



PRECISION GAGES | BEST SELLERS GUIDE



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Mahr

E X A C T L Y



MarCal. Calipers Digital Caliper 16 EWR

Innovation Award for Marcal 16 EWR

Functions:

- ON/OFF, RESET (Set display to zero), mm/inch, Reference-Lock/Unlock, DATA (Data transmission via connection cable),
- Auto-ON/OFF
- Immediate measurement due to the **Reference system**
- Excellent resistance against dust, coolants and lubricants, **protection class IP67**
- **MarConnect** data output, choose alternatively: USB, OPTO RS232C or Digimatic
- Lapped guideway
- Life of the battery up to **3 years**
- High contrast Liquid Crystal Display with 8.5 mm high digits



Coolant Proof



REFERENCE

Reference-Lock-Function



	Measuring range		Resolution	Depth Rod		Friction wheel	Output	Order no.
	inch	mm	inch/mm					
16 EWR	6"	150	.0005" / 0.01	•				4103060
16 EWR	6"	150	.0005" / 0.01	•		•		4103061
16 EWR	6"	150	.0005" / 0.01		•			4103062
16 EWR	6"	150	.0005" / 0.01		•	•		4103063
16 EWR	6"	150	.0005" / 0.01	•			•	4103064
16 EWR	6"	150	.0005" / 0.01		•		•	4103066
16 EWR	8"	200	.0005" / 0.01		•		•	4103068
16 EWR	12"	300	.0005" / 0.01				•	4103070
16 EWR	6"	150	.0005" / 0.01	•		•	•	4103065
16 EWR	6"	150	.0005" / 0.01		•	•	•	4103067
16 EWR	8"	200	.0005" / 0.01		•	•	•	4103069
16 EWR	12"	300	.0005" / 0.01			•	•	4103071



MarCal. Calipers Digital Caliper 16 ER



Functions:

- ON/OFF RESET (Set display to zero) mm/inch
- Reference-Lock/Unlock Auto-ON/OFF
- Immediate measurement due to the Reference system
- Dirt wipers are integrated in the slide
- Life of the battery up to 3 years
- Max measuring speed 2.5 m/s (100"/s)

- High contrast Liquid Crystal Display with 8.5 mm high digits
- Lapped guideway
- Slide and beam made of hardened stainless steel
- Measuring blades for inside measurement

- Step measuring function
- Locking screw
- Supplied with: Case, battery, operating instructions
- **MarConnect** data output, choose alternatively: USB, OPTO RS232C or Digimatic

REFERENCE

	Measuring range		Resolution	Depth Rod		Output	Order no.
	inch	mm	inch/mm				
16 ER	6"	150	.0005" / 0.01	•	•	•	4103002
16 ER	6"	150	.0005" / 0.01	•	•	•	4103003
16 ER	8"	200	.0005" / 0.01	•	•	•	4103004
16 ER	12"	300	.0005" / 0.01	•	•	•	4103005

MarCal. Calipers Digital Depth Gage 30 EWR

Coolant Proof

REFERENCE



Functions:

- ON/OFF RESET (Set display to zero) mm/inch
- PRESET (enter a numerical value)
- Reference-Lock/Unlock Auto-ON/OFF
- Immediate measurement due to the Reference system
- Excellent resistance against

- dust, coolants and lubricants, protection class IP67
- MarConnect data output, choose alternatively: USB, OPTO RS232C or Digimatic
- Dirt wipers are integrated in the slide
- Life of the battery up to 3 years
- Max measuring speed

- 2.5 m/s (100"/s)
- High contrast LCD with 8.5 mm high digits
- Lapped guideway
- Beam and cross beam are made of hardened stainless steel
- Locking screw
- Supplied with: Case, battery, operating instructions

	Measuring range		Resolution	Error Limit G	Output	Order no.
	inch	mm	inch/mm	inch/mm		
30 EWR	6"	150	.0005" / 0.01	.001" / 0.03	•	4126700
30 EWR	12"	300	.0005" / 0.01	.0015" / 0.04	•	4126701
30 EWR	20"	500	.0005" / 0.01	.0020" / 0.05	•	4126702

Mahr

Dial Caliper 16U Black Face.

Features:

- Large dial face with high contrast graduations

- Satin-chrome finished line scale.
- Shockproof movement.

- Zero setting through rotating dial and locking screw.

- Covered rack.
- Slide and beam made of hardened stainless steel.
- Measuring blades for inside measurement.
- Step Measuring Function.
- Locking Screw.
- Depth Bar.
- Supplied with storage case.



	Measuring range	Readings	Error limit Inch/mm	Order no.
16 U	6in	0.001"	0.0012"	4107900
	150mm	0.01mm	0.03mm	4107005
	150mm	0.02mm	0.03mm	4107107

MarCal. Calipers

Universal Caliper 16 EWW in Set

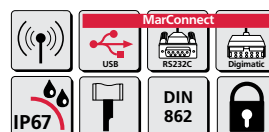
Coolant Proof

- The 16 EWW can also be used as a standard caliper (4 types of measurement are possible). When used in conjunction with the standard accessories it is possible to measure recesses, grooves, etc. In conjunction with the additional accessories threads, bores, serrations, etc. can be measured.



- Reference-Lock/Unlock
- DATA (Data transmission via connection cable)
- Auto-ON/OFF
- Immediate measurement due to the Reference system
- Excellent resistance against dust,

- coolants and lubricants, protection class IP67
- MarConnect data output, choose alternatively: USB, OPTO RS232C or Digimatic
- Dirt wipers are integrated in the slide
- Life of the battery up to 3 years



REFERENCE

- Max measuring speed 2.5 m/s (100"/s)
- High contrast LCD with 8.5 mm high digits
- Lapped guideway
- Slide and beam made of hardened stainless steel
- Measuring blades for inside measurement
- Step measuring function
- Locking screw
- Supplied with: Case, battery, operating instructions

Functions:

- RESET (Set display to zero) mm/inch

	Measuring* range inch / mm	Resolution inch / mm	Error limit G mm	Order No.
16 EWW	8" / 200	.0005" / 0,01	0,03	4118807*

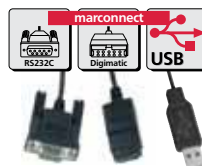
*Includes standard accessories

MarConnect. Interfaces

Data Connection Cable 16 EXr and 16 EXd

For use with 16 EWR 16 ER, 16 EWW, 30 EWR

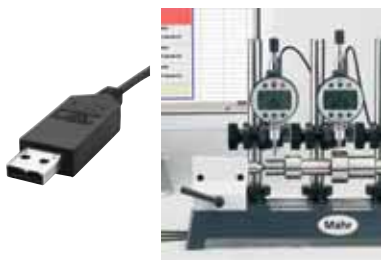
Accessories	Order no.
Data Connection Cable Opto RS232C (3.28ft / 2m)	16 EXR 4102410
Data Connection Cable Digimatic (3.28ft / 2m)	16 EXD 4102411
Data Connection Cable USB	16 EXV 4102357*



