HEIDENHAIN-METRO

Length Gauges with ± 0.2 µm Accuracy

- **High repeatability**
- **Plunger actuation by cable release, by the workpiece or pneumatically**

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.

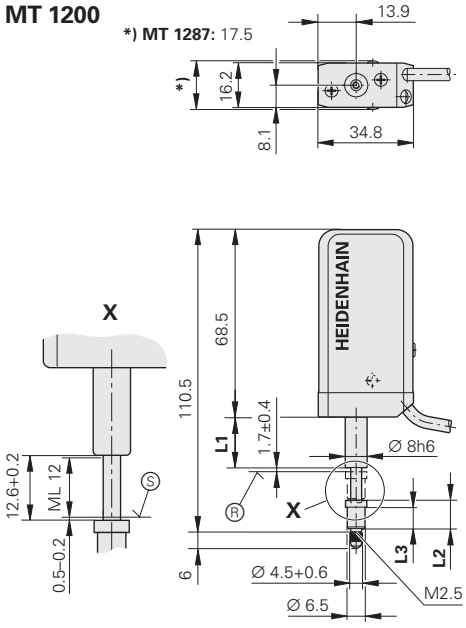
Plunger actuation
The length gauges of the **MT 12x1** and **MT 25x1** series feature a spring-tensioned plunger that is extended at rest. In a special version without spring it exercises particularly low force on the measured object.

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.

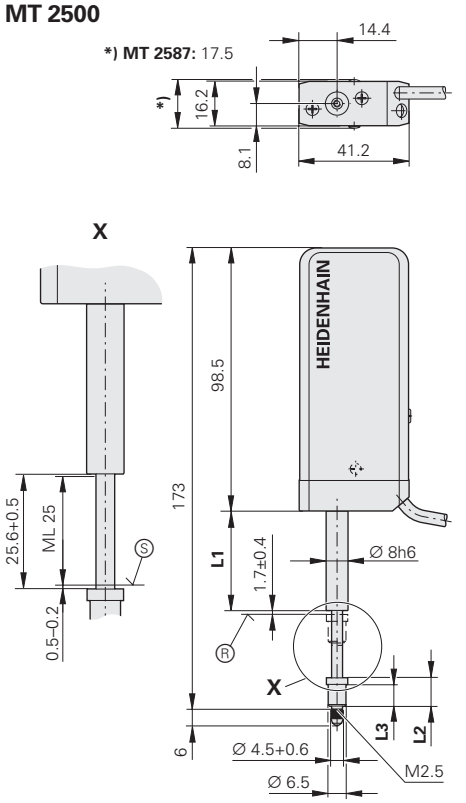
Output signals
The MT 1200 and MT 2500 length gauges are available with various output signals. The **MT 128x** and **MT 258x** length gauges provide sinusoidal voltage signals with **1 V_{PP}** levels, which permit high interpolation. The **MT 1271** and **MT 2571** feature integrated digitizing and interpolation electronics with 5-fold or 10-fold interpolation (as ordered) and square-wave signals in **TTL** levels.

MT 1200



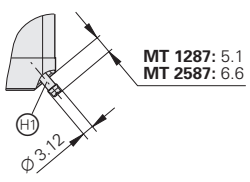
	MT 12x1	MT 1287
L1	18,5	22,0
L2	10,1	6,2
L3	8,1	4,2

MT 2500



	MT 25x1	MT 2587
L1	37,0	41,0
L2	10,1	6,2
L3	8,1	4,2

MT 1287
MT 3087



Dimensions in mm

Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm

Ⓡ = Reference mark position
Ⓢ = Beginning of measuring length
Ⓗ = Air connection for 2 mm tube

Mechanical Data
Plunger actuation Position of plunger at rest
Measuring standard
System accuracy
Reference mark
Measuring range
Gauging force[1)] Vertically downward Vertically upward Horizontal *Version "without spring"* Vertically downward
Radial force
Operating attitude
Vibration 55 to 2000 Hz **Shock** 11 ms
Protection EN 60529
Operating temperature
Fastening
Weight without cable

Electrical Data *For length gauges*
Incremental signals* **Signal period**
Recommended measuring step
Mech. permissible traversing speed
Edge separation a at scanning frequency*/traverse speed 200 kHz ≤ 24 m/min 100 kHz ≤ 12 m/min 50 kHz ≤ 6 m/min 25 kHz ≤ 3 m/min
Electrical connection*
Cable length
Power supply

* Please indicate when ordering

MT 1271 ⊓⊔TTL **MT 1281** ∿ 1 V_{PP}	**MT 2571** ⊓⊔TTL **MT 2581** ∿ 1 V_{PP}	**MT 1287** ∿ 1 V_{PP}	**MT 2587** ∿ 1 V_{PP}
By cable or measured object Extended		Pneumatic Retracted	
DIADUR phase grating on Zerodur glass ceramic; grating period 4 µm			
± 0.2 µm			
Approx. 1.7 mm below upper stop			
12 mm	25 mm	12 mm	25 mm
0.6 to 0.85 N 0.35 to 0.6 N 0.48 to 0.73 N 0.12 N	0.6 N 0.28 N 0.44 N 0.16 N	0.2 to 0.9 N 0.2 to 0.6 N 0.2 to 0.7 N	0.2 to 1.2 N 0.2 to 0.9 N 0.2 to 1.1 N
≤ 0.8 N (mechanically permissible)			
Any; *for version "without spring":* vertically downward			
≤ 100 m/s^2 (EN 60068-2-6) ≤ 1000 m/s^2 (EN 60068-2-27)			
IP 50		IP 64	
10 to 40 °C; ref. temperature 20 °C			
Clamping shank Ø 8h8			
100 g	180 g	110 g	190 g

⊓⊔TTL *MT 1271* *MT 2571*		**∿ 1 V_{PP}** *MT 128x* *MT 258x*
⊓⊔TTL x 5 0.4 µm	⊓⊔TTL x 10 0.2 µm	∿ 1 V_{PP} 2 µm
0.1 µm[2)]	0.05 µm[2)]	0.1 µm/0.05 µm
≤ 30 m/min		
≥ 0.23 µs ≥ 0.48 µs ≥ 0.98 µs –	– ≥ 0.23 µs ≥ 0.48 µs ≥ 0.98 µs	–
Cable, 1.5 m, with 15-pin D-sub connector (interface electronics integrated)		Cable 1.5 m with • D-sub connector, 15-pin • M23 connector, 12 pin
≤ 30 m with HEIDENHAIN cable		
5 V ± 5 %/< 160 mA (without load)		5 V ± 5 %/< 130 mA

[1)] See also *Gauging Force—Plunger Actuation*
[2)] After 4-fold evaluation

MT 1200

MT 2500