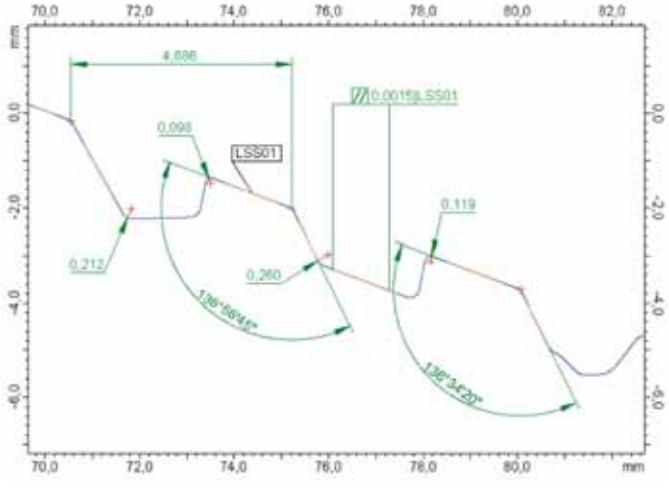
For entry-level, high-precision contour measurement

Features

- Creates regression straight lines and circles
- Creates points, intersection points, free points, center points, maximum and minimum points
- Determines radii, distances, angles, coordinates and line form deviations
- Performs nominal/actual comparisons
- Tolerance monitoring
- Associative elements, i.e. immediate change of variables dependent on reference elements when changes occur
- User access rights using password protection prevents incorrect operation
- Excellent calibration procedure thanks to many years' experience, i.e. including geometry calibration, measuring force calibration, bend compensation, etc.
- Stability and rigidity of the probes
- The drive unit is very smooth-running, highly stable and extremely accurate

Description

Measuring and evaluating geometries of workpieces and tools that are relevant for correct functioning is one of the primary requirements of research, technology and industry. The fast, straightforward and cost-effective 2D contour measuring system is increasingly winning out over other systems. The tried-and-tested, user-friendly **MarSurf XC 2** is the best example of this. Not only does it meet all requirements in terms of accuracy and different evaluation criteria, it also delivers reliable results time after time.



CD 120 Drive Unit

The **CD 120** drive unit has a patented probe arm mount for fast and flexible changing of probe arms without the need for tools. The calibration data for each probe arm is stored separately. It is also easy to calibrate several identical probe arms.

Features

- Max. measuring range of 120 mm (4.72 in) measuring length and 50 mm (1.97 in) measuring stroke
- Automatic lifting and lowering of the probe arm with adjustable speed
- Variable setting of measuring force from 1 mN to 120 mN
- High positioning speed
- Collision protection thanks to patented probe arm mount

The **MarSurf XC 2** can also be delivered optionally with the drive unit **PCV 200**.

WebCode 2698

MarSurf XC 20

The new generation of contour measurement systems

Description

When it comes to contour evaluation, **MarSurf XC 20** is simply the best. What started over 30 years ago with the Conturograph – consisting of a drive unit and x-y plotter – has today developed into a state-of-the-art contour measurement system with the very latest technology. This perfectly coordinated configuration of instruments meets the highest performance standards. Both the drive unit and the measuring stand are controlled and positioned using the reliable measurement and evaluation software.

Features

In addition to the functions of the **MarSurf XC 2** entry-level unit, **MarSurf XC 20** also provides additional features:

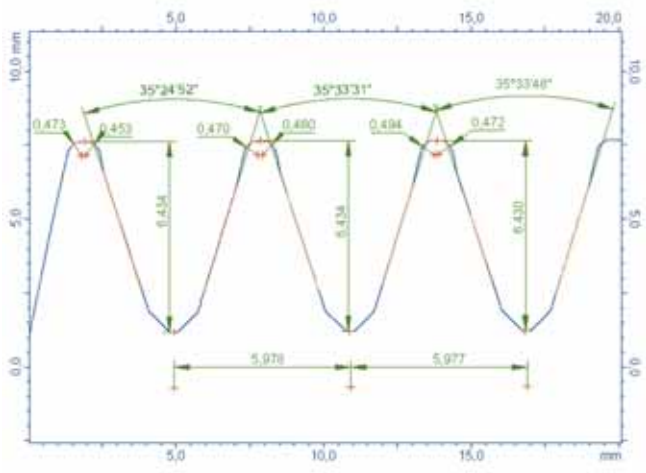
- Notes on the operating sequence can be displayed
- Interactive control elements support evaluations and automatic operating sequences
- Measurement of upper and lower contours with "twin stylus probe"; these contours can also be evaluated in relation to each other
- Creation of profile sections with evaluations of different parameters for each section
- Segmented measurement across obstacles such as bores or steep sides is possible
- Import and export of DXF files for nominal/actual comparison
- **PCV 200** drive unit with patented probe arm mount allows tool-free, reproducible changeover of probe arms
- Flexibility measuring station thanks to patented probe system
- Manual, freely variable tracing forces also support flexibility
- Synthetic creation of nominal profiles from straight lines and arcs
- Straightforward comparison of nominal and actual profiles. Several ranges can be defined within a measured profile and each of these ranges can be assigned a different tolerance and different evaluations

Versions

By combining the **MarSurf XC 20** software with the high-precision **LD 120** drive and probe system and the **ST 500** or **ST 750** measuring stand, resolutions in the nm range can be achieved, thereby allowing contour and roughness depth to be determined in a single measuring run.

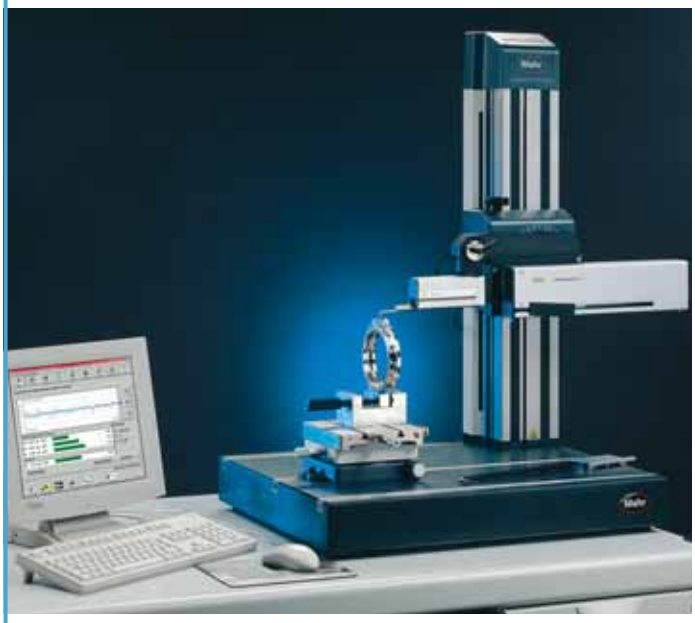
Additional functions such as **qs-STAT**-based data export or evaluation of dominant waviness are further optional extras.

