

MARSURF I M 300



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**Mahr**

EXACTLY

## PRODUCTION-RELATED SURFACE ROUGHNESS MEASURING. MOBILE WITH MARSURF

▶ | 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 start of the 20th Century, experts still had to test by eye and touch. A practiced eye can detect features in the  $\mu\text{m}$  range, and even the much maligned thumbnail test delivered perfectly acceptable results. Now however, we live in an age of exchangeable parts, fits and internationalization, 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 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 time, we have succeeded in perfecting the stylus method which is now widespread throughout the world. The cable-free Bluetooth connection between evaluation unit and drive unit is unique in roughness metrology. Even here, Mahr shows that its metrology is up to date with modern needs.

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## MarSurf. Handy and precise for on-site roughness measurements

### MOBILE ROUGHNESS MEASUREMENT DEVICE MARSURF M 300

- ▶ | 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, flexible handling, high-precision measurement in different positions and easy positioning using V-blocks. | ◀



## MarSurf M 300

Highly mobile, high-performance unit



### Description

The operation of this instrument is based on the well-proven catalog of functions which enables instrument settings such as measuring conditions, language and record contents to be selected very easily, thus offering a maximum of comfort and flexibility.

The MarSurf M 300 not only meets the requirements for determination and documentation of selected parameters, but also makes most of the parameters and characteristic curves stipulated in DIN/ISO/JIS available for the evaluation of the profile assessed.

Moreover, the MarSurf M 300 offers an integrated memory for up to 40,000 results or 30 profiles, as well as the functions of tolerance monitoring, vertical scale selection and the setting of unsymmetric intersection lines for peak count calculation.

Delivery as a set.

MarSurf M 300-Set

**Order No. 6910401**

### Features

- Measuring range of up to 350  $\mu\text{m}$  (.014 in)
- Units  $\mu\text{m}/\mu\text{inch}$  selectable
- Standards: ISO/ASME/JIS and MOTIF selectable
- Traversing length as per DIN EN ISO 4288/ ASME B46.1: 1.75 mm, 5.6 mm, 17.5 mm (0.07 in, 0.22 in, 0.7 in) as per EN ISO 12085 (MOTIF): 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm
- Number of sampling lengths selectable from 1 to 5
- Automatic selection of filter and traversing length conforming to standards
- Phase-correct profile filter as per DIN EN ISO 11562
- Cutoff 0.25 mm, 0.80 mm, 2.50 mm (.010 in, .032 in, .100 in)
- Short cutoff selectable
- Parameters as per DIN/ISO/SEP: Ra, Rq, Rz, Rmax, Rp, Rt, R3z, Rk, Rvk, Rpk, Mr1, Mr2, Rmr, RSm, R<sub>Pc</sub> (see pg. 17 for additional parameters)
- Tolerance monitoring in display and measuring record
- Automatic or adjustable scaling
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record
- Output of date and/or time of the measurements
- Integrated memory for up to 40,000 results and 30 profiles
- Dynamic calibration function
- Locking and/or password protection for instrument settings

## MarSurf M 300 Novelties

Up to 4 m distance between evaluation unit and drive unit enable high flexibility for your to conduct your measurements. Especially with large, cumbersome parts, the application engineer can work directly at the measuring site. The measurement can be started at the evaluation unit MarSurf M 300 or at the drive unit MarSurf RD 18. The evaluation unit stand in a "safe place" and delivers exact results without influence from the ambient conditions.



## Brilliant, illuminated color display

A large, illuminated color display to read the parameters and the profiles so that you can:

