آزما صنعت گراد

نماینده انحصاری کمپانی Mahr آلمان

Mahr

EXACTLY

MARSURF I MOBILE SURFACE ROUGHNESS MEASUREMENT

PS1 / M 300 / M 300 C

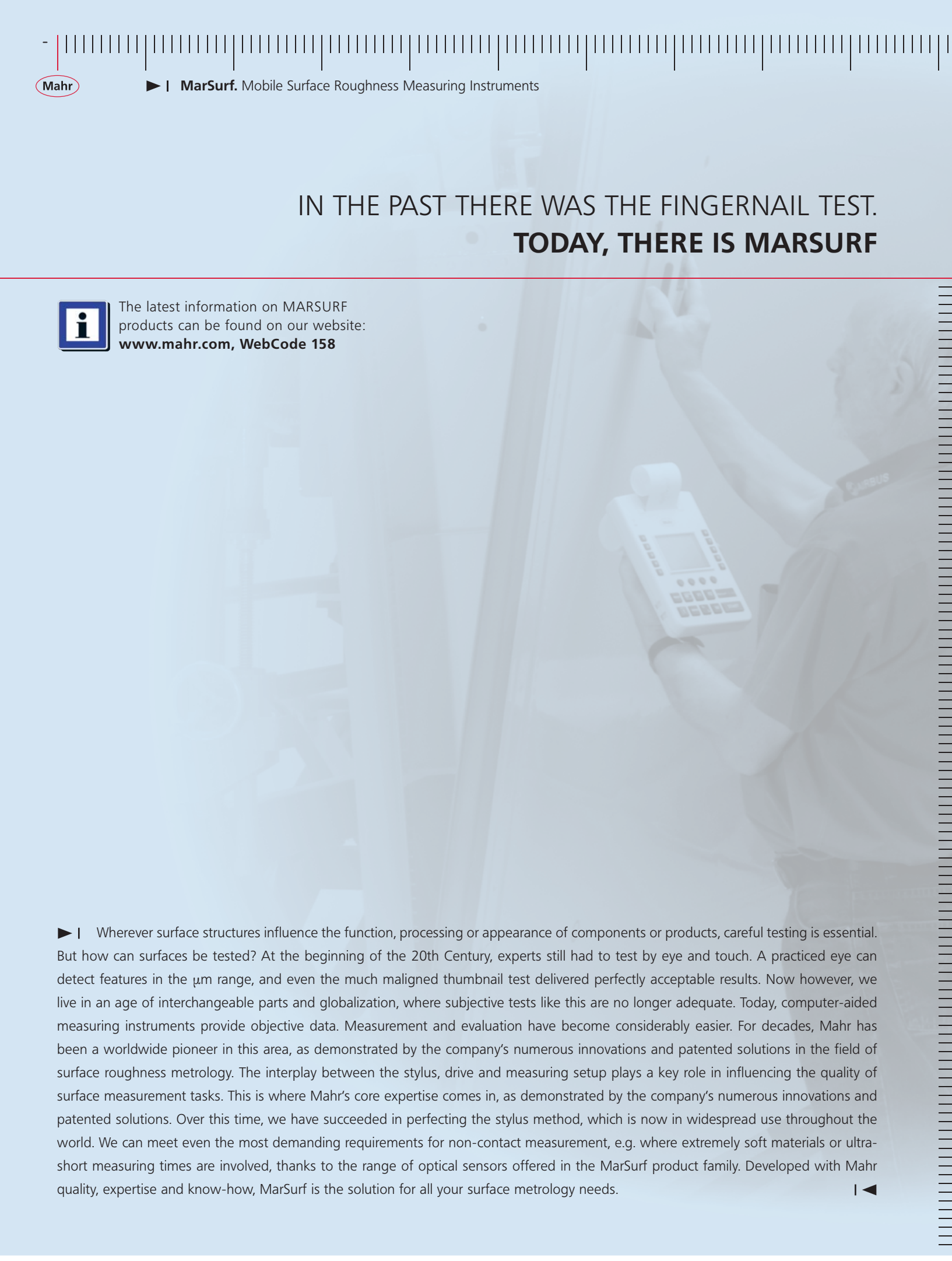
- 0 +

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 Instuments

MarSurf. Mobile Surface Roughness Measuring Instruments

OVERVIEW

		MarSurf PS 1
		
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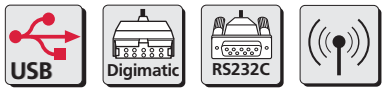
Measuring principle		Skid probe system
Probe system		PHT probe range
Probe		Inductive skidded probe, 2 µm stylus tip, measuring force ca. 0.7 mN
Traversing length		ISO/JIS: 1.75 mm, 5.6 mm, 17.5 mm; automatic MOTIF: 1 mm, 2 mm, 4 mm, 8 mm, 12 mm, 16 mm
Measuring range		350 µm, 180 µm, 90 µm (changes automatically)
Profile resolution		32 nm, 16 nm, 8 nm (changes automatically)
Evaluation lengths		1.25 mm, 4.0 mm, 12.5 mm
Number of parameters available		31
Parameters	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
	JIS	Ra, Rq, Ry (equiv. to Rz), RzJIS, tp (equiv. to Rmr), RSm, S
	ASME	Rp, Rpm, RPc, Rsk
	MOTIF	R, AR, Rx, CR, CF, CL
Bluetooth		–
Large color display		–
Built-in printer		–
Integrated roughness standard for Standard probe PHT 6-350		Yes
Cylindrical drive unit with hand-held Vee-block		–
Drive unit with transverse tracing (optional)		–
Internal memory		max. 15 Profiles max. 20000 Results
Software (optional)		MarCom, Explorer, MarSurf XR 20
Order no.		**6910210**

	MarSurf M 300		MarSurf M 300 C	
				
	8		9	
	Skid probe system		Skid probe system	