WebCode 2736



MarSurf XCR 20

The new generation of combined roughness and contour measurement systems



Description

MarSurf XCR 20 is ideal for combining contour and roughness depth evaluation.
Marsurf XC 20 + **MarSurf XR 20** = **MarSurf XCR 20**
This system includes absolutely everything you need, saving both time and space. There are separate user interfaces for the roughness and contour software. **MarSurf XCR 20** is **Mahr**'s top surface measurement system and enables even semi-automated operating sequences to be performed.

Versions

- Combi-measuring station with one measuring stand and two drive units (**PCV 200** and **MarSurf GD 25**)
- Combi-measuring station with quick-change mounts (**PGK 120**, **PCV 200**)
- **MarSurf UD 120 / LD 120** enables high-precision contour and roughness evaluation on components

WebCode 3152

Features

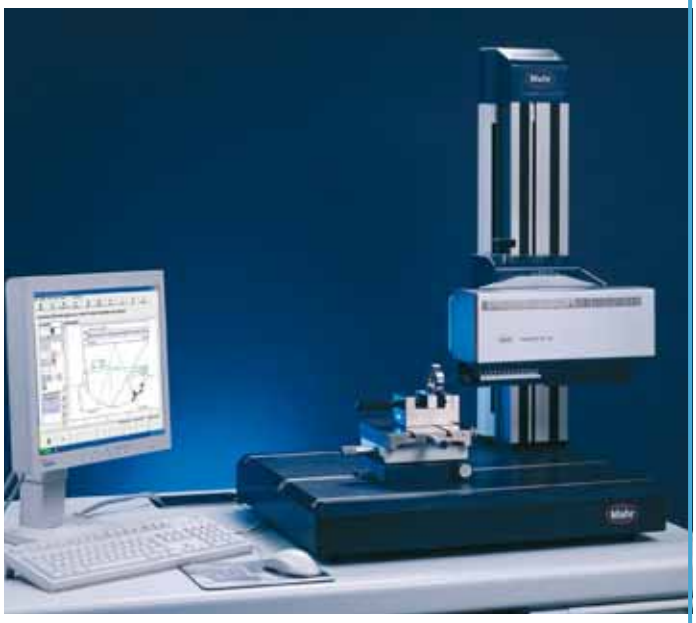
- Saves space because both drive units (**MarSurf PCV 200** contour drive unit and **GD 25** roughness drive unit) can be adapted using the corresponding combi-mount on the **ST 500** or **ST 750** measuring stand
- Roughness and contour evaluations possible from a single measurement
- High-precision contour and roughness evaluation with the **MarSurf LD 120** measuring system on components requiring a large stroke and very high resolution
- Option of rapidly switching between roughness and contour measurements thanks to straightforward changeover within the software platform and changing of mechanical components such as drive unit and probe.

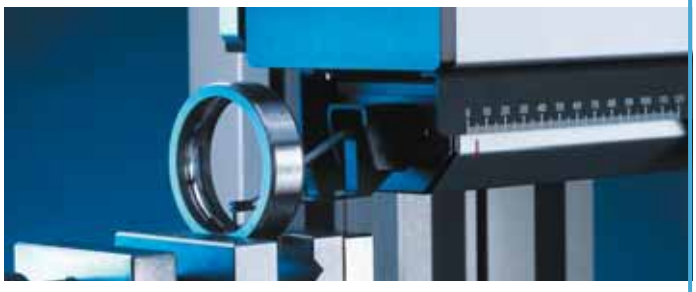
MarSurf UD 120 / LD 120

Two in one. Contour and roughness depth measurement in a single stroke

Description

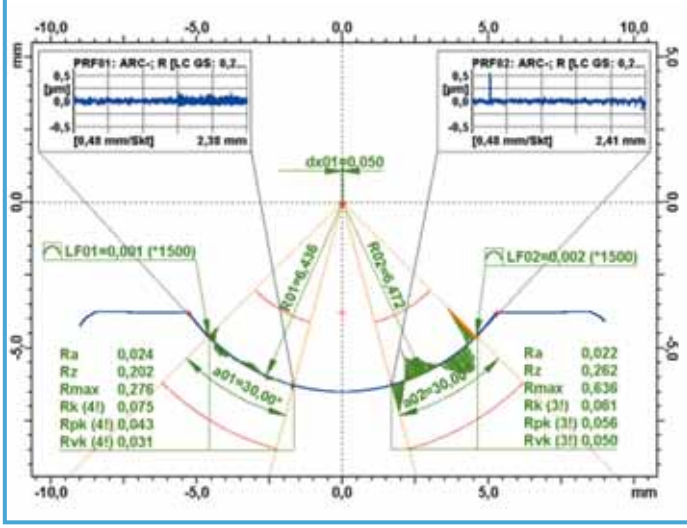
MarSurf UD 120/ LD 120 is the new high-quality, high-precision **contour** and **roughness measuring station** with integrated laser measuring system. It performs roughness and contour evaluations in a single stroke. To complete both these measurement tasks with a single measurement, you need a high-precision measuring system that supports both the relatively large measuring stroke for the contour in radii, on slopes or in freeform areas and the resolution in the nm range for the roughness depth measurement.





Features

- The magnetic probe mount ensures flexibility by supporting a wide range of probes that can be easily exchanged, while maintaining a high level of reliability
- Positioning accuracy in the µm range when exchanging probes, and collision protection, rigidity and stability with resolutions in the nm range
- Reliable results thanks to a calibration procedure specially geared to high accuracy
- Software can be used to set measuring forces which remain constant over the entire measuring stroke, ensuring flexibility and reliability. You can select the optimum measuring force to match the material characteristics of the workpiece and the probe of your choice
- Increase accuracy due to morphological filtering in the **MarSurf X series**
- Probe arm change does not call for recalibration. Calibration is saved for every arm as well as for the magnetic probe mounting, ensuring high reproducibility.