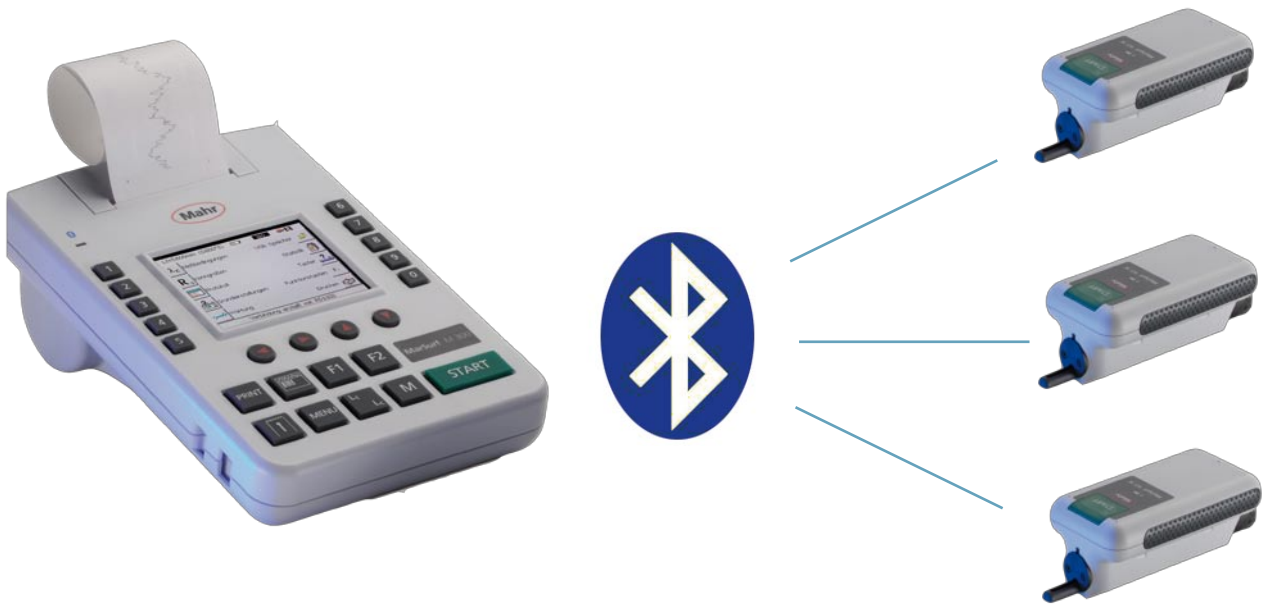
- read the correct results in a poorly lit atmosphere



## Bluetooth Technology

**NEW:** cable-free connection between evaluation unit and drive unit!

A further advantage of the Bluetooth technology:  
Connection of several drive units to one evaluation unit. You can select your desired drive unit from a list.



## Software "MarSurf PS 1/M 300 Explorer" for mobile roughness devices

The essential functions of the **Software "MarSurf PS1/M 300 Explorer"** are to secure and document your measuring results and profiles.

The data stored in the **MarSurf M 300** can e.g. be printed out in any format.

The measuring data can be displayed in different forms:

- Profile and results
- Results
- Profile + MRK + results
- Statistics, and much more

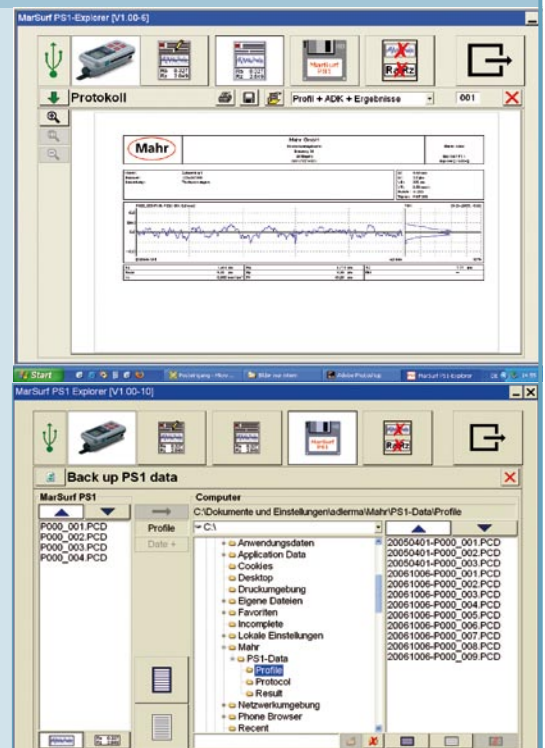
The **Software "MarSurf PS1/M 300 Explorer"** additionally simplifies the securing of data on your PC.

During installation, a MarSurf M 300 directory is automatically created.

The results and profiles saved in the M 300 can simply be moved to that directory or any directly of your choice using "Drag & Drop" and are therefore secured.

**Software "MarSurf PS1/M 300 Explorer"**  
to document results and record profile on a PC

**Order No. 6910205**



## Drive unit MarSurf RD 18



### Description

The drive unit RD18 can be connected to the MarSurf M 300 and is included in a carrying-case set. It can be connected either via Bluetooth or with a cable. The well-proven PHT-skid probes are implemented in the drive unit. To test the standard probe, a testing standard is already integrated in the RD 18 - this gives you the certainty that your results are correct!

To fasten individual accessory elements, 4 inside thread sockets are located on the underside of the RD 18. Furthermore, the prismatic underside offers you the possibility to perfectly position your work-pieces.

### Technical data

#### Drive unit RD 18

Tracing direction  
Traversing length adjustable on  
M 300 as per DIN/ISO  
as per EN ISO 12085

Traverse speed  
Dimensions  
(without probe protection)

#### Order No. 6910403

lengthwise  
1.75 mm, 5.6 mm, 17.5 mm  
(0.07 in, 0.22 in, 0.7 in)  
1 mm, 2 mm, 4 mm, 8 mm,  
12 mm, 16 mm  
0.5 mm/s  
Ø 24 mm, L = 112 mm

### MarSurf RD 18 with height adjustment



### underside of the MarSurf RD 18





## Application examples



### Upside down measurements

Perfect upside down measurements with the MarSurf RD 18. Place parts, start measurement, finished.