	PHT probe range		PHT probe range	
	Inductive skidded probe, 2 µm stylus tip, measuring force ca. 0.7 mN		Inductive skidded probe, 2 µm stylus tip, measuring force ca. 0.7 mN	
	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		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	
	350 µm, 180 µm, 90 µm (changes automatically)		350 µm, 180 µm, 90 µm (changes automatically)	
	32 nm, 16 nm, 8 nm (changes automatically)		32 nm, 16 nm, 8 nm (changes automatically)	
	1.25 mm, 4.0 mm, 12.5 mm		1.25 mm, 4.0 mm, 12.5 mm	
	33		33	
DIN / ISO	Ra, Rq, Rz, Rmax, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr, RSm, Rsk, R, AR, Rx, W, CR, CF, CL	DIN / ISO	Ra, Rq, Rz, Rmax, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr, RSm, Rsk, R, AR, Rx, W, CR, CF, CL	
JIS	Ra, Rq, Ry (equiv. to Rz), RzJIS, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rmr), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL	JIS	Ra, Rq, Ry (equiv. to Rz) RzJIS, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rmr), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL	
ASME	RpA, Rpm, Rmr, RSm, Rsk	ASME	RpA, Rpm, Rmr, RSm, Rsk	
MOTIF	R, AR, Rx, W, CR, CF, CL	MOTIF	R, AR, Rx, W, CR, CF, CL	
	Yes		–	
	Yes		Yes	
	Yes		Yes	
	Yes		– (External roughness standard is included in the scope of supply)	
	–		Yes	
	–		RD 18 C2	
	max. 30 Profiles max. 40000 Results		max. 30 Profiles max. 40000 Results	
	Explorer, MarSurf XR 20		Explorer, MarSurf XR 20	
	6910401		**6910431**	