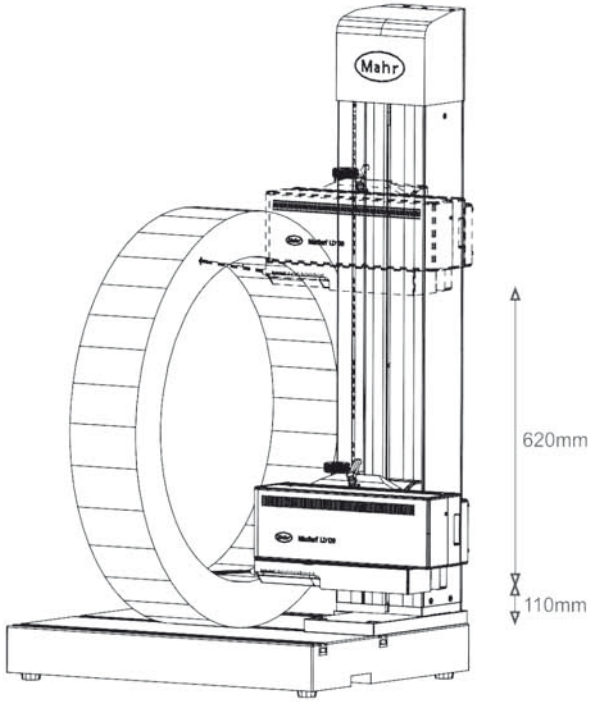
Versions

MarSurf UD 120 with measuring stand
Entry into the world of high-preicison roughness and contour metrology by means of an integrated optical tracing system.

MarSurf LD 120 with measuring stand
This combination including measuring stand makes for a highly flexible measuring station.

WebCode 3162

MarSurf Measuring Stand ST 750 D. Measuring Contours in New Dimensions

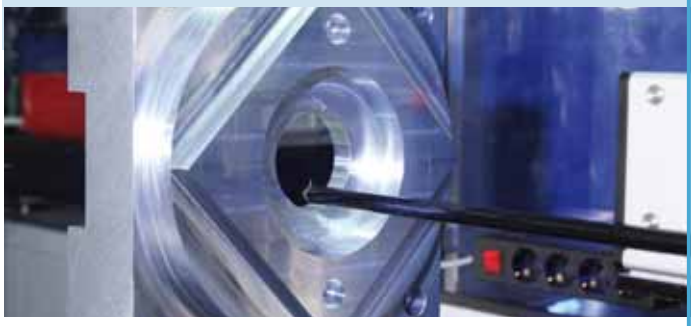


Sketch: LD 120 with ST 750 D

By using a twin-stylus probe arm and the UD 120 / LD 120 or PCV drive unit, the individual contour areas are measured using a measuring program. After the geometries of the upper side of the ring have been measured, the slide of the measuring stand moves the drive unit down by the diameter range of the workpiece. Now the geometries of the lower side of the ring are measured.

An exact computation of the travel path of the slide on the measuring stand enables the reference dimensions of the upper and lower contour to be related to each other.

This enables the measurement of diameters, distances and contours in the range up to 620 mm.



Description

Contour metrology from Mahr has been successfully used by hundreds of customers worldwide for decades. Due to many excellent customer solutions, many of them patented, contour metrology has undergone many important developments.

Mahr was the first manufacturer of contour metrology offering the possibility of measurements with a twin stylus with simultaneous switching of the measuring force. This makes it possible not only to measure contours in one tracing direction but also to perform upside down measurements, thus enabling pairs of opposed profiles to be recorded and set off against each other, for diameter measurements, for example.

Today we are proud to present to you a decisive development that builds upon these possibilities.

In connection with the measuring stand **MarSurf ST 750 D**, the measuring stations UD 120 / LD 120 as well as XC 20 CNC can use the entire measuring length of 620 mm of the vertical axis.

The greatly expanded measuring and evaluation possibilities result from the following basic principle and measuring procedure.

1. Measurement of the lower contour range "measuring force below"
2. Moving the slide on the measuring stand in the upper position.
3. Measuring the upper contour range "measuring force above"
4. Evaluation (distance, diameter) of the two profiles related to each other

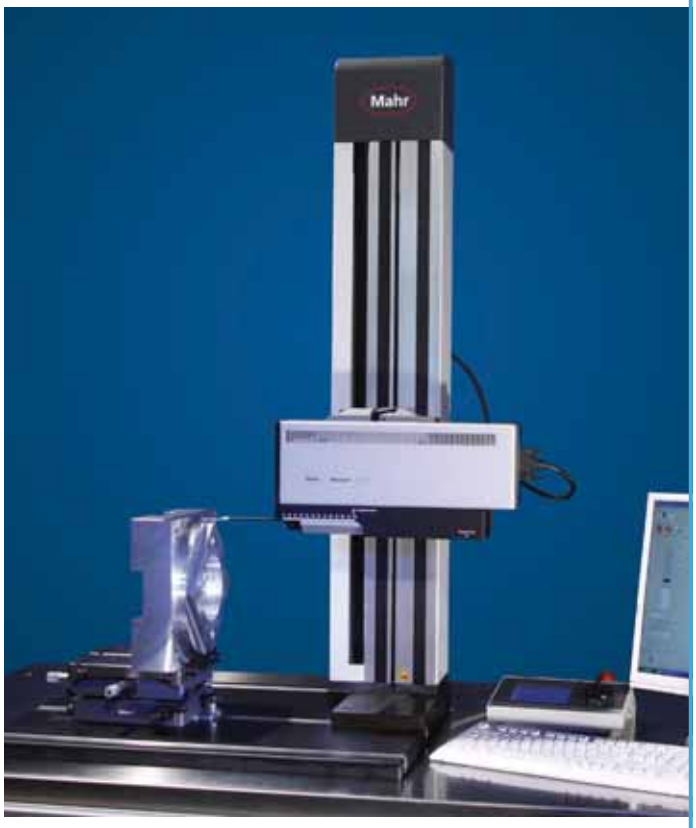
Technical Data

Positioning length:	620 mm (deepest position approx. 110 mm above the granite plate)
Traversing length:	620 mm
Working temperature	21°C ±1° K 1)
Accuracy	
with LD 120/UD 120	MPE ±(1.4 + L/100) µm L = measuring length in mm 2)
with PCV	MPE ±(2.5 + L/100) µm L = measuring length in mm 3)
Workpiece weight:	Up to 90 kg with XY table CT 200