*Includes free Marcom Standard software



Marconnect. USB Ready



System Requirements

IBM AT Compatible PC
USB Interface 2.0 or Higher
MS Windows 2000, XP, Vista
CD/DVD Drive
Recommended: MS Excel Version 97 and above

Software MarCom - Professional

- Directly transfer measured values into MS Excel*, a text file or key code.
- Measured values from each device can be sent to a different column, or folder in Excel.
- Data transmission is possible via USB and 2 Serial COM interfaces.
- USB hub is also suitable as a measuring instrument interface
- Up to 100 measurement devices can be connected with USB data cable
- Clear portrayal of selected measurement with the aid of icons
- Several foot switches can be connected via USB measurement devices and be freely assigned
- Freely definable/configurable measurement cycles
- Data transmission via "Data" button on measuring devices or on the data cable via a PC, timer keyboard, or a foot switch connected to a USB interface

Software MarCom - Standard

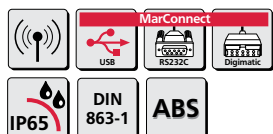
(USB cable is not included in scope of supply)

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*
*Free with purchase of USB Cable 4102357	

Micromar. Micrometer Digital Micrometer 40 EWR

Coolant Proof



Functions:

- RESET (Zero setting the display for Relative measurement),
- ABS (Switching from Relative to Absolute measurement), mm/ inch, PRESET (enter a numerical value)
- Waterproof measuring system **IP65**
- Reference measuring system, life of battery approx. 3 years
- High contrast Liquid Crystal Display with 8.5 mm high digits
- Measuring spindle and anvil are carbide tipped
- Operating buttons are made from **Ultradur**®, which has an excellent chemical resistance

	Measuring range inches/mm	Resolution inches / mm	IP	Error limit G µm	Order no.
40 EWR	0-1" / 25mm	.00005" / 0.001	IP65	2	4151705
40 EWR	1-2" / 25mm	.00005" / 0.001	IP65	2	4151706



Series 49P O. D. Caliper Gages

- The most widely used gages for checking medium tolerance dimensions on patterns, castings, forgings, dies, sheet metal.
- Generous clearance on jaws reaches over non measured part protrusions for easy access to areas where thickness must meet critical dimensional specs.
- Retraction lever is conveniently located for one hand operation.
- .02mm or .1mm/.01in, .001in or 1/64in grads available.
- Continuous reading dials with revolution counters normally provided.
- Cylindrical radius steel contact tips normally furnished.



Series 49P

Specifications

Capacity*	Gaging Depth	Graduation	Order no.
2.0in 0-50mm	4in 100mm	.001in .02mm	49P-17 (Inch) 49P-17M (Metric)

**Ordinarily this gage is used as a comparator. The actual measuring range of the instrument is 38mm/1.50in. If the gage is used for direct linear measurement, chordal errors may need to be corrected. Contact technical assistance for details.*

40 A

Series 40 A Series Micrometers

- Exceptional quality at an attractive price.
- Heat insulated.
- Chromium plated frame.
- Storage case included.



Measuring Range	Readings	Accuracy	Spindle Thread Pitch	Order no.
0-1in	.0001in	.00016in	.025in	4134900
1-2in	.0001in	.00016in	.025in	4134901
2-3in	.0001in	.00020in	.025in	4134902
3-4in	.0001in	.00020in	.025in	4134903
4-5in	.0001in	.00024in	.025in	4134904
5-6in	.0001in	.00024in	.025in	4134905
6-7in	.0001in	.00028in	.025in	4134906
7-8in	.0001in	.00028in	.025in	4134907
0-25mm	0.01mm	4μm	0.5mm	4134000
25-50mm	0.01mm	4μm	0.5mm	4134001
50-75mm	0.01mm	5μm	0.5mm	4134002
75-100mm	0.01mm	5μm	0.5mm	4134003
100-125mm	0.01mm	6μm	0.5mm	4134004
125-150mm	0.01mm	6μm	0.5mm	4134005
150-175mm	0.01mm	7μm	0.5mm	4134006
175-200mm	0.01mm	7μm	0.5mm	4134007



- 40 AB Series with reduced measuring faces
For measuring recesses, splines, slots, keyways, etc.



Specifications

Measuring Range	Readings	Accuracy	Spindle Thread Pitch	Order no.
0-1in	.0001in	.00016in	.025in	4134920
1-2in	.0001in	.00016in	.025in	4134921
2-3in	.0001in	.00020in	.025in	4134922
3-4in	.0001in	.00020in	.025in	4134923
0-25mm	0.01mm	4µm	0.5mm	4134100
25-50mm	0.01mm	4µm	0.5mm	4134101
50-75mm	0.01mm	5µm	0.5mm	4134102
75-100mm	0.01mm	5µm	0.5mm	4134103

- 40 AS Series with sliding spindle and measuring blades
For measuring narrow recesses, grooves, etc.



0-1in	.0001in	.00016in	.025in	4134930
1-2in	.0001in	.00016in	.025in	4134931
2-3in	.0001in	.00020in	.025in	4134932
3-4in	.0001in	.00020in	.025in	4134933
0-25mm	0.01mm	4µm	0.5mm	4134200
25-50mm	0.01mm	4µm	0.5mm	4134201
50-75mm	0.01mm	5µm	0.5mm	4134202
75-100mm	0.01mm	5µm	0.5mm	4134203

- 22P-11 and XLI-22P-20 Portable Thickness gages

- Model 22P-11 model with continuous reading dial and revolution counter for absolute measurement of thin materials, plastic films and small parts.
- XLI model with µMaxum® II XL digital indicator can be right/left hand operated or front mounted and used with a BA-26 Stand for bench applications.