Mobile Surface Roughness Measuring Instrument MarSurf PS1 Absolute mobility



Applications

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

Features

- Small and lightweight; ideal as mobile surface roughness measuring instruments
- Large display
- Very simple to operate
- Start button is positioned on both the right and left side of the PS1; easy to operate regardless of whether you are left or right-handed but also practical for conducting upside down measurements
- Can be used horizontally, vertically, upside down etc.
- 31 parameters: offer the same range of functions as a laboratory instrument
- Parameters can be selected directly Ra, Rz
- Freely programmable, use the F1 button for direct access to any of your chosen parameters
- 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)
- Integrated 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
- Tolerance monitoring
- Lock settings and/or password protection
- Date and/or time of measurement
- Integrated memory to store ca. 20000 reults and 15 profiles
- Data transmission via the USB interface to a PC
- Evaluation with PS1/M 300 Explorer Software, MarSurf XR 20 Evaluation Software or with a MarSurf XR 20
- 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 500 measurements before being recharged

- Supplied with: MarSurf PS1 base unit, drive unit, standard pick-up PHT 6-350/2µm (conforming to standards), built-in battery, roughness standard integrated into base unit, height adjustment accessory, pick-up protection, charger / mains adapter with 3 mains power adapters, carrying case with shoulder strap and belt loop, USB cable, Mahr calibration certificate, operating instructions

Technical Data

Unit of measurement		Metric / inch
Measuring principle		Stylus method
Pick-up		Inductive skidded pick-up, 2 µm (80 µin) stylus tip, measuring force ca. 0.7 mN
Parameters	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
	JIS	Ra, Rq, Ry (equiv. to Rz), RzJIS, tp (equiv. to Rmr), RSm, S
	ASME	Rp, Rpm, RPc, Rsk
	MOTIF	R, AR, Rx, CR, CF, CL
Languages		English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish, Czech, Polish, Russian, Japanese, Chinese, Korean, Turkish
Measuring range		350 µm, 180 µm, 90 µm (automatic switching)
Profile resolution		32 nm, 16 nm, 8 nm (automatic switching)
Filter*		Phase-correct profile filter (Gaussian filter) according to DIN EN ISO 11562, Special filter according to DIN EN ISO 13565-1, ls filter according to DIN EN ISO 3274 (can be disabled)
Cutoff lc*	mm (inch)	0.25 / 0.8 / 2.5 (0.010" / 0.030" /0.100"); automatic
Traversing length Lt*	mm (inch)	1.75/ 5.6 /17.5 (0.069" / 0.22" / 0.69"); automatic
Traversing length (according to MOTIF)	mm (inch)	1 / 2 / 4 / 8 / 12 / 16 (0.040" / 0.080" / 0.160" / 0.320" / 0.480" / 0.640")
Short cutoff*		Selectable: 1 to 5
Evaluation length ln*	mm (inch)	1.25 / 4.0 / 12.5 (0.050", 0.15", 0.50")
Number n of sampling lengths*		Selectable: 1 to 5
Calibration function		Dynamic
Memory		max. 15 profiles, max. 20000 results
Additional functions		Lock settings / password potection, Date/Time
Dimensions	mm (inch)	140 × 50 × 70 (5.51" × 1.97" × 2.76")
Weight		400 g (0.88 lbs)
Rechargeable battery		Li-ion battery
Interfaces		USB, MarConnect (RS232/USB/Digimatic)
Long-range power supply		100 V to 264 V
Order no.		**6910210**

** In accordance to ISO/JIS*

MarSurf PS1 with height adjustment

Underside of the **MarSurf PS1**

Mobile Surface Roughness Measuring Instrument MarSurf M 300 A step ahead

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

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/M 300 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

Mobile Surface Roughness Measuring Instrument MarSurf M 300 C A step ahead

M 300 C

RD 18 C + Handheld Vee block
(detachable)