1) A deviating working temperature can lead to a deviation in accuracy

2) With probe arm	item no. 6852008
3) With probe arm	item no. 9045820

MarSurf Measuring Stand ST 750 D. Measuring Contours in New Dimensions



Scope of Delivery MarSurf XC 20 with ST 750 D

Measuring Station MarSurf XC 20 with ST 750 D	
MarSurf XC 20 CNC	6268361
consisting of: Control unit MidRange CNC, Software MarSurf XC 20 MarWin, PC	
Countries package WIN XP Professional	62682XX
TFT monitor 19"	5460043
Manual control panel MCP 21 advanced	7033935
Drive unit PCV 200	6720810
Calibration set contour (standard)	6820124
XY table CT 200*	6710530
Measuring stand **MarSurf ST 750 D**	
with granite plate 700 mm x 550 mm	**6710255**
Stand axis module ST 750 D	**6851389**
Printer	5460030
USB cable	3018232
Support for PCV 200/CD 120	6851362
Protection concept PCV	7033957
Probe arm 350 M	6851529
Stylus PCV ± 9 mm	6851530
Probe arm CP 175M/10/3. 5	9045820*

**not shown in picture*

WebCode 13832

Scope of Delivery MarSurf LD 120 with ST 750 D

Measuring Station MarSurf LD 120 with ST 750 D	
MarSurf XCR 20 LD 120	6268382
consisting of: Control unit MidRange LD 120, Software MarSurf XCR 20 MarWin, PC	
Countries package WIN XP Professional	62682xx
TFT monitor 19"	5460043
Manual control panel MCP 21 advanced	7033935
Drive unit MarSurf LD 120	6720814
incl. 2 probe arms	
Calibration standard for MarSurf LD 120	
Accuracy class 1	6820121
XY table CT 200	6710530
Measuring stand **ST 750 D**	
with granite plate 700 mm x 550 mm	**6710255**
Stand axis module ST 750 D	**6851389**
Printer	5460030
USB cable	3018232
Set of damping elements	6851368
Support for UD 120 / LD 120	6851360
Protection concept UD 120 /LD 120	7033457
Probe arm LDT 3-10-2/90*	6852008[1)]

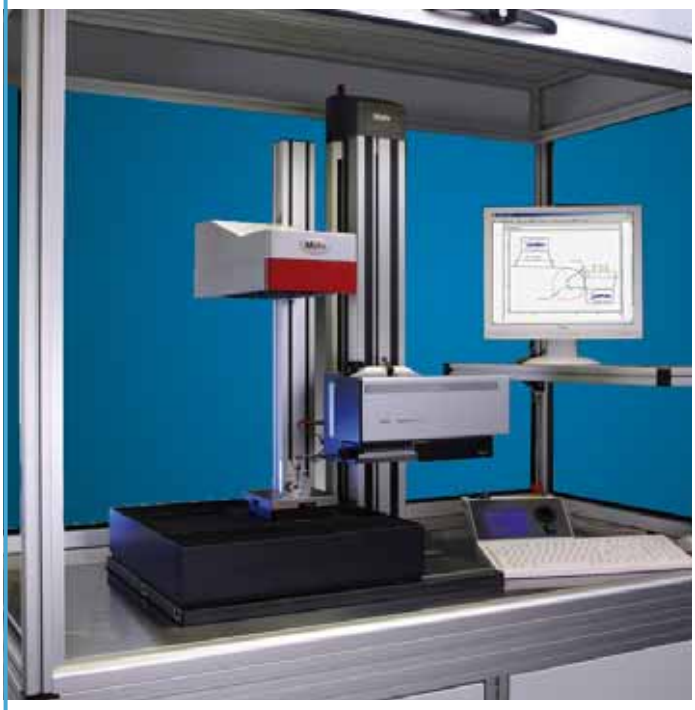
Measuring station MarSurf UD 120

Components such as LD 120 however	
Drive unit UD 120	6720817

1) additional probe arms and tips upon request

MarSurf XP 20

A measuring station for all occassions



- Depending on the measurement task, the measuring station can be set up using modules with automatic linear/rotation axes
- Modular system affords flexibility
- One software language for all systems

Versions

Manual measuring stations:
- Roughness measuring station
- Contour measuring station
- Combined roughness and contour measuring station

Automatic measuring stations:
- Roughness measuring station
- Contour measuring station
- Combined roughness and contour measuring station

Aspheric measuring station
See picture below

WebCode 3202

Description

The new Mahr software platform **MarWin** is a modular control and evaluation system with significant advantages.

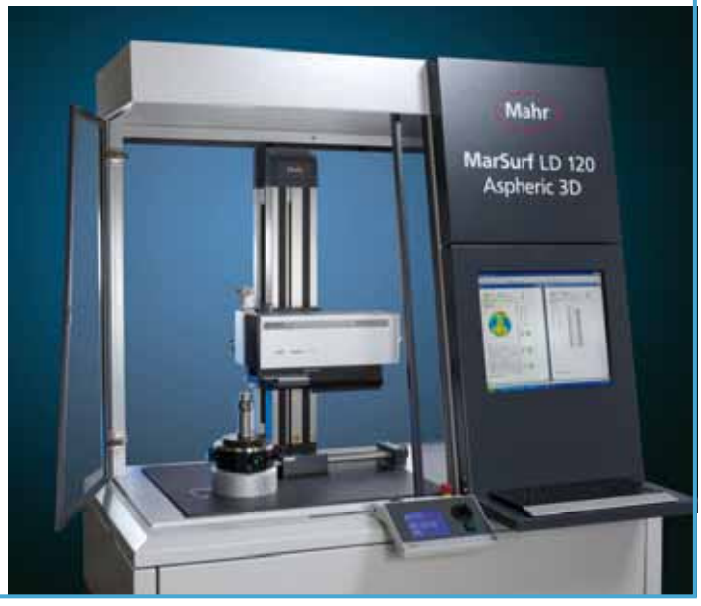
This multi-product software platform provides users with a uniform basis, thereby ensuring the operational and functional reliability particularly required in automated processes.

Quick and easy configuration is achieved through the use of standardized mechanical and electronic measuring station components.