22P-11



XLI-22P-20

	Measuring range inch	Switchable Resolutions inch/mm	Throat Depth inch/mm	Graduation inch
22P-11	0 - .10"		1.13" / 28.6	.0001"
XLI-22P-20	0 - 1"	0.00001" / 0.0002mm	2" / 50mm	

MarTest. Test Indicators

Test Indicators 800

The new generation of Test Indicators with coolant proof bezel and crystal

Mechanism

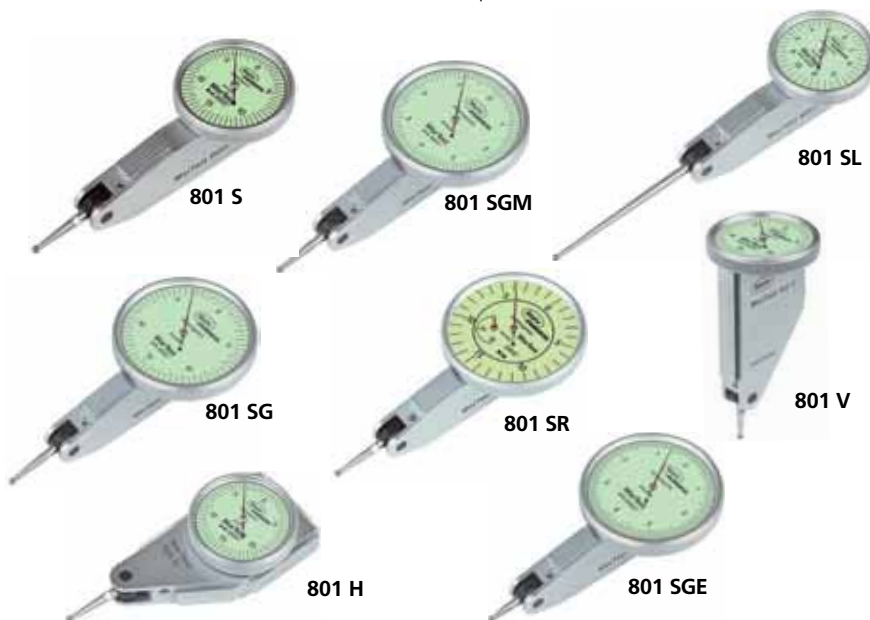
- Shockproof
- Anti-magnetic
- Movement bearings are jeweled with 8 precious stones
- Automatic matching to sensing direction, thus ensuring error-free reading

- Double lever supported in ball bearings, overload protection provided by slip clutch

- Dial face is sealed with an O-Ring

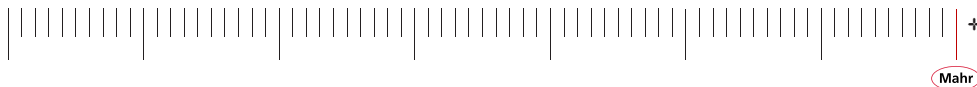
- Satin-chrome finished housing

- Contact point with Tungsten Carbide ball



	Measuring Range (inches)	Readings Grads	Dial dia. (Inches)	Swivel range of stylii	Accuracy f_e	Order no.
801 S	± 0.015	0.0005"	1.1in	.54in	0.0004"	4305950
801 SG	± 0.015	0.0005"	1.5in	.54in	0.0004"	4307950
801 SGM	± 0.004	0.0001"	1.5in	.54in	0.00012"	4308970
801 SGE	± 0.004	0.00005"	1.5in	.54in	0.00012"	4308985
801 SL	± 0.010	0.0005"	1.1in	1.59in	0.0004"	4306950
801 H	± 0.015	0.0005"	1.1in	.54in	0.0004"	4303950
801 SR	± 0.030	0.0005"	1.5in	.54in	0.0004"	4307960
801 V	± 0.015	0.0005"	1.1in	.54in	0.0004"	4302950

Clamp and holding bar sold separately



Dial Indicators

You get more value with Mahr Federal dial indicators:

- Hardened gears and stainless steel racks provide lasting protection against indicator failure due to shock and wear.
- Skeletonized, hobbled gears for more sensitive response, superior indicator accuracy with minimal hysteresis error.
- Smooth adjusting bezels for easy setup.
- Compliance with ANSI/AGD specifications.
- Following is only a small representation of the hundred of indicators available from Mahr Federal.

Specifications:

Miniature Model, ANSI Group 0 (Mahr Federal Series A-Inch)
Where available space prohibits the use of a larger dial indicator.

Measuring range	Graduation value	Dial style	Range per Revolution	Accuracy	Order no.
.100in	.001in	0-20-0	.040in	±.001in	A6Q



ANSI/AGD Group 1 (Mahr Federal Series B-Inch/O-Metric)
Best suited for multiple unit fixtures or smaller gages.

Measuring range	Grad. value	Dial style	Range per revolution	Accuracy	Order No. Without Rev Counter	With Rev Counter
.025in	.0001in	0-5-0	.010in	±.0001in	12I	12I-RC
.050in	.0005in	0-10-0	.020in	±.0005in	B3Q	B3Q-RC
.250in	.001in	0-50-0	.100in	±.001in	B8I	B8I-RC
2.5mm	0.01mm	0-50-0	1.00mm	±.010mm	O6I	O6I-RC



ANSI/AGD Group 2 (Mahr Federal Series C-Inch)
Most widely used for all dial indicator applications.

.025in	.0001in	0-5-0	.010in	±.0001in	2015781	2014761
.075in	.0005in	0-15-0	.030in	±.0005in	2015786	2014811
.125in	.0005in	0-25-0	.050in	±.0005in	2015790	2014814
.250in	.001in	0-50-0	.100in	±.001in	2015792	2011049
0.500mm	0.002mm	0-10-0	0.200mm	±0.004mm	P1I	P1I-RC
2.500mm	0.010mm	0-50-0	1.000mm	±0.010mm	2015794	2014818
5.000mm	0.020mm	0-100-0	2.000mm	±0.020mm	2015795	2014819



High Performance, Long Range Indicators
Concentric "Speed Read" Rev-Counter on .5" and 1.0" models

.250in	.001in	0-100	.100in	±.001	2016005
.500in	.001in	0-100	.100in	±.001	2016004*
1.00in	.001in	0-100	.100in	±.001	2016002*

* With Speed Read revolution counter



Millmess. Dial Comparators

Inductive Dial Comparator Millmess 2100

with backlit color changing display

Functions:

- ON/OFF
- RESET (zero setting of digital and analog display)
- - 0 - (zero setting of analog display)
- PRESET (for entering a numerical value)
- Reversal of counting direction
- RANGE (switching of meas. range and readings)
- ABS (reference to elect. zero point)
- MAX-MIN memory ideal for searching the reversal point
- MAX-MIN, e.g. for checking concentricity and flatness
- TOL (entering tolerance)

- LOCK: operating functions can be blocked via PC-Software.
- Linearized inductive absolute measuring system.
- Power supply via mains adapter.
- Marconnect data output: optional Opto RS232C or Digimatic.
- Dial Comparator can be operated by remote control via interface (Opto RS232C).
- Control output compatible to dial comparators with limit contacts.
- Function and display section can be rotated through 280°.
- Measuring force springs can be

NEW



- exchanged.
- Lower stop adjustable.
- Protection class IP 54 according to EN 60529.
- Operating temperature 41° - 104°F/5° - 40°C.
- High contrast backlit Liquid Crystal Display with 0.25"/6.5 mm high digits.
- Analog display with 4 mm pointer length for better

visual perception when checking concentricity or flatness; plus reversal point search when measuring bores.

