

HEIDENHAIN-CERTO Length Gauges

Accuracy $\pm 0.1 \mu\text{m}$



G. E. Van Wert Co Inc,
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HEIDENHAIN-CERTO length gauges feature a large measuring range, provide high linear accuracy and offer resolution in the nanometer range. They are used predominantly for production quality control of high-precision parts and for the monitoring and calibration of reference standards. Length gauges reduce the number of working standards required to calibrate gauge blocks.

Accuracy

The total error of HEIDENHAIN-CERTO length gauges lies within $\pm 0.1 \mu\text{m}$. After linear length error compensation in the evaluation electronics of the ND 28x, for example, HEIDENHAIN guarantees accuracy of $\pm 0.03 \mu\text{m}$ for the CT 2500 and $\pm 0.05 \mu\text{m}$ for the CT 6000. These accuracy grades apply over the entire measuring range at ambient temperatures between 19°C and 21°C and with a temperature variation of $\pm 0.1 \text{K}$ during measurements using the CS 200 gauge stand for HEIDENHAIN-CERTO.

Plunger actuation

The plungers of the **CT 2501** and **CT 6001** are extended and retracted by an integral motor. It can be actuated by the associated switch box, which can also be controlled by external signal.

CT 2502 and **CT 6002** have no plunger drive. The freely movable plunger is connected by a separate coupling with the moving machine element.

Mounting

The CT 2500 length gauge is fastened by its 16-mm diameter clamping shank. The CT 6000 is fastened with two screws on a plane surface.



	Incremental			
	CT 2501	CT 2502	CT 6001	CT 6002
Measuring standard	DIADUR phase grating on Zerodur glass ceramic Coefficient of linear expansion: $\alpha_{\text{therm}} \approx 0 \pm 0.1 \times 10^{-6} \text{K}^{-1}$			
Incremental signals	$\sim 11 \mu\text{APP}$			
Signal period	2 μs			
System accuracy¹⁾	$\pm 0.1 \mu\text{m}$ $\pm 0.03 \mu\text{m}^2$		$\pm 0.1 \mu\text{m}$ $\pm 0.05 \mu\text{m}^2$	
Recommended measuring step	0.01 μm and 0.005 μm with ND 28x display unit			
Measuring path	25 mm		60 mm	
Plunger actuation	Motor driven	Via coupling	Motor driven	Via coupling
Reference mark	One			

¹⁾ At 19°C to 21°C ; permissible temperature fluctuation during measurement: $\pm 0.1 \text{K}$

²⁾ With linear length-error compensation in the evaluation electronics

HEIDENHAIN-METRO Length Gauges

Accuracy $\pm 0.2 \mu\text{m}$



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With their high system accuracy and small signal period, the HEIDENHAIN-METRO MT 1200 and MT 2500 length gauges are ideal for precision measuring stations and testing equipment. They feature ball-bush guided plungers and therefore permit high radial forces.

Plunger actuation

The length gauges of the **MT 12x1** and **MT 25x1** series feature a spring-tensioned plunger that is extended at rest. In a special version without spring it exercises particularly low force on the measured object.

In the pneumatic length gauges **MT 1287** and **MT 2587**, the plunger is retracted to its rest position by the integral spring. It is extended to the measuring position by the application of compressed air.

Mounting

The MT 1200 and MT 2500 length gauges are fastened by their 8h6 standard clamping shank. A mounting bracket is available as an accessory to mount the length gauges to plane surfaces or to the MS 200 from HEIDENHAIN.



	Incremental					
	MT 1281	MT 1271	MT 1287	MT 2581	MT 2571	MT 2587
Measuring standard	DIADUR phase grating on Zerodur glass ceramic Coefficient of linear expansion: $\alpha_{\text{therm}} \approx 0 \pm 0.1 \times 10^{-6} \text{ K}^{-1}$					
Incremental signals	$\sim 1 \text{ V}_{\text{PP}}$	$\square \text{ TTL}$	$\sim 1 \text{ V}_{\text{PP}}$	$\sim 1 \text{ V}_{\text{PP}}$	$\square \text{ TTL}$	$\sim 1 \text{ V}_{\text{PP}}$
Signal period	2 μm	0.4 μm or 0.2 μm	2 μm		0.4 μm or 0.2 μm	2 μm
System accuracy	$\pm 0.2 \mu\text{m}$					
Recommended measuring step	0.5 μm to 0.05 μm					
Measuring path	12 mm			25 mm		
Plunger actuation	by cable-type lifter or freely movable		pneumatic	by cable-type lifter or freely movable		pneumatic
Reference mark	One					

HEIDENHAIN-METRO Length Gauges

Accuracy $\pm 0.5 \mu\text{m}$



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Large measuring ranges together with their high accuracy make the MT 60 and MT 101 HEIDENHAIN-METRO length gauges attractive for incoming inspection, production monitoring, quality control, or anywhere parts with very different dimensions are measured. But they are also easy to mount as highly accurate position encoders, for example on sliding devices or X-Y tables.