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

Upside down measurement

Measurement on an end face vee

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

Mobile Surface Roughness Measuring Instrument MarSurf M 300 / M 300 C

Technical Data

Measuring principle		Stylus method
Traversing speed	mm (inch)	0.5 mm/s (0.02"/s)
Measuring range		350 µm (0.014")
Profile resolution		90 µm, 180 µm, 350 µm (automatic switching) 8 nm, 16 nm, 32 nm (automatic switching)
Filter		Gaussian filter, Ls-Filter (switchable)
Cutoff	mm (inch)	0,25, 0,8, 2,5 (0.010", 0.032", 0.100")
Short Cutoff		wählbar
Traversing lengths as per DIN / ISO / ASME / JIS	mm (inch)	1,75, 5,6, 17,5 (0.070", 0.2242, 0.700")
Traversing lengths as per EN ISO 12085 (MOTIF)	mm	1, 2, 4, 8, 12, 16
Evaluation lengths	mm (inch)	1,25, 4, 12,5 (0.05", 0.16", 0.5")
Number of sampling lengths selectable:		1-5
Parameters	DIN / ISO:	Ra, Rq, Rz, Rmax, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr, RSm, Rsk, R, AR, Rx, W, CR, CF, CL
	JIS:	Ra, Rq, Ry (equiv. to Rz), RzJIS, Rp, Rv, Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Rt, tp (equiv. to Rmr), RSm, Rsk, S, R, AR, Rx, W, CR, CF, CL
	ASME:	RpA, Rpm, Rmr, RSm, Rsk
	MOTIF:	R, AR, Rx, W, CR, CF, CL
Vertical scale		Automatic/selectable
Horizontal scale		Depending on the cutoff
Record contents		R -profile, MRK, P-profile (MOTIF), results
Printing		Automatic/manual Record with time
Surface hardness		Ideal for surface hardness >50 Shore
Calibration function		Dynamic
Memory		Integrated memory For the storage up to 40000 measurements and up to 30 profiles
Measuring units		µm/µinch selectable
Languages selectable:		English, German, French, Italian, Spanish, Portuguese, Dutch, Swedish, Czech, Polish, Russian, Japanese, Chinese, Korean, Turkish
Blocking instrument 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		ca. 6 lines/second corresponds to approx. 25 mm/s (1"/s)
Thermal paper		Dia. 40.0 mm-1.0 mm, width 57.5 mm-0.5 mm, coated
Interface		USB, MarConnect
Power supply		NiMH battery, capacity: approx. 500 measurements (depending on the 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
Protection class	M 300 / M 300 C	IP 42
	RD 18 / RD 18 C	IP 40
Temperature range for storage		-15°C to +55°C (5°F to 131°F)
Temperature range for operation		+5°C to +40°C (41°F to 104°F)
Relative humidity		30 % to 85 %
Dimensions (L x W x H)	M 300 / M 300 C	190 x 140 x 75 mm (7.5" x 5.5" x 3")
Dimensions (L x W x H)	RD 18	130 x 70 x 50 mm (5.1" x 2.7"x 2")
Dimensions (L x dia.)	RD 18 C	139 x 26 mm (5.5" x 1")
Dimensions (L x W x H)	RD 18 C*	82 x 34 x 59 mm (3.2" x 1.3" x 2.3")
Weight	M 300 / M 300 C	ca. 1 kg
	RD 18	ca. 300 g
	RD 18 C	ca. 165 g
	RD 18 C*	ca. 55 g
Order no.	**M 300 Set**	**6910401**
Order no.	**M 300 C Set**	**6910431**

* 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
Bluetooth range	up to 4 m
Order no.	**6910403**

Drive Unit MarSurf RD 18 C2 for tranverse tracing

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 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
Order no. RD 18 C2	**6910426**
Order no. chuck RD 18 C2 for Ø 5 mm to Ø 80 mm	**6850738**

Optional probes for MarSurf PS1 / M 300 / M 300 C

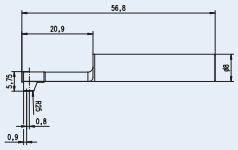
Probes for various measuring tasks

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)

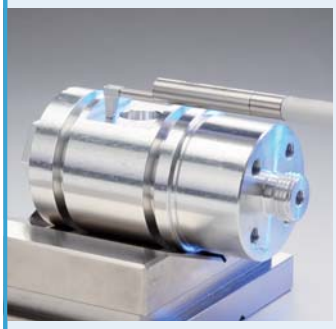
System	Single-skid pick-up with spherical skid
Skid radius	in traversing direction 25 mm (.984"), at right angles 2.9 mm (.114")
Contact point	0.8 mm (.0315") in front of the stylus
Meas. range	350 µm (0.014")
Specification	for plane surfaces, bores with a dia. larger than 6 mm (.236") and a max. depth of 17 mm (.669"), grooves with a width larger than 3 mm (.118"); min. workpiece length = traversing length + 1 mm (.0394")