Standard accessories: Mains adapter, rubber bellows and spanner for preliminary stroke setting.

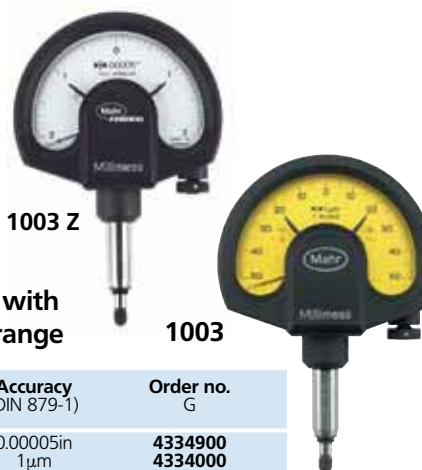
Measuring range switchable in / mm	Resolution switchable inch / mm	Display range of analog display inch / mm	Span of error* within ±0.8mm ±1.4mm	Order no.
±.04 / 1.0 ±.055 / 1.4 ±.055 / 1.4 ±.055 / 1.4	.00002" / 0.0005 .00005" / 0.001 .0002" / 0.005 .0005" / 0.01	±.0006" / 0.015 ±.0015" / 0.030 ±.0060" / 0.150 ±.0150" / 0.300	1µm 2µm	4346201

*+1 resolution

Millmess. Dial Comparators

Millmess 1003 and 1003 Z

- Shockproof movement
- Measuring spindle mounted in high precision ball guide assures high measurement accuracy and minimal hysteresis
- Lockable fine adjustment
- Easy to read scale



Millmess 1003 XL with larger measuring range


	Range	Resolution	Accuracy (DIN 879-1)	Order no. G
1003 Z	± 0.0020in	0.00005in	0.00005in	4334900
1003	± 50µm	1µm	1µm	4334000
1003 XL	±130µm	2µm	2µm	4334001



Digital Indicator Gages

μMaxμm // Indicators



- Full feature indicator at a value price
- Inch/Metric - operator selectable with switchable resolution
- High resolution for comparative measurement
- Perfect for replacement of existing comparative gaging
- "Absolute" transducer never loses zero
- Dynamic mode operation - Max, Min, TIR
- Two point difference measurement - provides comparison of two readings or measuring locations ( Calculates the distance between two measured values)



Range	Selectable Resolution	Stem Diameter/Length	Back	Order Model
±.040"/1mm	0.00001" - 0.001"	0.375"/0.46"	Flat	2034201
±.040"/1mm	0.00001" - 0.001"	0.375"/1.50"	Flat	2034203

μMaxμm // XL Indicators



- Unilateral tolerances
- Preset capabilities for direct dimension readout
- Longer measuring ranges / Never loses zero even when powered down
- Two-format data output compatible with most data collection devices
- Versions available for deadweight applications for compressible materials



Range	Selectable Resolution	Stem Diameter/Length	Back	Order Model
0.5"	0.00001" - 0.002"	0.375"/0.63"	Flat	2034252
1.0"	0.00001" - 0.002"	0.375"/0.63"	Flat	2034212

Marcator 1086 Ri, with integral wireless transmission



Functions:



- ON/OFF
- RESET (Setting the display to zero)
- mm/inch
- Reversal of the counting direction
- PRESET (Allows the entry of any value using set buttons)
- TOL (Enter tolerance limit values)
- ABS (Display can be set to zero, without losing the reference to the Preset value)
- <0> (Tolerance GO / NO GO display mode)
- Reference measuring system
- DATA (when connected with a data connection cable)
- Factor (adjustable)
- Also available w/o Wireless



REFERENCE

Meas. range inch / mm	Resolution inch (mm)	Span of error inch (mm)	Order no.
5"/12.5	0.00005" (0.001)	0.0002" (0.005)	4337124

Marcator 1087 Ri, with integral wireless transmission



Same as above Including:

- MAX/MIN memory, ideal for searching the reversal point
- TIR (MAX-MIN) ideal for testing concentricity and flatness
- Reference measuring system
- Also available w/o Wireless
- Accessory iStick Marcom



REFERENCE

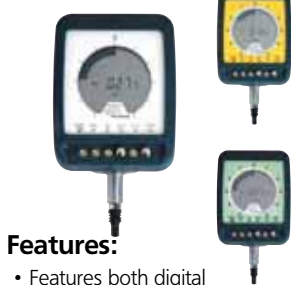


Meas. range inch/mm	Resolution inch (mm)	Span of error inch (mm)	Order no.
.5"/12.5	0.00005" (0.001)	0.0002" (0.005)	4337163

i-Stick USB Wireless Receiver with Marcom Software

Order no. 4102220 11

Maxµm® III Digital Indicators, Remote Indicating and Digital Transducers

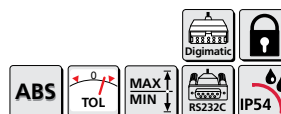


Features:

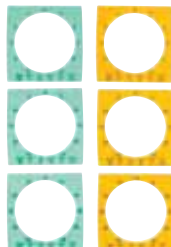
- Features both digital display for accuracy and readability and unique "fan" analog display for trend and change.

- User configurable in inch/metric units, normal/reverse sensing, resolution, analog scale, and tolerance setup & display.
- Both integral and remote readout versions available.
- Data output – 3 formats – Maxum, serial, digimatic.
- Dynamic Capabilities: min, max, TIR, hold, reset.
- Digital sensing allows indicating unit to identify digital transducer type by range.
- Digital transducers equipped with durable cable
- Digital Transducer available in Canister or Pencil style.

- Special options available, such as –setup mode or calibration lockout, remote external power, 4:5 ratio, 1.5, 2.0 or 3.0 inch stem lengths, and more...
- Easy to select, order and operate!
- IP54 protection.



