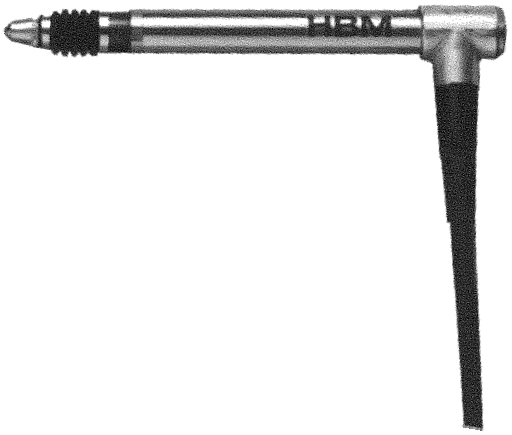
HOTTINGER BALDWIN MESSTECHNIK

Electrical measurement of mechanical quantities

Mounting instructions



Inductive Economic Displacement Transducer

WET

1 Introduction

Designed in conformance to DIN 878, the WET Inductive Displacement Probes are ideally suited as precision measurement probes in measurement supports and test-rigs for the testing and monitoring of production processes. They are intended for operation with 4.8 kHz carrier frequency amplifiers. The measurement method corresponds to the half-bridge configuration according to the differential-choke principle. The probe pin is supported in a precision ball guide which means that it is free moving, low-play and resistant to wear. It is pressed against the measurement object by a spring.

2 Mounting

The transducer has a clamping shaft ∅8^{h6} conforming to the dial gauge standard DIN 878 and it can be clamped over its clamping shaft is not clamped too tightly or over an area that is too restricted. The probe tip is a replaceable insert with a hard metal ball of ∅3mm to DIN 878 with a threaded spigot M2.5.

3 Balancing, zero setting

a) Set the switches and potentiometers on the measuring amplifier in their central positions.

b) Position the measuring object in the central, idle or starting position or place a test piece with reference dimensions under the probe tip.

c) Move the displacement transducer axially until the amplifier indicates ”0” and then firmly clamp the transducer.

4 Calibration

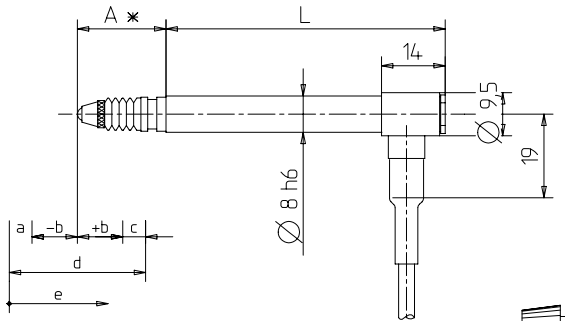
As standard, the WET is supplied with a 15-pole D-plug with integral balance circuit. This gives interchangeability figures for the same measuring amplifiers of <0.5% for the WETA 1/2mm and <1% for the WETA 1/10mm.

For very accurate measurements direct calibration with gauge blocks or gauges are recommended, the dimensions of which correspond to the displacements or changes in length that are to be measured.

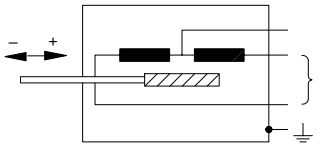
With cable extensions the complete cable length should be included in the calibration. Further information on calibration can be found in the relevant operating manual for the amplifier being used.

Dimensions (in mm, 1mm = 0.03937 inches)

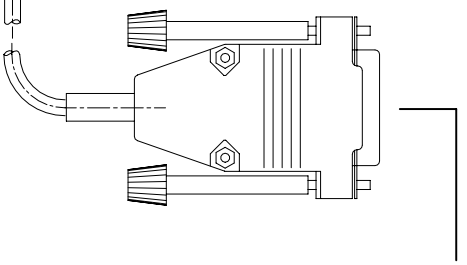
WETA1/2mm
WETA1/10mm



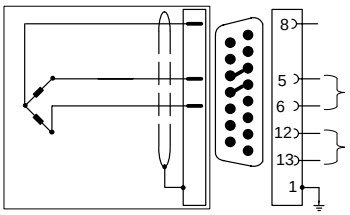
Electrical principle



Measuring signal
Bridge excitation voltage



Allocation of the D-plug



Measuring signal
Bridge excitation voltage, 4.8kHz CF
Feed back

Bridge for feed back leads between contacts 6 and 13 and between 5 and 12

Mounted PUR-Cable, 2m long,
15-pole D-plug with built-in balancing

Narrow tolerances according to ISO 2768 – coarse

Probe

Measuring range	A* (approx.)	L	a_{min} Stroke	b Nominal displacement	c_{min} Outward travel	d_{min} Total stroke	e_{max} extensional stroke
+1mm	21	61.5	0.2±0.1	1	2.2	4.4	2
+5mm	26.5	86.5	0.2±0.1	5	0.4	10.6	-

* in middle position

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Technical Data

Type		WETA1/2mm	WETA1/10mm
Nominal displacement	mm inches	±1 ±0.0393	±5 ±0.197
Principle		Plunger	
Total stroke	mm	4.4 (+0.4)	10.6
Outward travel	mm	0.2 ±0.1	
Extensional stroke	mm	– 1.2...+0.8	
Plunger in middle position (electrical zero) approx.	mm	1.2	5.2
Sensitivity[1)]	mV/V	±10±<0.5%	±10±<1%
Linearity deviation[1)], zero - endpoint line	%	<0.3	<0.9
Nominal temperature range	°C [°F]	-10 ... +65 [14 ... 149]	
Protection class to IEC 529		IP64	
Nominal excitation voltage (rms value)	V	1	
Excitation (rms value)	V	1...3	
Carrier frequency[2)]	kHz	4.8...5.3	
Movable mass	g	6	
Material of the surfaces Plunger and end stop		1.4034, Titan coated	
Spring constant, approx.	N/mm	0.17	0.1
Preload on spring in zero position	N	0.60 ±15%	1±15%
Mechanical limits, at 300µm displacement	Hz	60	35
Fatigue impact test, measuring element (to IEC 68 part 2-6, type tested) Number of impacts (in each direction) Impact acceleration Impact duration Impact form	 n m/s^2 ms 	 1000 650 3 Sinus half wave	

1) With built-in balancing in the 15-pole D-plug

2) Also available for carrier frequency 13kHz

md 1.95 – 0.2 pod