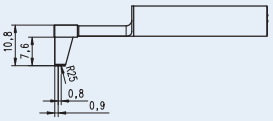
Order no. **6111520***

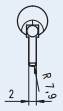
* *Included in the scope of supply*

Pick-up PHT 11-100



System	Single-skid pick-up with spherical skid
Skid radius	in traversing direction 25 mm (.984"), at right angles 2.9 mm (.114")
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")

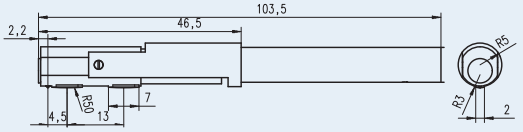




Order no. **6111524**

Pick-up PT 150

System	Dual-skid pick-up with spherical skid
Skid radius	in traversing direction 50 mm (1.969"), at right angles 3 mm (.118")
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). min. workpiece length = tracing length + 5 mm (.197")

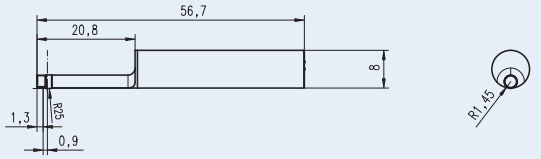


Order no. **6111523**

Pick-up PHT 3-350

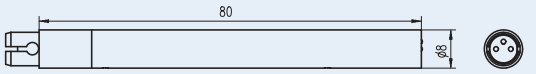
System	Single-skid pick-up with spherical skid
Skid radius	in traversing direction 25 mm (.984"), at right angles 1.45 mm (.0571")
Contact point	0.9 mm (.0354") in front of the stylus
Meas. range	350 µm (0.014")
Specification	for bores with a dia. larger than 3 mm (.118") and a max. depth of 17 mm (.669 ") min. workpiece length = traversing length + 1 mm (.0394")

Order no. **6111521**



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

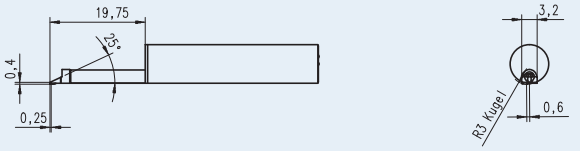
Order no. **6850540**



Pick-up PHTF 0.5-100

System	Single-skid pick-up with spherical skid
Skid radius	in traversing direction 25 mm (.984"), at right angles 1.45 mm (.0571")
Contact point	0.6 mm (.0236") at the side the stylus
Meas. range	100 µm (.00394")
Specification	e.g. for gear tooth flanks with a modulus larger than 0.8
Calibration	via Geometric standard PGN

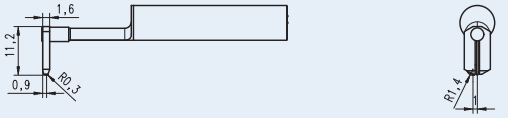
Order no. **6111522**



Pick-up PHTR-100

System	Single-skid pick-up with lateral, spherical skid
Skid radius	in traversing direction 0.3 mm (.012")
stylus radius	2 µm (.0008"), 90°
Specification	for measurements on concave and convex surfaces
Calibration	via Geometric standard PGN

Order no. **6111525**



MarSurf PS 1 / M 300 Accessories

Transverse tracing adapter with vee-block holder for PS1 / RD 18

For hand-held transverse tracing of cylindrical measuring objects, a pick-up adapter and a vee-block can be mounted to the MarSurf PS1 / RD 18 unit. According to the diameter of the measuring object, two different vee-blocks are available:

- Vee-block with 120° angle of Vee, for diameters from 5 up to 50 mm (0.2" to 2")
- Vee-block with 150° angle of Vee, for diameters from 50 up to 130 mm (2" to 5.1").