Technical Data



Overlays for specific configurations are included

Maxµm® III Digital Indicator	Short Range	Long Range
Digital Standard Range	±0.040" / ±1.00mm	±0.100" / ±1.99mm
Digital Reduced Range	±0.0199" / ±0.199mm	None
Digital Resolution: (switchable)	0.0005" / 0.005mm 0.0001" / 0.001mm 0.00005" / 0.001mm 0.00002" / 0.0005mm	0.0005" / 0.005mm 0.0001" / 0.001mm
Analog Range:	5 or 25 or 50	25 or 50
Analog Resolution: (switchable)	0.001" / 0.01mm 0.0005" / 0.005mm 0.0001" / 0.001mm	0.001" / 0.01mm 0.0005" / 0.005mm
Accuracy:		
Standard Range	0.5 % of Total Range	0.35% of Total Range
Reduced Range	0.25 % of Total Range	N/A
Repeatability:	± One Least Digit	± One Least Digit

Stem Length	Stem dia.	Data Output	Short Range	Long Range
0.670" / 17mm 1.50" / 38mm 0.670" / 17mm 1.50" / 38mm	0.375" 0.375" 8.0 mm 8.0 mm	No Output	2033101 2033103 2033105 2033107	2033102* 2033104 2033106* 2033108
0.670" / 17mm 1.50" / 38mm 0.670" / 17mm 1.50" / 38mm	0.375" 0.375" 8.0 mm 8.0 mm	Digital Output - 6 pin (D, E1)	2033111 2033113 2033115 2033117	2033112* 2033114 2033116* 2033118
0.670" / 17mm 1.50" / 38mm 0.670" / 17mm 1.50" / 38mm	0.375" 0.375" 8.0 mm 8.0 mm	Digital Output with Hold/Reset -10pin (E2)	2033121 2033123 2033125 2033127	2033122* 2033124 2033126* 2033128



Maxµm® III Remote Indicating Unit

	Order no.
No Digital Output Port	2033001
Digital Output - 6pin (D, E1)	2033011
Digital Output with Hold & Reset -10pin (E2)	2033021

Maxµm® III Digital Transducer*

Transducer Type	Stem Length	Stem Diameter	Short Range	Long Range
Canister	0.670" / 17mm	0.375"	2033091	2033092*
Canister	1.50" / 38mm	0.375"	2033093	2033094
Canister	0.670" / 17mm	8.0 mm	2033095	2033096*
Canister	1.50" / 38mm	8.0 mm	2033097	2033098
Pencil	Body Diameter = 0.375"		2033099	-

* Long Range indicator stem length is 0.870" / 22mm



Indicator Gages

Precision Bench Micrometer 40 TSZ



40 TSZ

- Easy and precise checking of small, high tolerance parts.
- Furnished with high resolution Millimess dial comparator.
- Use as a direct measurement device for highest accuracy.
- Carbide-tipped anvils for long life.

Specifications:

Measuring Range	Graduation Value	Retraction	Measuring Face Flatness	Measuring Face Parallelism	Measuring Force (N)	Order no.
0-2in 0-50mm	.00005in 1μm	.045in 1.2mm	≤.00001in ≤0.2μm	≤.00008in ≤2μm	6.5 6.5	4154930 4154030

40 F Indicating Micrometer



40 F

- Easy and precise diameter measurement of shafts, bolts, shanks and other cylindrical parts.
- Quickly measures length and thickness.
- Built-in dial comparator reads to 1μm/.00005in.
- Adjustable tolerance markers.
- Carbide-tip measuring faces assure long life.
- Positive spindle locking lever.

Measuring Range	Thimble Readings	Accuracy	Order no.
0-1in 1-2in 0-25mm 25-50mm	.0001in .0001in 0.01mm 0.01mm	.00008in .00008in 2μm 2μm	4150900 4150901 4150000 4150001

Snap Gage 840 F

For measuring shafts, bolts, spindles, and other cylindrical parts for thickness and length.

- Constant measuring force reduces user error.
- Easily adjustable measuring range.
- Direct indication of measuring results.
- Forged steel frame, carbide-tipped measuring faces.
- Order indicator separately. See page 10.



840 F

Measuring Range	Measuring Force (N)	Measuring Face Flatness μm	Measuring Face Parallelism μm	Order no.
0-1"/0-25mm	7.5	≤0.2	≤1	4450000
1-2.36"/25-60mm	7.5	≤0.2	≤2	4450001
2-4"/50-100mm	7.5	≤0.2	≤2	4450002
4-6"/100-150mm	7.5	≤0.2	≤2	4450003
6-8"/150-200mm	7.5	≤0.2	≤2	4450004



Indicator Gages

300P-1



*Shown with optional
BA-26 Base*

Series 300P Snap Gage

- Patented "Channel Lock" design assures precisely parallel anvil surfaces throughout the full 1in/25mm range of adjustment.
- Fully adjustable with position locking at any point within the range.
- 0.020in/0.50mm in range of Sensitive Contact.
- Snap Gages available over a wide range of sizes, styles and readout configurations.
- Large .61in/15.5mm square tungsten carbide anvils provide long-lasting working surfaces. Indicator can be rotated to read from front or rear of the gage.
- Optional lift-lever model for manual retraction of the upper anvil.
- Plain anvils included

Range	Order		
	With Max μ m*	With μ Max μ m*	With .0001" Dial Indicator
0-1in/0-25mm 1-2in/25-50mm	EMD-300P-1 EMD-300P-2	EDI-300P-1 EDI-300P-2	300P-1 300P-2

BA-26 Base sold separately

** Other indicators supplied upon request*

36B-10



Series 36B I.D./O.D. Gages

- Adjustable retraction of sensitive contact allows measurement of grooves and races. Retraction normally set at 6mm/0.25in, is adjustable to 10mm/0.400in.
- Frictionless reed-spring (pantograph) motion transfer for repeatability.
- Gaging pressure is adjustable from 0-8.0lb - 0-35N.
- Two styles available: 2-Point "T" Plate or 3-point "V" Plate.
- Two Sizes available.
- Base can be positioned on any angle from horizontal to vertical.
- Variety of readout devices available.
- Supplied with JW-9 Jaws (3-Jaw set, steel, .031" - .750"/.79mm-19mm adjustment height)
- Special jaws upon request

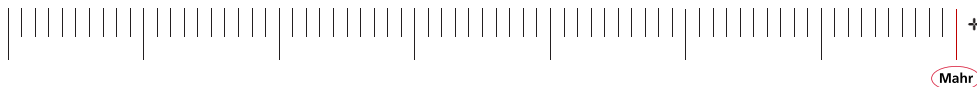
36B-9



Inch Models

Order Style	Capacity			With Max μ m* Indicator
	I.D. inches	O.D. inches	With 0.0001 Dial Indicator	
"T" Plate	.75" - 3.50"	.25" - 5"	36B-10	EMD-36B-10
"V" Plate	.812" - 4.625"	.312" - 5"	36B-9	EMD-36B-9D

