



**Pocket Surf®**  
the portable surface roughness gage



EXACTLY

## Pocket Surf® the portable surface roughness gage

Mahr Federal's patented\* Pocket Surf® gage is a pocket-sized economically priced, completely portable instrument which performs traceable surface roughness measurements on a wide variety of surfaces. The Pocket Surf gage is solidly built, with a durable cast aluminum housing, to provide years of accurate, reliable surface finish gaging.

### Compact, versatile and easy to operate though ...

The Pocket Surf can be used confidently in production, on the shop floor and in the laboratory; in any position – horizontal, vertical, and upside down. Due to the four switchable probe positions – axial or at 90°, 180° or 270°- it offers various measurement applications for surfaces. Even difficult-to-operate surfaces such as inside and outside diameters are accessible.

The Pocket Surf has an integrated data output for SPC-processing units and it is compatible for the most common data processing systems.

**Pocket Surf® is used to measure any one of four, switch-selectable, parameters.**

- **R<sub>a</sub>** — **Average Roughness**
- **R<sub>max</sub>/R<sub>y</sub>** — **Maximum Roughness Depth**
- **R<sub>z</sub>** — **Mean Roughness Depth, also called R<sub>t</sub>.**

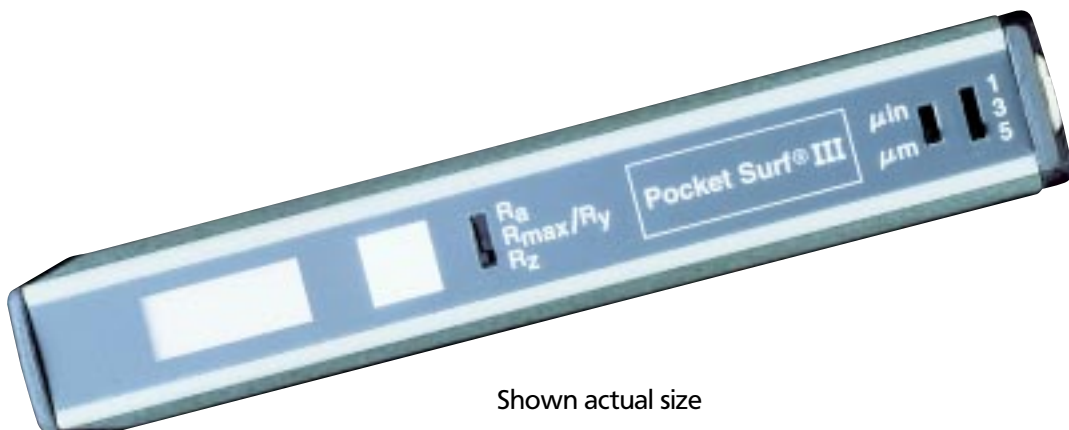
R<sub>max</sub> and R<sub>y</sub> are convenient "burr" and "scratch" control parameters and valuable additions to R<sub>a</sub> and R<sub>z</sub>

### Digital display

conveniently located on top of the unit for optimum visibility. The 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.

### Selectable traverse length

1, 3 or 5 cut-offs of 0.8 mm/.030 in each, permit checking surface lands as short as 1.9 mm/.075 in.

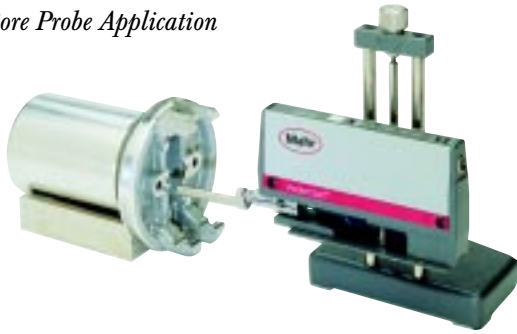


Shown actual size

\* US-patent no. 4.776.212

## Applications and Accessories

### *Small Bore Probe Application*



A variety of probes is easily interchangeable, increasing the gage's capability for a wide range of applications, such as flats, O.D.'s, I.D.'s (including small bores), sharp edges, inside "O" ring grooves, short lands and shoulders.

*Refer to back page for probe listing.*

### *Using the Groove Bottom Probe to check the surface of a short land.*



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



### **Compact measuring station with vee fixture EAS-2421                      Order no. 2008023**

for measuring small parts with outside diameters up to 25 mm/1 in - includes PS-145 setting pin.



### **Bottom Plate EAS-2584                      Order no. 2008022**

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



### **Vee-Adapter Kit EAS-2739                      Order no. 2008020**

attaches to bottom of Pocket Surf unit, permitting convenient, hand-held measurements of hard-to-reach cylindrical surfaces, such as crankshaft journals\*. Suitable for parts with diameters from 5.0 mm/.19 in to 125 mm/5 in.