Features

- **MarTalk** coordinates the interface between the software and the machine
- **MarScript** handles the measuring language and control systems
- Tried-and-tested **Mahr quality** components and software together with a straightforward user interface provide reliable measuring results
- Safety for your system and operators through compliance with all relevant guidelines
- Modularity, i.e. depending on the measurement task, additional axes and workpiece supports can be used in addition to the standard components
- Time saved through significant reduction in setup times for the automatic measuring station

MarSurf LD 120 Aspheric 3D measuring station



MarSurf. Mobile Instrument Data Overview

	MarSurf PS1	MarSurf M 300	MarSurf M 300 C
Parameters	Ra, Rq, Rz (Ry (JIS) equiv. to Rz), Rz (JIS), Rmax, Rp, Rp (ASME), Rpm, Rsk (ASME), Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, (24 roughness parameters, with tolerance limits), Vo, Rt, R3z, RPc, Rmr (tp (JIS, ASME) equiv. to Rmr), RSm, R, Ar, Rx	Over 35 roughness parameters	Over 35 roughness parameters
Probe	inductive skidded probe, 2 µm probe tip, measuring force ca. 0.7 mN	PHT probe series (skid probe system)	PHT 6-350
Drive unit		RD 18 (standard drive unit)	RD 18 C
Traversing lengths	Lt* 1.75 mm, 5.6 mm, 17.5 mm as per MOTIF 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm	1.75 / 5.6 / 17.5 mm with RD 18 drive unit	1.75 / 5.6 / 17.5 mm
Profile resolution	8 nm / 16 nm / 32 nm (automatic switching)	8 nm / 16 nm / 32 nm (automatic switching)	8 nm / 16 nm / 32 nm
Languages	14 languages 3 Asian languages	15 languages 3 Asian languages	15 languages 3 Asian languages
Dimensions (L x W x H)	140 x 50 x 70 mm	Approx. 190 x 170 x 75 mm	Approx. 190 x170 x 75 mm
Weight	400 g	1.3 kg	1.3 kg
Power supply	Primary: 90 V to 264 V Secondary: 9 V	Primary: 90 V to 264 V Secondary: 9 V	Primary 90 V to 264 V Secondary: 9 V

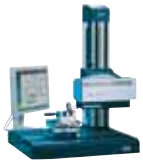
MarSurf. MarSurf M 400 Data Overview

	MarSurf M 400
Parameters	Roughness, waviness, and P profile parameters
Probe	Probe system BFW 250
Drive Unit	SD 26
Traversing length	1.75 mm, 5.6 mm, 17.5 mm, automatic, free entry as per MOTIF: 1 mm, 4 mm, 8 mm, 12 mm, 16 mm
Measuring range	±250 µm (±500 µm with double length probe arm)
Resolution (Z)	Measuring range: ±250 µm =8 nm, ±25 µm = 0,8 nm
Measuring force (in Z)	0.7 mN
Dimensions (L x B x H)	approx. 190 x 170 x 75 mm
Weight	1.9 kg
Power supply	Primary: 90 V to 264 V; Secondary: 9 V

MarSurf. Data Overview XR 20, XC 2 / XC 20

	MarSurf XR 20	**MarSurf XC 2 / XC 20**
Parameters	Over 100 roughness, waviness, P-profile and motif parameters	Radii, angles, distances, coordinates, fitting in of regression straight lines, best-fit circles, circle sections. Defining points, circles and circle sections and much more. Multiple measurements, double contours, DXF import (only XC 20)
Probes	MFW 250, R probe	350 mm probe arms, 175 mm probe arms complete with probe stylus tips
Drive unit	Usable PZK, GD 25, GD 120, PGK 20, PRK via PAV 62	MarSurf CD 120 / MarSurf PCV 200 (only XC 20)
Traversing length	Depending upon drive unit 0.56 / 1.75 / 5.6 / 17.5 / 56; Lt var 0.56 to 120.0	1 mm to 120 mm, 1 mm to 200 mm (only XC 20)
Measuring range		± 25 mm with 350 mm probe arm
Profile resolution	± 25 µm = 0.5 nm; ± 250 µm = 5 nm	350 mm probe arm = 0,5 µm; 175 mm probe arm = 0,25 mm
Measuring force (in Z)		1 mN to 120 mN, variably adjustable
Dimensions (L x B x H) of compl.meas. stand ST 500	Approx. 700 mm x 550 mm x 720 mm	Approx. 700 mm x 550 mm x 720 mm
Weight of measuring station with ST 500 meas. stand	Approx. 160 kg	Approx. 140 kg
Power supply	230 V (or 115 V possible)	230 V (or 115 V possible)

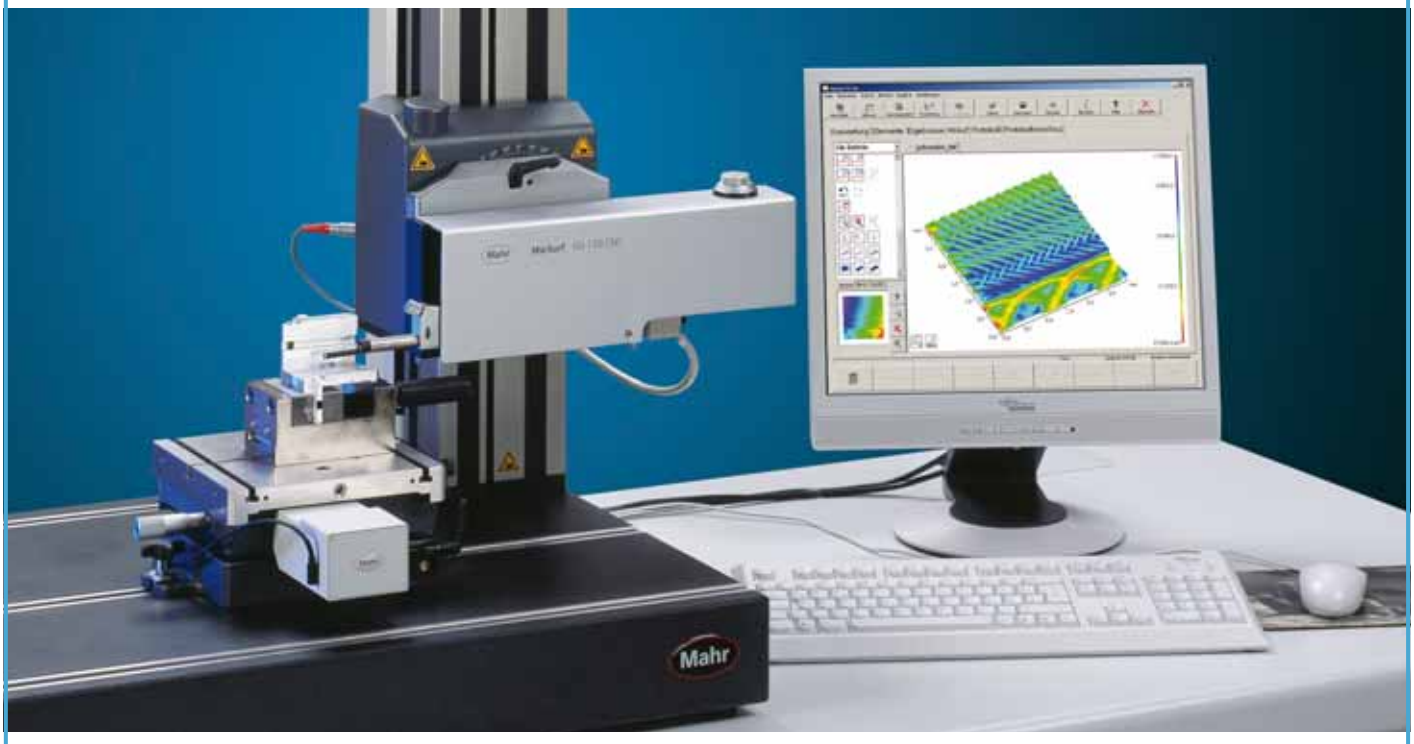
MarSurf. Data Overview UD 120 / LD 120 and XT