*To specify Digital Output, add a "D" to model numbers of EMD-36B Gages.
"V" Plate Models available only with Output*



Series 1280P. Adjustable Bore Gages

- Rugged construction for long life and low maintenance. Stainless steel gaging head, one piece centralizing yoke with replaceable tungsten carbide balls.
- Heavy duty housing protects indicator.
- Flow-through design makes Series 1280P Bore Gages swish clean, no disassembly required.
- Outstanding stability: holds mastered value.
- Furnished with either dial indicator or Maxum Digital Electronic Indicator.
- Digital Bore Gages with output are provided with Maxum III Indicators. The Dynamic Memory of the Maxum III greatly simplifies operation and assures repeatable readings with a single sweep of the diameter being measured.
- Output available for Statistical Quality Control requirements.
- Supplied with T.C. contacts and case.



Specifications:

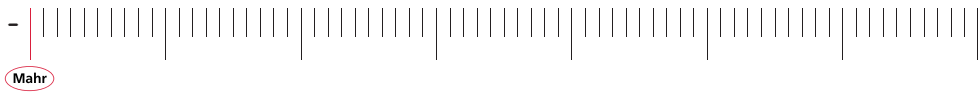
With Dial Indicator	With Digital Output	Capacity Inches / mm	Gaging Depth Inches / mm	End of Head To Contact
1280P-1T1	1282P-1T1	.50-1 / 12-25	3 / 75	.11" / 2.77mm
1280P-2T2	1282P-2T2	1-2 / 25-50	6 / 152	.17" / 4.37mm

MaraMeter. Indicating Measuring Instruments for Inside Dimensions Self-Centering Dial Bore Gage 844 N in Set

- Measuring the diameter, roundness and conical form of a bore as well as the distances of plane-parallel surfaces
- Measuring head consists of a carbide-tipped moving anvil and an interchangeable stationary anvil which has a hardened steel ball; alternatively a carbide ball is available
- Transmission lever system transfers movement of the movable anvil to indicating instrument
- The broad centering bridge ensures automatic centering in the bore
- Insensitive to temperature due to both the shank and transfer rod being made from heat resistant **Invar steel**
- Highly resistant to wear and tear due to the carbide-tipped moving anvil
- Constant measuring force due to built-in spring thus eliminating user influence
- Universally applicable and extremely versatile as every instrument spans a broad measuring range, within this range it is quick and easy to adjust to any size
- Standard accessories: wooden case, shown with optional Millimess 1003



	Measuring range		for measuring depth up to in/mm	Order no.
	in	mm		
844 N	0.70"-1.96"	18-50	4.5" / 115	4474000
844 N	1.37"-3.93"	35-100	5.8" / 148	4474001
844 N	3.93"-9.84"	100-250	9.0" / 230	4474002



Self Centering Measuring Pistol



Applications:

- Measurements of
- through holes
 - blind holes
 - counter bores

Features:

- Pistol consists of basic instrument 844 Ag and meas. head 44 Ak.
- Meas. pistol permits fast bridging of the total measuring range, therefore ideal for high speed.
- Threaded connection for interchanging the measuring heads.
- Self centering measuring head with three anvils on the side, placed at 120° intervals.
- From 12.0mm carbide-tipped anvils.
- As of 12.0mm anvils for measuring to the bottom of a bore.
- As of 40mm, aluminum measuring head to minimize weight.
- Standard accessories: Case

Measuring range		Limits of error*	Order no.**
in	mm		
.25 - .3125	6 - 8	.00015/3	4487700
.3125 - .4	8 - 10	.00015/3	4487701
.4 - .47	10 - 12.0	.00015/3	4487702
.47 - .625	12.0 - 16	.00015/3	4487703
.625 - .775	16 - 20	.00015/3	4487704
.775 - 1	20 - 25	.00015/3	4487705
1.0 - 1.2	25 - 30	.00015/3	4487706
1.2 - 1.4	30 - 40	.00015/3	4487707
1.6 - 2	40 - 50	.00015/3	4487709
2 - 2.35	50 - 60	.00016/4	4487710
2.35 - 2.75	60 - 70	.00016/4	4487711
2.75 - 3.35	70 - 85	.00016/4	4487612
3.35 - 4	85 - 100	.00016/4	4487613
4 - 4.9	100 - 125	.0002/5	4487614
4.9 - 5.9	125 - 150	.0002/5	4487615
5.9 - 6.9	150 - 175	.00025/6	4487616
6.9 - 7.9	175 - 200	.00025/6	4487617

Self Centering Measuring Pistol 844 AS Set

Measuring Range		No. of meas. heads	Ring gages	Order**
in	mm			
.25 - .47	6 - 12.0	3	8 / 10	4487750
.47 - .78	12.0 - 20	3	16 / 20	4487751
.78 - 2	20 - 50	4	30 / 40	4487752
2 - 4	50 - 100	4	60 / 85	4487753

Standard Accessories:

Case and ring gages, meas. pistol, multiple heads, and a traceable DIN calibration certificate.

* Indicator not taken into consideration.

** Without indicator.

Indicating Instrument

Any dial indicator featuring an 8mm mounting shank may be used. Recommendations:

Indicating Instruments	Readings $\mu\text{m/in}$	Order no.
Marcator 1086 R	1/0.00005	4337121
Marcator 1087 R	1/0.00005	4337161
$\mu\text{Maxum XL-II}$	1/0.00005	2034218



Digimar. Height Measuring Instruments

NEW - Quick Mode - The revolutionary way to simplify Measurement

The new height measuring instrument **Digimar 817 CLM** with the innovative Quick Mode, highly accurate rapid measurements, a wide range of measuring and evaluation possibilities and excellent operator comfort.



• 2D-Measuring Functions

The most important 2D measuring functions can be executed with the touch of a single key, e.g.: perpendicularity measurements, the calculation of an angle or pitch circle.

• 40 Measuring programs

You can quickly create customized measuring programs with the "easy-to-use" learn program, which simplifies and reduces inspection times.



- Large back-lit display
- Self-explanatory guided operation with icons



Comfort to operate all Measurement functions with the function keys due to the clearly defined symbols

Quick Mode

Easy to operate due to the "Quick Mode", an innovative solution from Mahr (patent pending).



Data Output



Move the measuring carriage by hand in the direction of the object to be measured.

The motor starts, the measurement procedure will be performed automatically.