### **Built-in digital output**

The Pocket Surf is equipped with integrated digital output for connection to the **Pocket Surf Printers EKT-1235**. See section "Table-top Printers for Pocket Surf".



*\* without having to fix the workpiece*

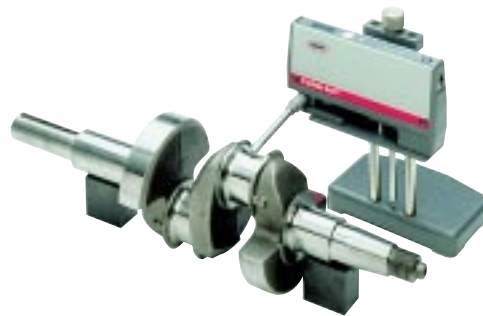


## Applications and Accessories

### Height Stand EAS-2496      Order no. 2008024

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.

*EAS-2496  
Height Stand in vertical position.*



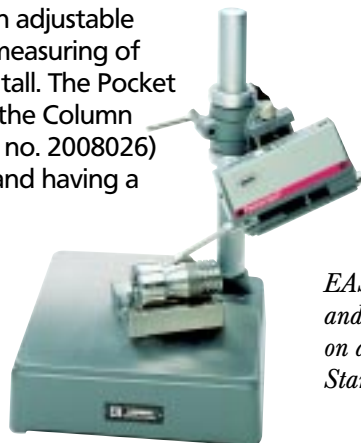
### Bore Adapter Kit EAS-2839      Order no. 2008021

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



### Universal Stand EAS-2426      Order no. 2008025

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. The Pocket Surf can also be used together with the Column Clamp and Bracket (EAS-2567, Order no. 2008026) on a bench comparator or height stand having a 31.7 mm / 1.25 in diameter column.



*EAS-2567 Column Clamp and Bracket with Pocket Surf on a Model 2400 Height Stand.*



### Table-top Printers for Pocket Surf (without illustration)

Can be easily connected to the Pocket Surf Output Connector via a normally furnished interface cable. When the measurement is completed, the result is automatically sent to the printer. The printer utilizes inexpensive adding machine paper and a replaceable ribbon cartridge. It consists of a rugged case, a top panel power indicator LED and a 3-position switch - **power off, power on and paper feed**.

The unit measures 4.5" x 4" x 2" / 115 mm x 100 mm x 50 mm, and weighs 1lb./0.45 kg.

Model		Order no.
EKT-1235-W1	Line Printer with 120 V AC power transformer	2008085
EKT-1235-W2	Line Printer with 230 V/50 Hz power transformer and round 2-pin European-plug	2008086
EKT-1235-W3	Line Printer with 240 V/50 Hz power transformer and 3-pin U.K.-plug	2008087
All models include an:		
ECB-1887	Interface Cable, 40"/1 m long	2008088

## Technical Data

Overall Dimensions	140 mm x 76 mm x 25 mm / 5.5 in x 3 in x 1 in
Weight	435 g/14 oz.
Measuring Ranges	Ra - 0.03 $\mu\text{m}$ to 6.35 $\mu\text{m}$ /1 $\mu\text{in}$ to 250 $\mu\text{in}$ Ry - 0.2 $\mu\text{m}$ to 25.3 $\mu\text{m}$ /8 $\mu\text{in}$ to 999 $\mu\text{in}$ Rmax - 0.2 $\mu\text{m}$ to 25.3 $\mu\text{m}$ /8 $\mu\text{in}$ to 999 $\mu\text{in}$ Rz - 0.2 $\mu\text{m}$ to 25.3 $\mu\text{m}$ /8 $\mu\text{in}$ to 999 $\mu\text{in}$
Display Resolution	0.01 $\mu\text{m}$ /1 $\mu\text{in}$
Measurement Accuracy	Meets ASME-B46.1, ISO, DIN standards and MIL specifications
Digital Readout	LCD; 3 digit; "Battery low" signal; "H" and "L" (measured values out-of-range)

### Probing and Traverse Lengths

Parameters	Traverse Length (Nominal)	Evaluation Length	Number of Cutoffs/ Switch Position
Ra/Ry	2.0 mm/ .075 in 3.5 mm/ .135 in	0.8 mm/ .030 in 2.4 mm/ .090 in	1 3
Ra/Rz/Rmax	5.0 mm/ .195 in	4.0 mm/ .150 in	5

Traverse Speed	5.08 mm/ .2 in per second
Cutoff	0.8 mm/ .030 in ASME 2RC filter
Probe Type	Piezoelectric
Maximum Stylus Force	15.0 mN/1500 mfg
Power	9 Volt consumer-type alkaline battery
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

