

## Inductive Probe Millimar 1300 / 1310 Half Bridge



### Technical Data

Probe type	1300	1300 A	1310	1310 A	1310 B
Measuring range	± 2.0 mm / ± 0.079"		± 5.0 mm / ± 0.197"		
Distance of lower stop	- 2.2 ... 0 mm / -0.09 ... 0"		- 5.2 mm / - 0.204"		
Distance of upper stop	-2.2 ... 4.4 mm / -0.09... 0.173"		- 5.8 mm / - 0.228"		
Lifter/Retraction	-	Vacuum lifter	-	Vacuum lifter	Compressed air (max. 1 bar)
Measuring force at the electrical zero point	0.75 N <sup>2)</sup> ± 0.15 N	0.75 N <sup>2)</sup> ± 0.15 N		0.75 N <sup>2)</sup> ± 0.15 N	depending on air pressure
Increase in measuring force	0.3 N / mm		0.08 N / mm...0.15 N / mm		-
Sensitivity deviation	0.5 %		0.5 %		
Repeatability f <sub>w</sub>	0.1 μm / 4 μin		0.5 μm / 20 μin		
Linearity deviation with corrected sensitivity					
within the range ± 0.1 mm	0.05 μm / 2 μin				
within the range ± 0.5 mm	0.4 μm / 16 μin				
within the range ± 1.0 mm	1.5 μm / 60 μin				
within the range ± 2.0 mm	3.0 μm / 120 μin		10 μm / 400 μin		
within the range ± 5.0 mm			30 μm / 1200 μin		
Protect. class acc. to EN 60529	IP64		IP52		
Cable length	1.5 m <sup>3)</sup>				
Compatibility- Mahr	Half Bridge				
Order no.	5313000	5313001	5313100	5313101	5313102

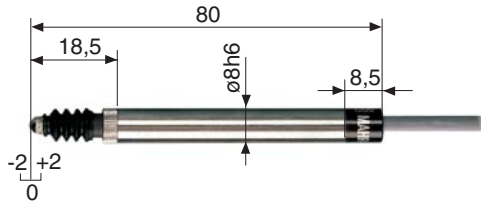
<sup>1)</sup> Relative to the electrical zero point. Adjustable; lower and upper stops are simultaneously adjusted

<sup>2)</sup> Measuring force springs are exchangeable, additional measuring force springs are available

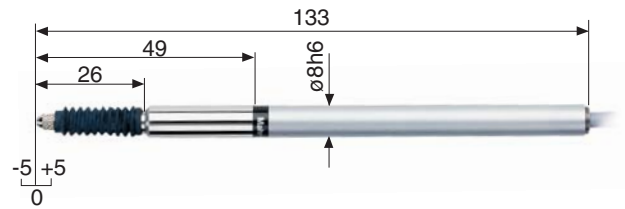
<sup>3)</sup> Extension cables are available, see Accessories

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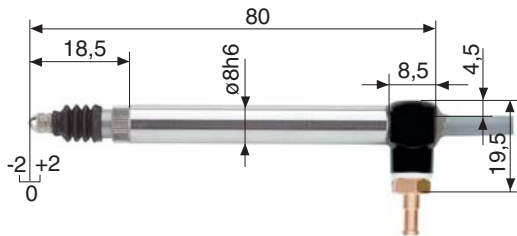
**1300**