	MarSurf UD 120 / LD 120	**MarSurf XT 20**
Parameters	Roughness parameters, waviness paramaters, P-parameters, see MarSurf XR 20	Color-coded height presentation, grid models, photo simulation, 2D top view, any profile sections, zoom function, distances, angles, radii, extreme points, comprehensive filter functions such as Gaussian filter, median filter, polynomial filter, interpolation of invalid sections, remove spherical form, remove cylindrical form, alignment functions across sections, 3D surface roughness parameters, export and evaluation of any profile sections in MarSurf XR 20 roughness software or MarSurf XC 2/XC 20 contour software. Measuring data can be recorded using stylus instruments with Y-drive or MarSurf WS1 optical surface sensor.
Contour elements	Radii, distances, angles, see MarSurf XC 20	
Probes	LD A14-10-2 with diamond tip 2 µm 60° (UD 120), LD A14-10-2 with diamond tip 2 µm 90° and LD A14-10-500 (LD 120)	
Drive unit	MarSurf LD 120 / UD 120	
Traversing length	0.1 mm to 120 mm	
Profile resolution	2 nm	
Measuring range	10 mm	
Measuring force (in Z)	LD 120: 0.5 mN to 30 mN / UD 120: 1 mN to 30 mN	
Dimensions (L x W x H) of the compl. measuring stand ST 500	Approx. 700 mm x 550 mm x 720 mm	
Weight	Approx. 160 kg (incl. ST 500)	
Power supply	230 V (or 115 V possible)	

MarSurf XR 20 with Topography XT 20

Upgrade to a powerful topography measuring station



Description

For some applications, a single tactile profile of the surface form is inadequate. 3D topographic representation and evaluation offers the opportunity to obtain more comprehensive profile information. The **MarSurf XR 20** measuring station can be turned into a topography measuring station both simply and cost-effectively, whether based on an order or an upgrade requirement. All that is needed in addition to the standard scope of delivery is a **CT 200-MOT** Y-drive for the **CT 200** XY table and the **MarWin XT 20 software**.

CT 200-MOT Technical Data

CT 200-MOT technical data as for CT 200 but with motorized Y-drive.

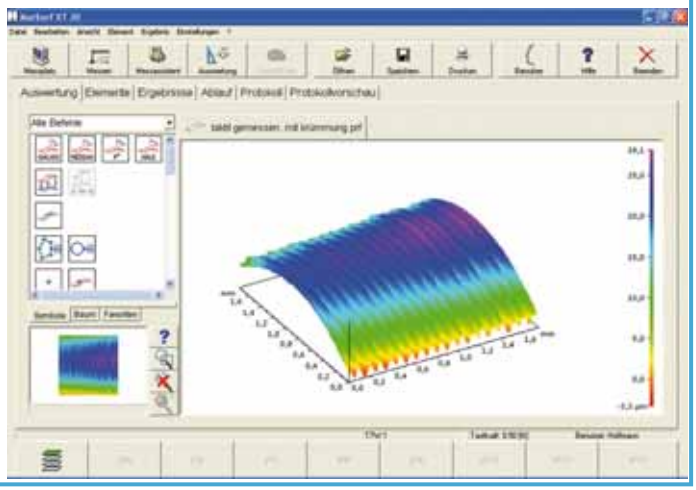
Adjustment path in Y	17.5 mm (0.7 in)
Resolution	0.375 µm (15 µin)

Measuring Station Components

As described on pages 15-17 to 15-21, plus:

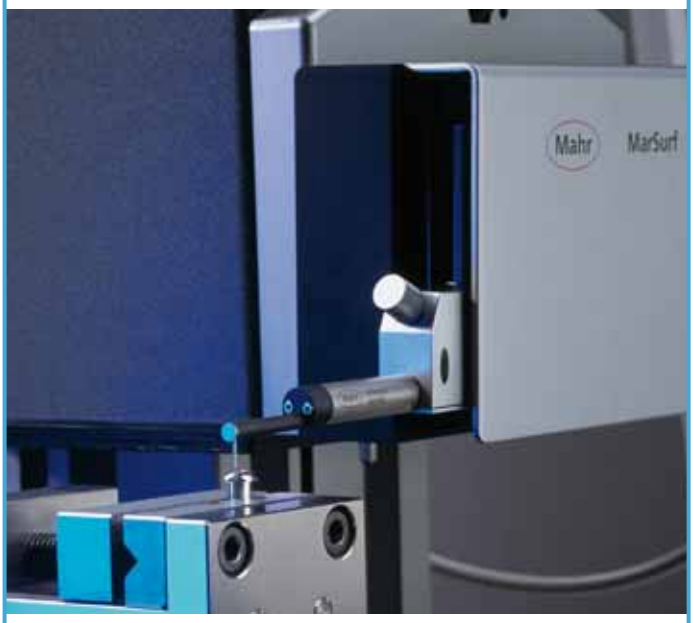
Topography measuring station extension

MarSurf XT 20 software	**Order No. 6299034**
CT 200-MOT Y-drive	**Order No. 6710543**