### Kit

		Order no.
<b>EMD-1500-311</b>	EGH-1019 Probe, 90°, 10 $\mu\text{m}$ radius, PMD-90101 Certified Specimen, incl. Test Certificate	<b>2008000</b>
<b>EMD-1500-312</b>	EGH- 1019 Probe, 90°, 10 $\mu\text{m}$ radius, EMD-90010 Precision Specimen	<b>2008001</b>
<b>EMD-1500-321</b>	EGH-1026 Probe, 90°, 5 $\mu\text{m}$ radius, PMD-90101 Certified Specimen, incl. Test Certificate	<b>2008002</b>
<b>EMD-1500-322</b>	EGH-1026 Probe, 90°, 5 $\mu\text{m}$ radius, EMD-90010 Precision Specimen	<b>2008003</b>
<b>EBY-1014</b>	9 Volt Alkaline battery	<b>3751852</b>
<b>EPL-1681</b>	Riser Plate, for calibrating the gage with the Reference Specimen	<b>2008027</b>

**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  $\mu\text{m}$ /125  $\mu\text{in}$  (nominal) Reference Specimen\*\*.

\*\* Part Numbers listed in table above.

## Probes

### General Purpose Probes

#### EGH-1019/EGH-1026

For most surface roughness applications.

#### EGH-1026

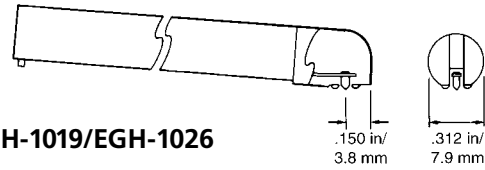
Order no. 2008011

With a 90° conical diamond stylus, 5 µm/.0002 in radius\*.

#### EGH-1019

Order no. 2008010

With a 90° conical diamond stylus, 10 µm/.0004 in radius.



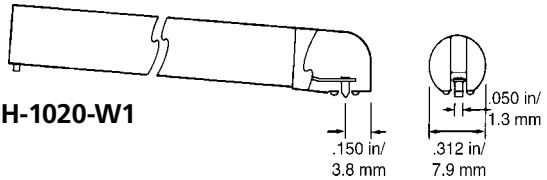
EGH-1019/EGH-1026

### Traverse Chisel Probe

#### EGH-1020-W1

Order no. 2008012

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 in radius.



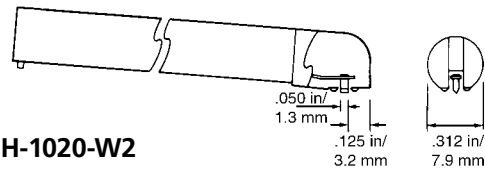
EGH-1020-W1

### Parallel Chisel Probe

#### EGH-1020-W2

Order no. 2008013

For gaging sharp edges or small O.D.'s where probe is perpendicular (in 90° or 270° position) to axis of traverse. Also for O.D.'s smaller than 6.35 mm/.25 in staged on EAS-2421. Vee fixture 90° sapphire chisel, 10 µm/.0004 in radius.



EGH-1020-W2

### Small Bore Probes

#### EGH-1021/EGH-1027

For gaging small bores (3.2 mm/.125 in minimum I.D.) up to a depth of 19 mm/.75 in.

#### EGH-1027

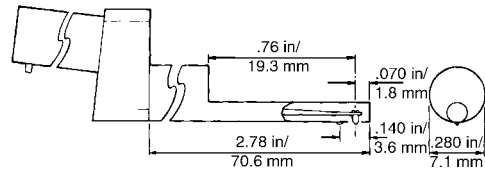
Order no. 2008015

With a 90° conical diamond stylus, 5 µm/.0002 in radius\*.

#### EGH-1021

Order no. 2008014

With a 90° conical diamond stylus, 10 µm/.0004 in radius.



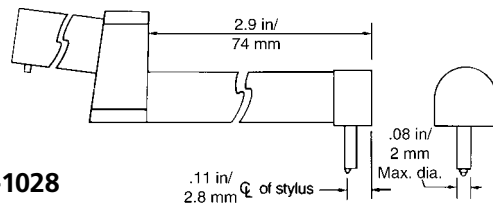
EGH-1021/EGH-1027

### Groove Bottom Probe

#### EGH-1028

Order no. 2008016

For measuring the bottom of grooves, recesses and small holes to depths of 6.35 mm/.25 in. Also used for short lands and shoulders. 90° conical diamond stylus, 10 µm/.0004 in radius.



EGH-1028

**NOTE:** Small Bore and Groove Bottom Probes can only be used in the 180° position with the Pocket Surf unit supported in a height stand or other fixture.

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

Please contact us for a copy of the General Catalogue for Hand Measuring Instruments.

Product groups shown include:

Calipers, micrometers, dial indicators, dial comparators, indicating measuring instruments for inside and outside dimensions, electronic length measuring instruments, calibration services (DKD)



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