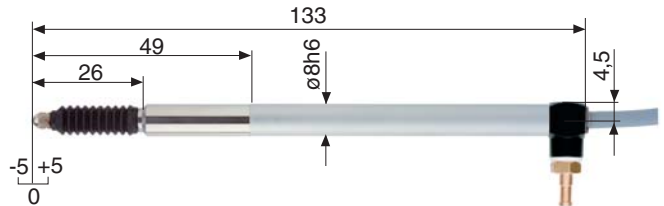
**1310**



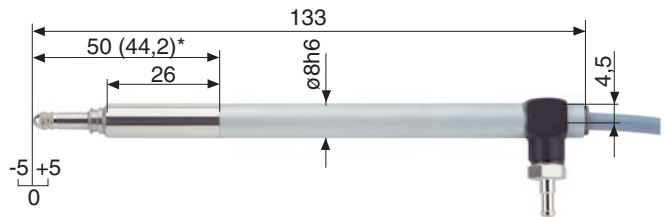
**1300 A**



**1310 A**



**1310 B**



All dimensions and values are metric

\* in initial position

### Accessories

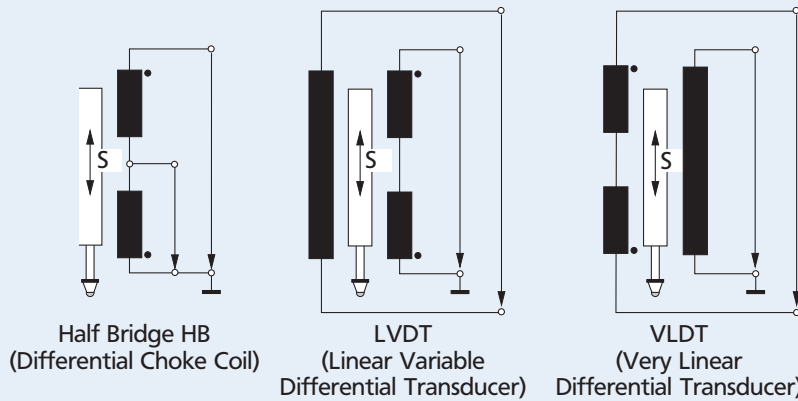
	Order no.		Order no.
<b>Extension Cable for 1300 / 1310</b>		<b>Measuring Force Springs for 1300</b>	
1 m / 3 ft	9024001	0.25 N	7005555
2 m / 6 ft	9024002	0.50 N	7005556
3 m / 9 ft	9024003	0.75 N	7005557
5 m / 16 ft	7021787	1.00 N	7005558
7 m / 23 ft	9024007	1.50 N	7005559
10 m / 32 ft	7021788	2.00 N	7005560
15 m / 49 ft	9024015		
18 m / 59 ft	7021789	<b>Measuring Force Springs for 1310</b>	
20 m / 65 ft	9024020	0.5 N	7003549
25 m / 82 ft	9024025	0.75 N	7003550
28 m / 92 ft	9024028	1.00 N	7003551
		2.00 N	7003553
<b>Pneumatic Lifter 1340/1</b>	5313420		
<b>Pneumatic Foot Switch 1340/1F</b> for 1300 A / 1310 A	5313419	<b>Sealing bellows for</b>	
		1300	3001869
		1310	3010540

# Millimar. Electrical Length Measuring Instruments

## General Technical Data of Inductive Probes

The measuring principle of inductive probes is based on the change of position of a magnets conductive core moving within a coil system, generally this is distinguished between a half bridge and LVDT's.

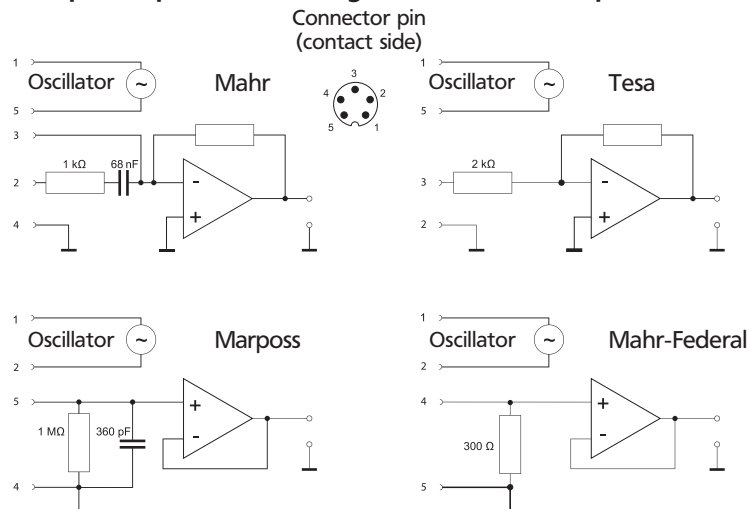
The new Mahr P2000 series of probes applies a high linear, patented VLDT transducer which is similar to an LVDT transducer. This also operates according to a differential transformer principle.