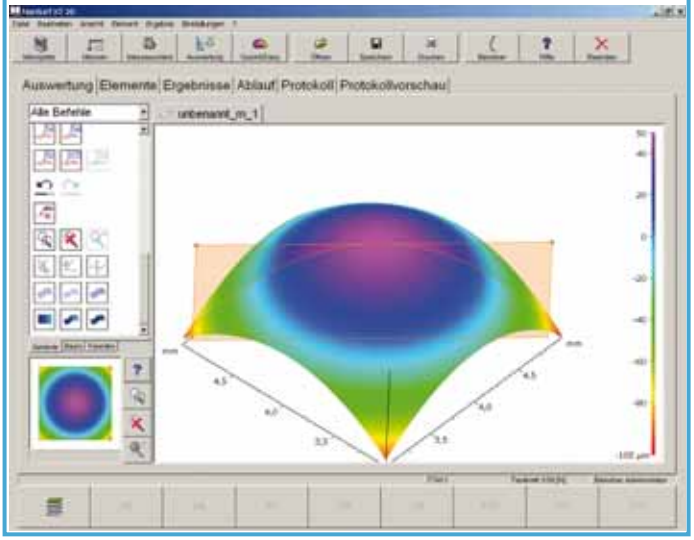
MarSurf XR 20 with XT 20 Topography

3D measurement of molds for use in the medical industry



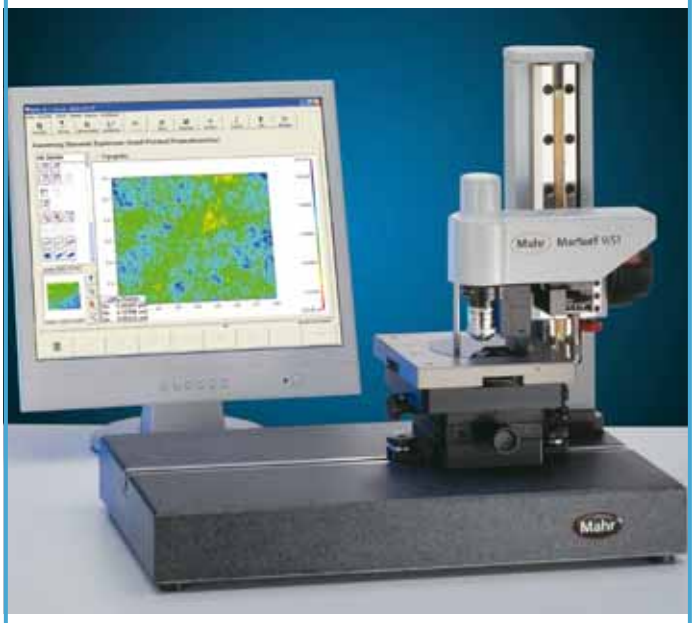
Description

In the case of molds for items such as contact lenses, the surface topography is also of interest in addition to the individual profile for determining the roughness depth. The form and surface roughness depth over the entire topography range are critical when it comes to product function.



MarSurf. WS1 White Light Sensor Measuring Station

Non-contact measurement of surface structures



Description

Ever higher surface qualities are being produced thanks to new processing methods and materials. This places much greater demands on a measuring system in terms of resolution and measuring accuracy.
The **MarSurf WS1** is an optical surface sensor which operates according to the principle of white light interferometry. This technology enables rapid, high-precision recording of surface topographies on a wide range of materials.

Features

- The impressive vertical resolution of 0.1 nm (0.004 µin) enables the finest of structure to be recorded
- Can be used in inspection rooms and the manufacturing environment
- The compact design saves space
- The optical design is specifically geared to the demands of industrial processing methods
- Illuminated using LED technology with a long service life
- Evaluation with the **MarSurf XT 20** topography software enables a comprehensive, user-friendly topography analysis
- Can be incorporated as an OEM component

WebCode 10136

MarSurf PCV 200 Drive Unit

Contour drive unit

Description

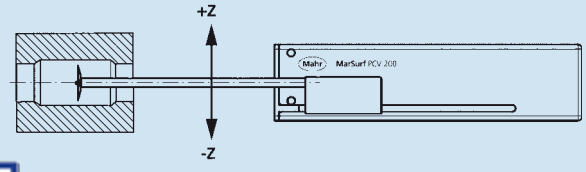
The **PCV 200** contour drive unit supports measuring paths of up to 200 mm (7.87 in).

Many contour measurement tasks, e.g. calculating double contours using the twin stylus, can be performed in conjunction with the **MarSurf XC 20** software.

Features

- Probe arm collision protection thanks to patented probe arm mount
- Programmed measuring run with lifting and lowering of the probe arm and positioning
- Selection of different measuring speeds ranging from 0.2 mm/s to 4 mm/s (0.008 in/s to 0.16 in/s)
- Variable setting of measuring force from 1 mN to 120 mN
- Measuring force remains constant over the entire measuring range

The drive unit supports a large number of probe arms of different shapes and sizes.



WebCode 2736

MarSurf CD 120 Drive Unit

Contour drive unit

Description

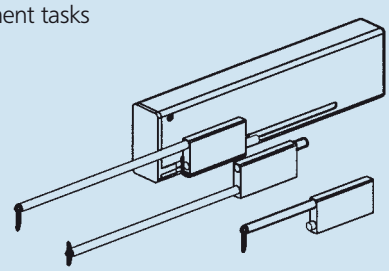
The **CD 120** contour drive unit is based on the technology of the **PCV 200** drive unit. It measures contour elements such as radii, distances, angles, etc. simply and precisely.

In conjunction with the **MarSurf XC 2** software, it constitutes the basic contour measurement unit.

Features

- Automatic lifting and lowering of the probe arm with adjustable speed
- Probe arms available for bores larger than 2 mm (0.079 in)
- Selection of different positioning speeds ranging from 0.2 mm/s to 10 mm/s (0.008 in/s to 0.39 in/s)
- Variable setting of measuring force from 1 mN to 120 mN
- Patented probe arm mount for reproducible probe arm exchange without the need for tools

The use of complete probe arms, each with their own separately stored calibration data, allows the evaluation system to switch between different measurement tasks quickly and flexibly.



WebCode 2698

MarSurf. PZK Drive Unit

Small and handy

Description

This set consists of the small, handy PZK drive unit and the integrated, inductive MFW 250 probe. The probe arms can be changed very quickly. The built-in datum plane allows both skidded and skidless measurements. The PZK set also includes a hand-held mount. The bottom of the hand-held mount takes the form of a vee-block, enabling flat and cylindrical workpiece contours to be measured. This makes the PZK a universal system.