Plunger actuation

M version length gauges feature an integral motor that retracts and extends the plunger. While the MT 101 M operates at a constant gauging force, the MT 60 M allows you to select from three gauging force levels.

K version gauges have no integral plunger actuation. The plunger is freely movable. It can be connected to moving elements such as linear slides and X-Y table by a coupling.

Mounting

The length gauges are mounted onto a flat surface by two screws. HEIDENHAIN offers the M versions for mounting in the accessory MS 100 and MS 200 gauge stands.



	Incremental			
	MT 60 M	MT 60 K	MT 101 M	MT 101 K
Measuring standard	DIADUR graduation on glass ceramic			
Incremental signals	~ 11 μA_{PP}			
Signal period	10 μs			
System accuracy	$\pm 0.5 \mu\text{m}$		$\pm 1 \mu\text{m}$	
Recommended measuring step	1 μm to 0.1 μm			
Measuring range	60 mm		100 mm	
Plunger actuation	Motor driven	Via coupling	Motor driven	Via coupling
Protection	IP 50			
Reference mark	One			

HEIDENHAIN-SPECTO Length Gauges

Accuracy $\pm 1 \mu\text{m}$



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Thanks to their very small dimensions, the HEIDENHAIN-SPECTO length gauges are the product of choice for multipoint inspection apparatus and testing equipment.

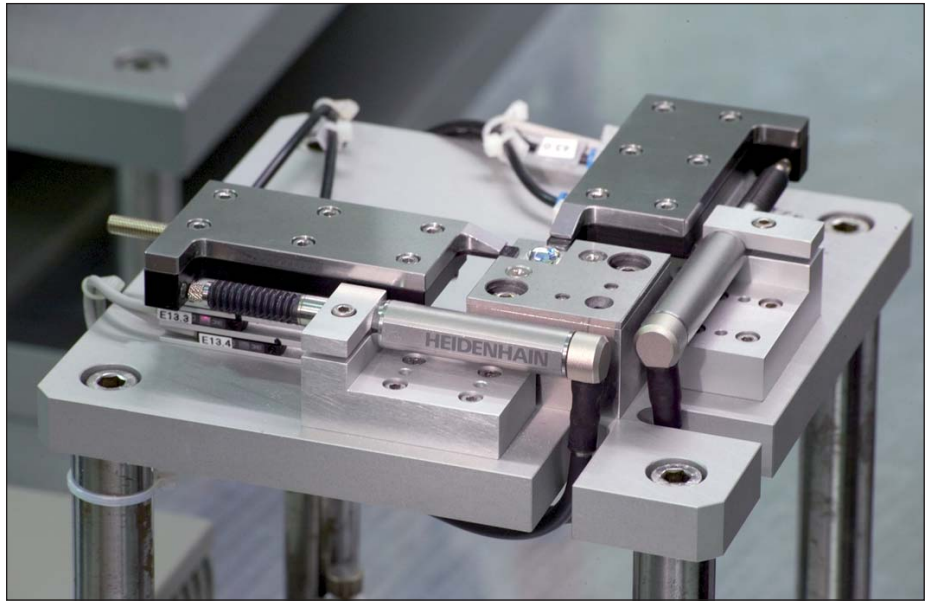
Plunger actuation

The length gauges of the **ST 12x8** and **ST 30x8** series feature a spring-tensioned plunger that is extended at rest.

In the pneumatic length gauges **ST 12x7** and **ST 30x7** the plunger is retracted in its rest position by the integral spring. It is extended to the measuring position by the application of compressed air.

Mounting

The HEIDENHAIN-SPECTO length gauges are fastened by their 8h6 standard clamping shank.



	Incremental			
	ST 1288 ST 1287	ST 1278 ST 1277	ST 3088 ST 3087	ST 3078 ST 3077
Measuring standard	DIADUR glass scale			
Incremental signals	$\sim 1 V_{PP}$	$\square \square T T L$	$\sim 1 V_{PP}$	$\square \square T T L$
Signal period	20 μm	4 μm or 2 μm	20 μm	4 μm or 2 μm
System accuracy	$\pm 1 \mu\text{m}$			
Recommended measuring step	1 μm to 0.2 μm			
Measuring range	12 mm		30 mm	
Plunger actuation	<i>ST 12x8/ST 30x8</i> : by measured object <i>ST 12x7/ST 30x7</i> : pneumatic			
Protection	IP 64			
Reference mark	One			