### Electrical specification of various compatibilities

		Type	Mahr	Tesa	Marposs	Mahr-Federal
Carrier frequency	KHz		19.4	13	7.5	5
Sensitivity	mV/V/mm	P2001 P2004 P2104	192	73.75	115	78.74
		1300 1301 1303 1304 K 1318	192	-	-	-
		P2010	19.2	29.5	11.5	7.874
		1310	19.2	-	-	-
Amplitude	V <sub>eff</sub>		5	3	3.5	2

### Schematic drawings of Mahr input amplifiers according to the various compatibilities



# Millimar. Electrical Length Measuring Instruments

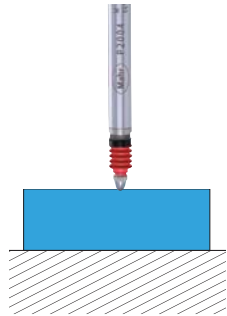
## Applications with Inductive Probes

### Single measurement with one probe

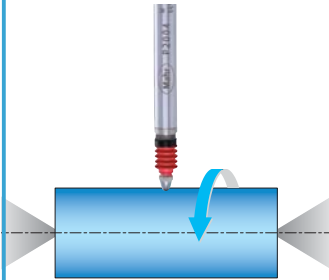
Indicating instrument instantly displays the measured value.

- Used for all kinds of direct measurements on cylindrical and flat work pieces
- Applied in the same way as dial indicators, dial comparators or test indicators

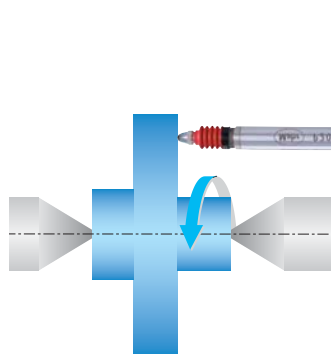
#### Thickness measurement



#### Radial run-out



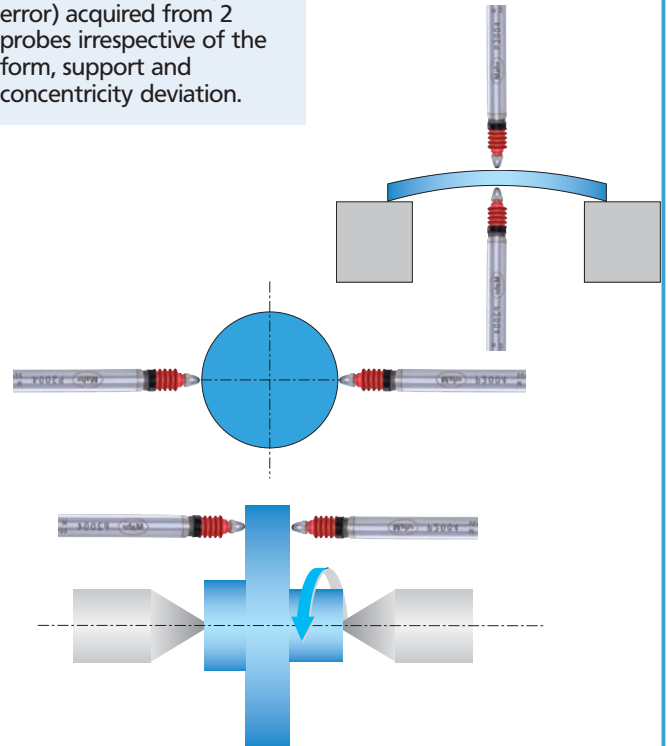
#### Axial run-out



### Sum measurement with 2 probes

Indicates the sum of deviation (total composite error) acquired from 2 probes irrespective of the form, support and concentricity deviation.

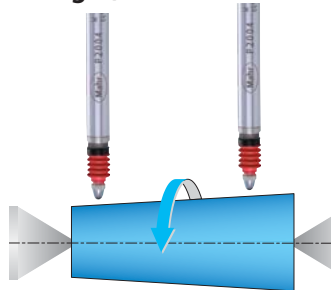
#### Thickness measurement



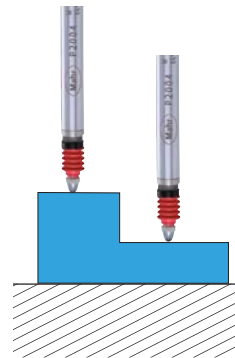
### Difference measurement with 2 probes

Shows the difference between the measured values acquired by 2 probes irrespective of the absolute dimension of the test piece. This is particularly suitable for dimensional comparison of two test points.

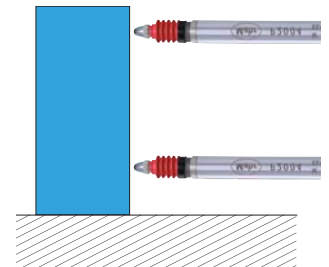
#### Form measurement of wedges, cones



#### Height difference between 2 steps



#### Perpendicularity measurement



#### Concentricity measurement on 2 shaft diameters