WebCode 2997

MarSurf. MarSurf GD 25 Drive Unit

The standard drive unit for surface measurements

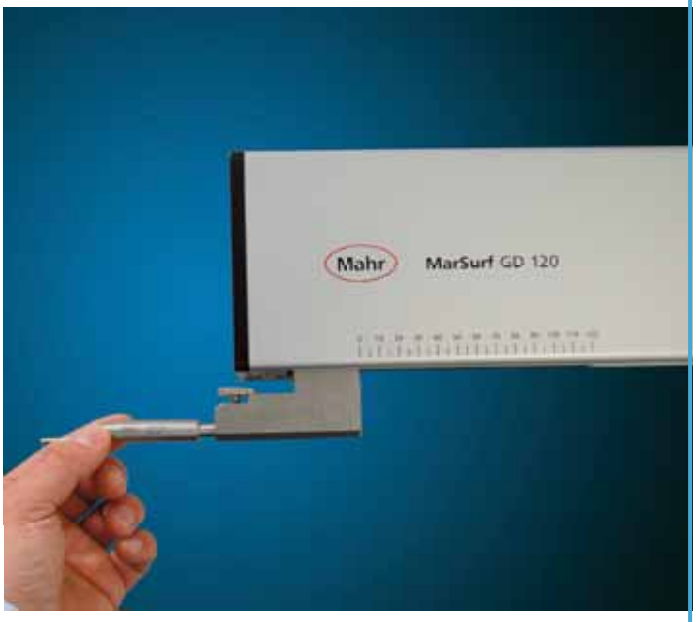
Description

This unit provides excellent straightness precision and smooth running over a measuring length of 25.4 mm (1 in). A patented motorized height adjustment accessory ensures the probe is positioned in the range of 4 mm (0.15 in) and enables motorized probe zero setting. The MFW 250 skidless probe can be used, along with all probes of the R series.

WebCode 2997

MarSurf. GD 120 Drive Unit

The high-precision drive unit of the new generation



Description

In addition to high-precision roughness measurements, the **GD 120** drive unit is used for waviness measurements over long traversing lengths of up to 120 mm (4.72 in). Patented motorized probe zero setting over 10 mm (0.39 in) saves both setup work and time. The drive unit optionally supports problematic measuring positions such as transverse or vertical tracing using simple, adaptable probe mounts.

Precise positioning on the horizontal axis is very important for automatic operating sequences. The **GD 120** allows precise positioning on the X-axis.

In addition to very quiet running (residual value Rz < 30 nm/0.1 mm/s), this unit offers fast probe clamping and also protects the unit by means of a collision protection device on the probe mount.

WebCode 3363

MarSurf. Accessories

Probes for virtually any application

1 Probe head
2 Probe arm protection with skid
3 Probe arm protection without skid
4 Probe arm
5 Probe arm
6 Probe arm

Probe system MFW 250

The MFW probe system can used as a skidless or skidded probe. It is distinguished by the following characteristics:

- low linearity deviation (< 1 %),
- high resolution (100,000-/200,000: 1),
- large measuring range (± 250 µm).

Double length tracing arms enlarge the meauring range to ±500 µm.
The simple tracing arm interchange ensures a particularly wide field of application. The rugged, rigid design avoids natural vibration.

WebCode 3622






Accessories

Depending upon the measuring task, different accessory components, parallel vices or prisms can be ordered.

XY table CT 200 **Order No. 6710530**
Table surface 200 mm x 200 mm (optionally expandable to 400 mm x 400 mm with an adpater plate)
XY-adjustment by 25 mm each using micrometer caliper.
C- axis adjustable by ± 2.5° for highly precise workpiece alignment

XY table CT 120 **Order No. 6710529**
for mounting and aligning workpieces.
Can be adjusted in two coordinates by 15 mm (.591).
Table surface: 120 mm x 120 mm (4.728 in x 4.728 in) with two brackets.

PP vee-block **Order No. 6710401**
with four different prisms for mounting axis-symmetrical workpieces with diameters from 1 mm to 160 mm.
Incl. clamping springs for holding light workpieces in the prism.

PPS parallel vice **Order No. 6710604**
for clamping measuring objects

Parallel vice **Order No. 6710631**
for clamping small workpieces
Jaw width 32 mm
Dimensions (L x W x H): Approx. 130 mm x 32 mm x 40 mm

Parallel vice with joint **Order No. 6710632**
Parallel vice with angled foot **Order No. 6710633**
axis can swiveled by ±45°

WebCode 3991

PGN Geometric Standard

DIN EN ISO 5436 type C1 sinusoidal groove profile

Surface roughness standard with a sinusoidal groove profile. Profile depth approx. 3 µm (120 µin), groove spacing approx. 0.12 mm (.00472 in). For checking the roughness measuring station. The following types are available:

PGN 1 Profile depth approx. 1.5 µm, groove spacing approx. 0.10 mm
PGN 3 Profile depth approx. 3 µm, groove spacing approx. 0.12 mm
PGN 10 Profile depth approx. 10 µm, groove spacing approx. 0.20 mm

DKD and Mahr calibration certificate upon request

PEN 10-1 Setting Standard

DIN EN ISO 5436 type A1 depth setting standard

Depth setting standard for the static calibration of the vertical stroke of all skidless, single-skid and dual-skid probes. Groove depth. approx. 10 µm, ∅ 44 mm.

- 2 calibration grooves
- Optical flat surface

DKD and Mahr calibration certificate upon request

PRN 10 Geometric Standard

Turned roughness profile

with Mahr calibration certificate. Roughness standard with turned profile, chromed.
Profile depth approx. 10 µm (.394 µin). For checking the roughness measuring station. Ra, Rz, Rmax.

KN 100 Contour Standard

Standard for test contour measuring systems

The contour standard **KN 100** was developed in cooperation with the PTB. Testing for confirmation and acceptance purposes can now be conducted traceable back to the PTB due to concrete reference to realistic geometries.
The standard fulfills the requirements of the VDI/VDE guidelines 2629.

WebCode 9633

IN OUR VIEW, FORM DEVIATION IS NOT A QUESTION OF PERCEPTION. **THAT IS WHY WE HAVE MARFORM**

The latest information on MARFORM products can be found on our website:
www.mahr.com, WebCode 155

► | To ensure the problem-free functioning and durability of a workpiece, the key factors are its dimensions and, above all, its form. Requirements in terms of roundness, flatness, straightness, coaxiality or run-out – particularly when it comes to axis-symmetrical workpieces – are becoming increasingly tough. These requirements can only be reliably tested and met using high-precision formtesters optimized for this specific purpose. Whether you are dealing with fuel injection technology, microelectronics, precision mechanics or medical technology, the key functional components are becoming ever smaller and ever more precise. To enable the production department to take advantage of the specified tolerances, measuring uncertainty must be kept as low as possible. MarForm helps you to cut process costs without increasing testing costs thanks to stable, innovative instruments with the highest possible level of automation, flexibility and precision. MarForm offers the ideal solution for all requirements. | ◄