Measuring range	mm / inch	350 / 14	600 / 24	1000 / 40
Application range	mm / inch	520 / 20.47	770 / 30.31	1170 / 46.06
Resolution	inches	0.001"	0.0005" / 0.0001"	0.00005" / 0.00001"
Measuring error*	μm		(1.8+L/600), L in mm	
Repeatability*	μm		0.5mm (plane)1(bore)	
Perpendicularity error	μm	frontal ≤5	frontal ≤6	frontal ≤10
Measuring force	N		1.0 ± 0.2N	
3-Point air cushion, height	μm		ca. 9	
Weight	Kg / lbs	25 / 55.15	30 / 66.14	35 / 77.16
Order no. 2D/Stat		4429010	4429011	4429012



Digimar. Height Measuring Instruments

Height Measuring Instrument Digimar 816 CL



Measuring system

- Excellent accuracy and reliability due to the optical incremental measurement system with the double reader head
- Dynamic probing system enabling high repeatability
- Air bearings system for light and smooth movement
- Precise measuring head on stainless steel guideways
- Motorized measuring carriage simplifies measurement runs
- Probe constant remains after the instrument is switched off
- Integrated rechargeable battery with a long operating time for mains independent measurement

Operating and display unit

- Large and clearly defined function keys
- Easy to read background lit graphic LCD-Display
- Operator guidance with self-explanatory icons / pictograms
- Possible to set additional zero points on a work piece
- Memory can store up to 99 measured values
- MarConnect data output, select either:
 - USB
 - OPTO RS232C
- Supplied with:
Height Measuring Instrument incl. operating and display unit, carrier 817h1, probe K6/51, setting block 817 EB, operating instructions, mains power adapter

Technical data

Measuring Range	mm/inch	350 / 14"	600 / 24"
Range of application	mm/inch	540 / 21.26"	770 / 30.31"
Resolution	mm (inch)	0.01 / 0.001 (0.0001" / 0.00005")	
Measuring error*	µm	(2.8+L/300), L in mm	
Repeatability	µm	2 (plane) 3 (bore)	
Perpendicularity error (mech)	µm	frontal ≤15	frontal ≤20
Operating time of rechargeable battery	h	up to 14	
Measuring force	N	1.0 ± 0.2	
Permissible relative air humidity	%	65 (non condensed)	
Working temperature	°C / °F	20 ±1 / 68 ±33.8	
Operating temperature	°C / °F	10 ... 40 / 50 ... 104	
3-point air cushion, height	µm	ca. 9	
Measuring system		incremental scale with optical reading	
Total height	mm/inch	741 / 29.17"	985 / 38.78"
Base area	mm/inch	240 x 250 / 9.45" x 9.84"	
Weight	kg / lbs	25 / 55.15"	30 / 66.14

Order no.

4429030

4429031

* At 20°C in conjunction with a base plate in accordance to DIN 876/0 and standard probe K6/51



Millimar. Electrical Length Measuring Instruments Inductive Measuring Probes P2004

- High quality MU-Metal of the probe housing ensures perfect shielding against magnetic and electric fields.
- Axial or radial cable output, adjustable through flexible cap.
- High precision ball guides



Technical data

Probe Type	P2001	P2004	P2004 A	A P2004 B
Measuring Range	±0.020in / ±0.5mm	±0.079in / ±2.0mm		
Cable Length	8ft / 2.5m	8ft / 2.5m		
Order no.				
Compatibility - Mahr (Red)	5323040	5323010	5323020	5323030
Compatibility - Tesa (Yellow)	5323041	5323011	5323021	5323031
Compatibility - Marposs (Blue)	5323043	5323013	5323023	5323033
Compatibility - Federal (White)	5323044	5323014	5323024	5323034
Prices available on request				

Millimar. Electrical Length Measuring Instruments Inductive lever-type Test Indicator 1318

- Fast and reliable determination of permissible dimensional deviations even on difficult accessible measurement locations
- Tungsten carbide-tipped stylus can move sideways and has a swivel range of 180°
- 2 slip clutches prevent overloading in both directions
- Mounting shank can be attached to rear and top side
- Cable length 5ft/1.5m



Model EHE-2056

Adjustable Nose Mount (EAT-1010), tamper-proof mounted. Permits wide choice of positions and approximately 3.8mm/.150in fine adjustment for quick setup with support close to gaging contact.



Features

- Reversing spring allows measurement in either direction.
- Clutch-mounted contact swivel through 280° arc for easy positioning.
- Linearity - 0.1% over full range of ±0.250mm/±0.010in.
- Gaging pressure less than 4g/.14oz in either direction, with a change of less than 0.1 gram per 25µm/.001in of contact travel. Special gaging pressures available. Contact Mahr Federal Technical Assistance.
- Repeatability better than 0.1µm/4µin.
- **Compatibility - Mahr Federal**

Probe	1318
Measuring range	1.3 mm
Upper stop ¹⁾	+ 1.6 mm
Lower stop ¹⁾	- 0.37 mm
Repeatability	0.03 µm
Measuring force	0.25 N
Spindle lift	-
Contact point	carbide ball dia. 2 mm
Free stylus length	21 mm
Swivel range of stylus	180°
Mounting shank	8h6 mm
Protection class acc. to EN 60529	IP 50
Cable outlet	on side
Compatibility	Mahr
Order no.	5313180

¹⁾ with reference to electrical zero



Millimar. Electrical Length Measuring Instruments

Compact Length Measuring Instrument Millimar C 1208, C1216 and Column Gage Millimar S 1840

- For measurement with inductive probes (e. g. Mahr P2004)
- Two inputs for inductive probes (compatible with probes from either Mahr, Tesa)
- Dynamic measurements: Max, Min, Max-Min, Max+Min, Mean value.
- Programmable via enclosed MS-Window configuration software through RS232 interface or built-in keypad
- Display range ± 10 to $\pm 10000 \mu\text{m}$

Millimar C 1208

- Favorites: with the SELECT button the most frequently required settings can be directly called up
- Background lit LCD Display and two-line digital display
- 5 three-color status lamps for warning and tolerance limits
- Up to 2 characteristics can be displayed at the same time.