Enables the measurement of small workpieces without additional mounts.

No more alignment work necessary.

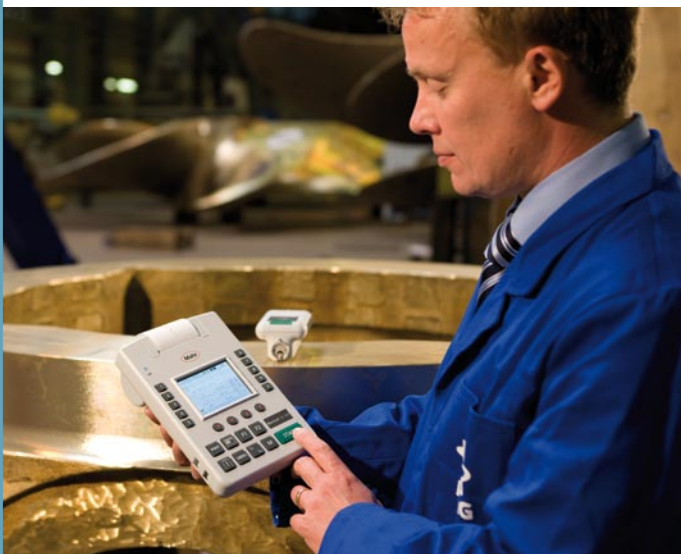
A solution for a fast and certain measurement.



### Measurement with end face vee-block

Flexibility due to extensive accessories that are already included in the standard scope of delivery.

The end face vee block offers the possibility to give the secure support for different applications.



### Measurement with and without cable

Especially when measuring large, cumbersome parts, it is not always possible for the measuring technician to be directly near the evaluation unit or, as shown in this example, the drive unit.

Bluetooth technology gives the advantage of cable-free connection.

An additional factor that simplifies surface measurement.

It is also possible to operate the MarSurf RD 18 under special conditions with a connection cable (without Bluetooth connection).