	Order no.
Adapter for transverse tracing	**6850541**
Vee-block holder	**6850542**

End face vee-block for PS1 / RD 18*

Suitable for measurements on flat end face of cylindrical and planar components.

** Included in the M 300 Set*

	Order no.
End face vee-block	**6910203**

Pick-up protection for PS1 / RD 18 / RD 18 C

	Order no.
Pick-up protection, steel	**6850716**
Pick-up protection with header vee-block, steel	**6850715**
Pick-up protection, plastic*	**7028532**
Pick-up protection header vee-block, plastic**	**7028530**

** With PS 1 and M 300 Set included in the scope of supply*
*** With M 300 and M 300 C Set included in the scope of supply*

Illustration: 7028532

MarSurf PS1 / 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 PS1 / 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 18C can in the mount be pivoted and locked in any position (±15°)

Order no. **6851304**

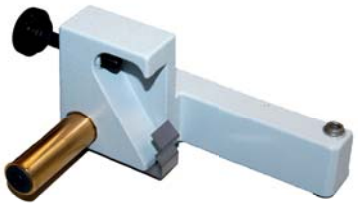


Illustration: 6910201

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
Grantie 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)	500 x 300 x 415 mm
Weight	ca. 35 kg

Order no. **6710806**

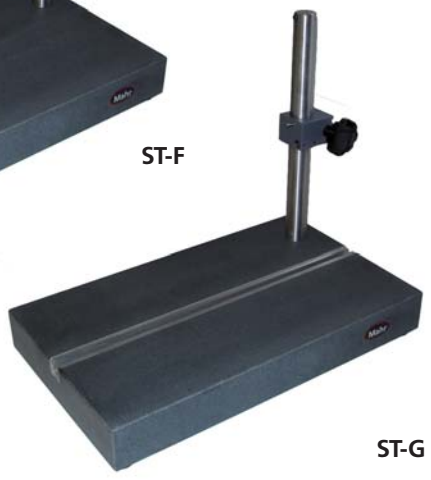
Measuring stand ST-G
Grantie plate with a 10 mm (.39 in) T-slot for mounting work pieces. The required measuring height can be adjusted with a hand wheel for convenient and accurate positioning of the drive unit.

Height adjustment	0 to 300 mm, with a hand wheel
Dimensions (L x W x H)	500 x 300 x 415 mm
Weight	ca. 35 kg

Order no. **6710807**

ST-D

ST-F



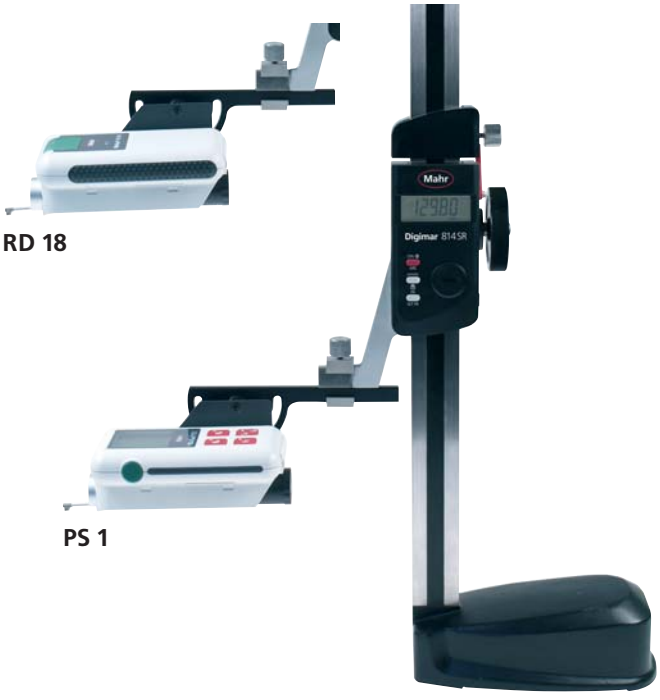
ST-G

MarSurf PS1 / M 300 Accessories

Mounting bracket for Digimar 814 SR

		Order no.
814 Sh	Adjustable mounting bracket to connect the PS 1 / RD 18 to a 814 SR	**2247086**