C 1208

Millitron 832

- Dynamics - Simultaneously computes the maximum, T.I.R., nominal
- Multi-Range - three selectable ranges in inch or metric units
- Two Gage Head Input
- Angular units - selectable arc seconds or millirads



832

Millitron 830 Gaging Amplifier

- Battery Operates more than 8 hours under full load
- Dual input - for single or differential modes
- Specific models available for use with "Federal" or "Mahr" Full-bridge LVDT inductive probes
- Selectable ranges in either Inch or Metric units



830

Features S 1840

- Easy to read 3 color analog display
- Bright, large digital readout
- Air versions available

S 1840



	Type	Description	Order no.
C 1208 M	Mahr	for 2 Inductive Probes	5312080
C 1208 F	Federal	for 2 Inductive Probes	5312082
832 M	Mahr	for 2 Inductive Probes	2004000
832 F	Federal	for 2 Inductive Probes	2004005
S 1840 M	Mahr	for 2 Inductive Probes	5318400*
S 1840 F	Federal	for 2 Inductive Probes	5318402*
830 M	Mahr	for 2 Inductive Probes	2121404
830 F	Federal	for 2 Inductive Probes	2121421

* Excludes Base plate

Accessories	Order no.
Base plate, for up to 3 columns	5330901



MarSurf. Surface Texture Metrology Pocket Surf

- Solidly built with a durable cast aluminium housing
- 4 switchable probe positions - axial, 90°, 180° or 270°
- 4 switch-selectable parameters: Ra, Rmax/Ry, Rz acc. to DIN, ISO, ASME-B46.1
- Single length parameters adjustable to 1, 3 or 5, Cutoff 0.03"
- Independent power supply for up to 2500 measurements due to a 9 volt alkaline battery
- Integrated data output for connection to SPC-applications
- Extensive, optional accessories available to broaden application possibilities.



- Dimensions: 5.5 x 3" x 1" / 140mm x 76 mm x 25 mm
- Weight: 14oz. / 435g
- Measuring ranges:
 - R_a 1µin to 250µin / 0.03µm to 6.35µm
 - R_z 8µin to 999µin / 0.2µm to 25.3µm
 - R_{max} 8µin to 999µin / 0.2µm to 25.3µm
 - $R_{z_{max}}$ 8µin to 999µin / 0.2µm to 25.3µm
- Resolution 1µin / 0.01µm

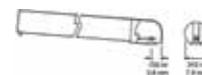
Order no.	Probe tip	Specimen
EMD-1500-311*	90°, 10 µm/.0004"	PMD-90101

* Set consists of a Plastic case, Pocket Surf, Probe EGH-1019, Specimen, 9 Volt consumer-type battery and Operating instructions

Accessories	Order no.
Height stand	EAS-2496
General Purpose Probe	EGH-1019
Transverse chisel probe	EGH-1020-W1
Small bore probe	EGH-1021

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

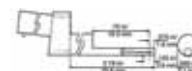
*Yellow dot at connector end signifies .0002"/5 µm radius.



EGH-1019



EGH-1020-W1



EGH-1021



EAS-2496



EAS-2496

Height stand in the vertical position

Pocket Surf® PS1 For surface roughness measurement

With increasing manufacturing and machine quality, the quality of technical products' surface finishes is becoming ever more important. The Pocket Surf PS1 lives up to its claim of "absolute mobility" in all manner of ways, providing:

- 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 (400g / 0.88 lbs)
- Instrument flexibility
- The standard range of functions is sufficient for this all-purpose smart little instrument to perform your measuring tasks
- Can be used horizontally, vertically, upside down or in any other position required by the component
- 24 parameters
- 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

Absolute Mobility



The Pocket Surf 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.

The set contains:

- Pocket Surf PS1 base unit
- Drive unit
- 1 Standard pick-up 5um (200uin) stylus
- Built-in battery
- Roughness standard integrated into casing
- Height adjustment accessory
- Pick-up protection
- Charger / mains adapter
- Operating instructions
- Carrying case with shoulder strap and belt loop
- USB Cable
- Mahr Calibration Certificate

Order No. 6910214

Mobile Roughness Measuring Instrument MarSurf® M 300



- Bluetooth wireless connection between the evaluation unit and drive unit
- Bright, illuminated color display
- Automatic selection of filter and traversing length conforming to standards
- Integrated thermal graphics printer of high print quality

- Data transfer of results and profiles via USB-interface to your PC
- Evaluation of the all the most common parameters and characteristic curves stipulated in DIN/ISO/JIS
- Tolerance monitoring in display and measuring record
- Integrated memory for the results of up to 40,000 measurements and 30 profiles
- Measuring units (µm/µinch) and standards (ISO/JIS/ASME/MOTIF) are selectable
- Locking and/or password protection for instrument settings
- Built-in rechargeable battery with power management
- Dynamic calibration function
- Supplied with:
Evaluation unit M 300

Order no. 6910401



Dimensionair® Air Gages

Air gaging is the inspection tool that allows you to measure many jobs faster, more conveniently, and more accurately than by other gaging methods. In measurement of hole conditions, air gaging is unsurpassed for speed and accuracy. While in checking dimensional characteristics, air offers sufficient magnification and reliability to measure tolerances well beyond the scope of mechanical gages.

- Tooling for holes, tapers, squareness, straightness and other geometric relationships
- Analog and Digital, Bench or portable systems
- Single or Dual mastering capabilities
- Fast, accurate, easy to use and stable measurement systems
- Adaptors are available for use of other manufacturers tooling



Dimentron Fixed Plug Gaging

Dimentron Plug gaging is the hole gaging system that offers the ultimate in portability for the shop floor inspection of hole diameters. Because of the differential nature of the two contact measuring system, the plug can be used to explore the dimension for variances due to out of round, barrel or bell mouth conditions.

- Designed for high production ID gaging
- High Chrome content steel bodies are ground precisely for the specified size measurement
- Plug tooling is interchangeable for quick changeover
- Open design is easy to clean and maintain
- Easy lead helps with part entry even on the tightest tolerances
- Used with Dial or Digital Indicators, bench amplifiers or computer gaging systems



Contact Mahr Federal for complete technical assistance and for your closest Mahr Federal Distribution Partner



Mahr Metrology Systems



► | **MarSurf.** Surface Texture Metrology



► | **Precimar 828 CiM.** Precision Length



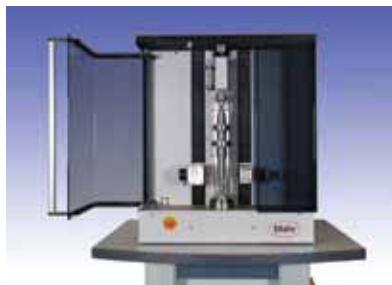
► | **MarForm.** Form Metrology



► | **MarGear GMX 400.** Gear Measurement



► | **Primar.** Inspection System for Form, Gear and 3D Features



► | **MarShaft.** Measurement of shaft shaped parts on the shop floor

Your Mahr Federal Partner:



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