## MarSurf M 300 Set

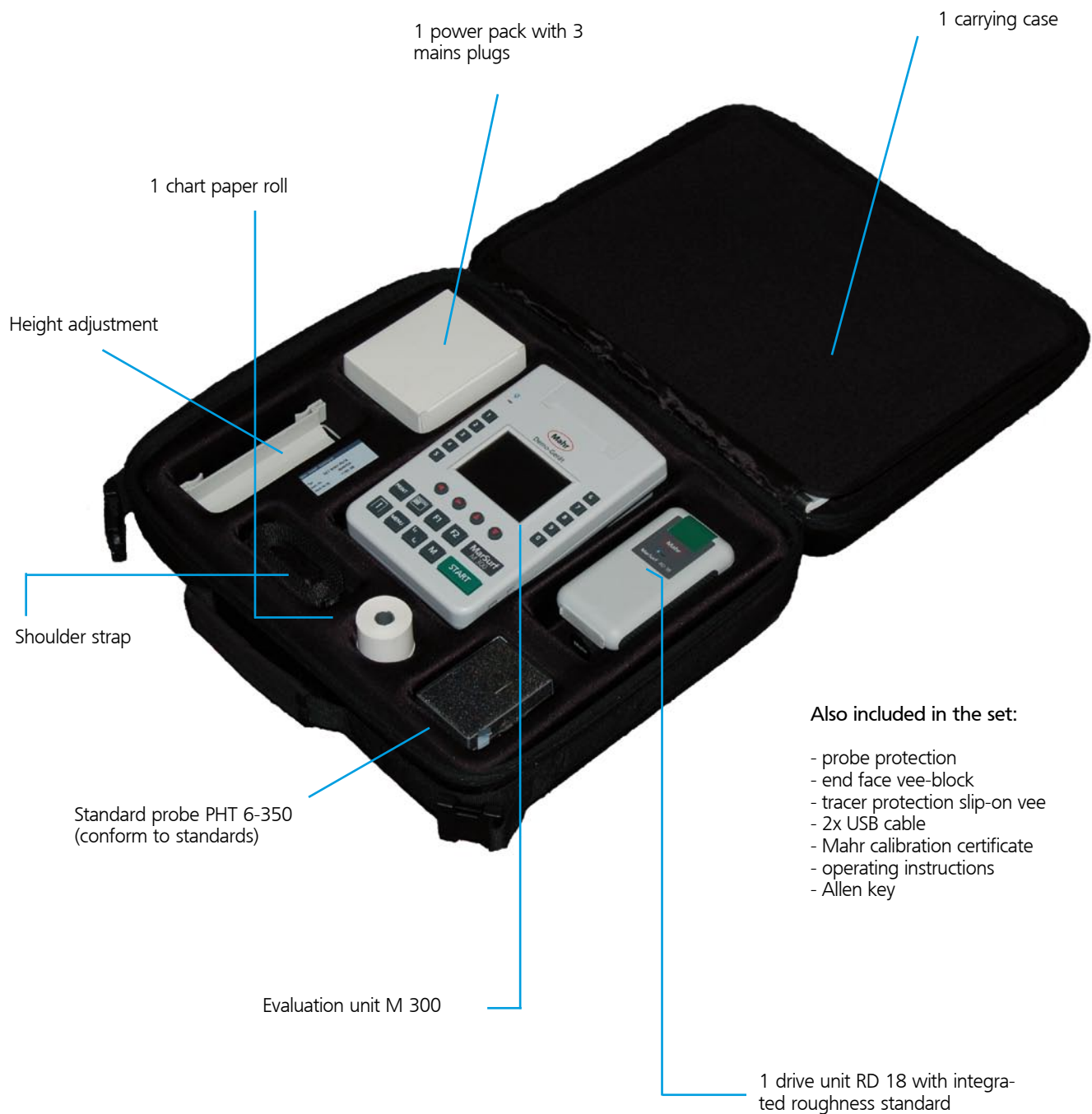
MarSurf M 300 Set

Order no. 6910401

The MarSurf M300 is delivered as a set in a handy carrying case. The instrument is thus safely packed for transport. The components included in the set can be quickly and easily assembled to form a complete measuring station.

### Scope of delivery

The illustrated accessories form part of the MarSurf M 300 Set.



## MarSurf M 300. Technical Data

	<b>MarSurf M 300</b>
Measuring principle	stylus method
Traversing speed	0.5 mm/s
Measuring ranges	350 µm (0.014 in)
Profile resolution	90 µm, 180 µm, 350 µm (automatic switching)
Filter	8 nm, 16 nm, 32 nm (automatic switching)
Cutoffs	Gauß-Filter, Ls-Filter
Short cutoff	0.25/0.8/2.5 mm
Traversing lengths as per DIN/ISO	(0.010/0.032/0.100 in)
As per EN ISO 12085 (MOTIF)	selectable
Evaluation lengths	1.75/5.6/17.5 mm
Number of sampling lengths	(0.07/0.22/0.70 in)
Standards	1/2/4/8/12/16 mm
Parameters	1.25/4/12.5 mm
	(0.05/0.16/0.5 in)
	selectable 1-5
	DIN/ISO/JIS/ASME
	DIN/ISO: Ra, Rq, Rz, Rmax, Rp, Rpk, Rk, Rvk, Rv
	Mr1, Mr2, A1, A2, Vo, Rt, R3z, R <sub>Pc</sub> , R <sub>mr</sub> , R <sub>Sm</sub> , R <sub>sk</sub>
	JIS: Ra, Rz, RzJIS, S
	ASME: Rp, R <sub>pm</sub>
	MOTIF: R, Ar, Rx, W, CR, CL, CF
Vertical scale	automatic/selectable
Horizontal scale	dep. on cutoff
Record contents	R-profile, MRK, R-profile, (MOTIF), results
Printing	automatic/manual record with time
Calibration function	dynamic
Memory	integrated memory for results of up to 40,000 measurements, 30 profiles
Units µm/µinch	selectable
Languages	selectable: English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish, Czech, Polish, Russian, Japanese, Chinese, Korean, Turkish
Blocking for instrum. settings	yes
Password protection	yes
LCD	high resolution color display, 3.5", 320 x 240 pixel
Printer	thermal printer, 384 points/horizontal line, 20 characters/line
Printing speed	approx. 6 lines/second corresponds to approx. 25 mm/s (1 in/s)
Thermal paper	Ø 40.0 mm-1.0 mm, width 57.5 mm-0.5 mm, coated
Interface	USB, MarConnect
Power supply	NiMH battery, capacity: approx. 1,000 measurements (dep. on number and length of record printouts), plug-in power pack with three mains plugs, for input voltages from 90 V to 264 V
Power management	yes
Connections	drive unit, power pack, USB, MarConnect
System of protection	M 300 = IP 42, RD 18 = IP 40
Temperature range for	
– storage	-15 °C to +55 °C
– operation	+5 °C to +40 °C
Relative humidity	30 % to 85 %
Dimensions (L x W x H) M 300	190 mm x 140 mm x 75 mm
Dimensions (L x W x H) RD 18	130 mm x 70 mm x 50 mm
Weight M 300	approx. 1 kg
Weight RD 18	approx. 300 g