814 Sh



RD 18

PS 1

Tilt adjustment

Height Measuring and Scribing Instrument Digimar 814 SR for MarSurf PS 1 / RD 18

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
- Interchangable scriber point, carbide tipped
- Supplied with:
  Scriber point, cardboard box, battery and operating instructions

		Order no.
814 SR	Measuring range 350 mm	**4426100**
814 SR	Measuring range 600 mm	**4426101**

MarSurf PS 1 / 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 (.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**

XY table CT

For mounting and aligning workpieces. Can be adjusted in two coordinates by 15 mm (.591").

Table surface 120 x 120 mm
Table surface 4.728" x 4.728" with two brackets.

Order no. **6710529**

Parallel vice PPS

For mounting rectangular and cylindrical workpieces

Jaw width	70 mm / 2.76"
Jaw height	25 mm / .984"
Span	40 mm / 1.58"
Total height	58 mm / 2.28"
Weight	2 kg / 4.41 lb

Order no. **6710604**

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:

		Order no.
PGN 1	Profile depth ca. 1.5 µm (60 µinch), groove distance ca. 0.10 mm (0.0039")	**6820602**
PGN 3	Profile depth ca. 3 µm (120 µinch), groove distance ca. 0.12 mm (0.0047")	**6820601**
PGN 10	Profile depth ca. 10 µm (394 µinch), groove distance ca.0.20 mm (0.0079")	**6820605**
Mahr-calibration certificate for PGN		**9027715**
DKD (German Calibration Service) calibration certificate for PGN		**6980102**

MarSurf PS 1 / M 300 / M 300 C Accessories

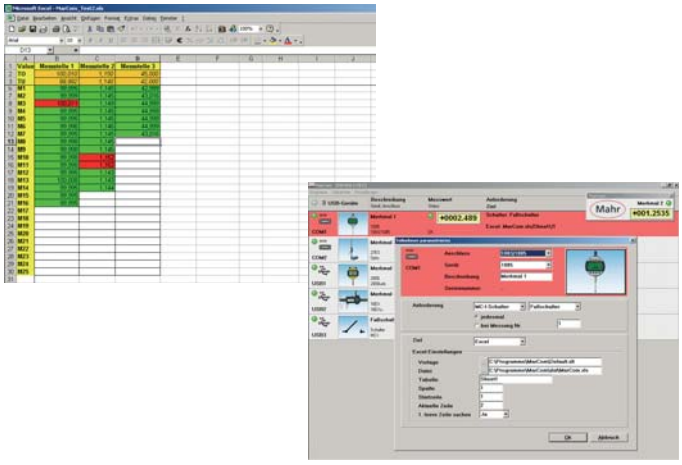
MarCom Software for PS 1 / M 300 / M 300 C

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)

Features and system requirements are identical to MarCom Professional, except that it only has one USB and one serial COM interface.

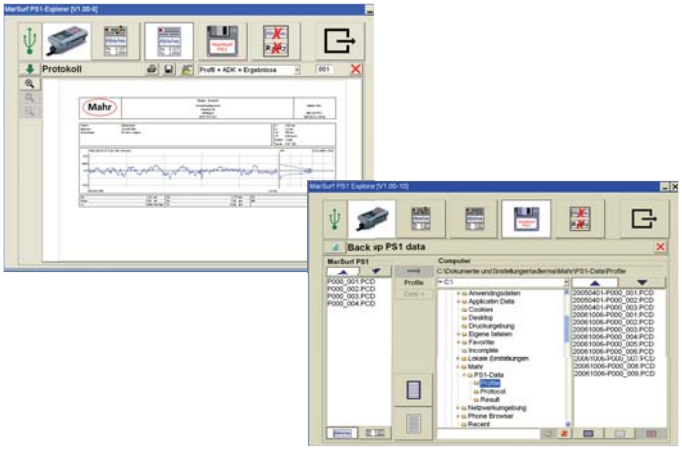


	Order no.
Software MarCom Professional	**4102552**
Software MarCom Standard	**4102551**
Data Cable 16 EXu incl. MarCom Standard	**4102357**

Software MarSurf PS 1 / 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 a 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

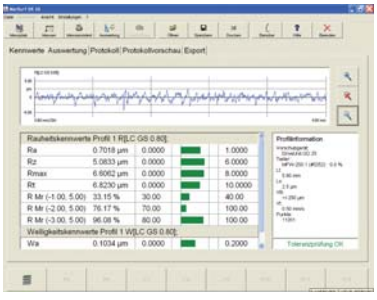
Order no. **6910205**



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 form the measuring station
- Filing including documentation is made simple
- Workstation version avaliable

Order no. **6299054**



MarSurf Available Parameters

Parameters for MarSurf PS 1 / M 300 / M 300 C

Parameter	Output	Meaning	Standards
Ra	RA	Arithmetic mean roughness Ra	DIN EN ISO 4287 : 1998; ISO 4287 : 1997; JIS B 0601 : 2001
Rq	RQ	Root mean square roughness Rq	
Rz Ry (JIS) equiv. to **Rz**	RZ	Mean peak-to-valley height Rz (acc. to ISO) or Ry (acc. to JIS)	
Rz (JIS)	RZJ	Mean height Rz of profile elements	JIS B 0601 : 2001 (früher: ISO 4287/1 : 1984)
Rmax	RMAX	Maximum roughness depth Rmax	DIN 4768 : 1990
Rp	RP	Mean profile peak height Rp	DIN EN ISO 4287 : 1998; ISO 4287 : 1997
RpA (ASME)	RP	Maximum profile peak height Rp	ASME B46
Rpm (ASME)	RPM	Mean profile peak height Rp	
Rpk	RPK	Reduced peak height Rpk	DIN EN ISO 13565-2 : 1998
Rk	RK	Core roughness depth Rk	
Rvk	RVK	Reduced valley depth Rvk	
Mr1	MR1	Smallest material ratio Mr1 of roughness core profile	
Mr2	MR2	Largest material ratio Mr2 of roughness core profile	
A1	A1	Material-filled profile peak area A1	
A2	A2	Lubricant-filled profile valley area A2	
Vo	VO	Oil-retaining volume Vo	
Rt	RT	Total height Rt of R-profile	DIN EN ISO 4287 : 1998
R3z	R3Z	Arithmetic mean third peak-to-valley R3z	DB N 31007 : 1983
RPc	RPC	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.	EN 10049 : 2005; ASME B46
Rmr tp (JIS, ASME) equiv. to **Rmr**	RMR	Material ratio Rmr	DIN EN ISO 4287 : 1998; ISO 4287 : 1997; JIS B 0601 : 2001
RSm	RSM	Mean width RSm of profile elements (previously: groove spacing)	
Rsk	RSK	Skewness Rsk of the profile	DIN EN ISO 4287. ASME B46.1
S	S	Mean spacing S of local profile peaks	JIS B 0601 : 1994
CR	CR	Zone width CR of the profile peak zone (French „critère de rodage“) (dependent on intersection lines Scr1 and Scr2)	cf. Pδc (Pdc) in: DIN EN ISO 4287 : 1998 ISO 4287 : 1997 JIS B 0601 : 2001
CF	CF	Zone width CF of the profile core zone (French „critère de fonctionnement“) (dependent on intersection lines Scf1 and Scf2)	
CL	CL	Zone width CL of the profile valley zone (French „critère de lubrification“) (dependent on intersection lines Scl1 and Scl2)	
R	R	Mean depth R of roughness motifs	ISO 12085 : 1996
Ar	AR	Mean width Ar of roughness motifs	
Rx	RX	Maximum depth Rx of profile irregularity	

Additional parameters for MarSurf M 300 / M 300 C

Rv	Rv	Mean profile valley depth Rv	DIN EN ISO 4287 : 1998 ISO 4287 : 1997 JIS B 0601 : 2001
W	W	Mean depth W of waviness motifs (dependent on operators A and B)	DIN EN ISO 12085 : 1998 ISO 12085 : 1996 JIS B 0631 : 2000

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