# 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.

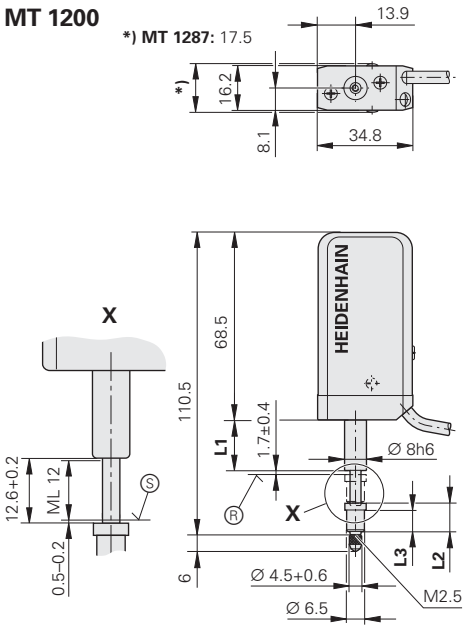
**Plunger actuation**
The length gauges of the **MT 12x1** and **MT 25x1** series feature a spring-tensioned plunger that is extended at rest. In a special version without spring it exercises particularly low force on the measured object.

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.

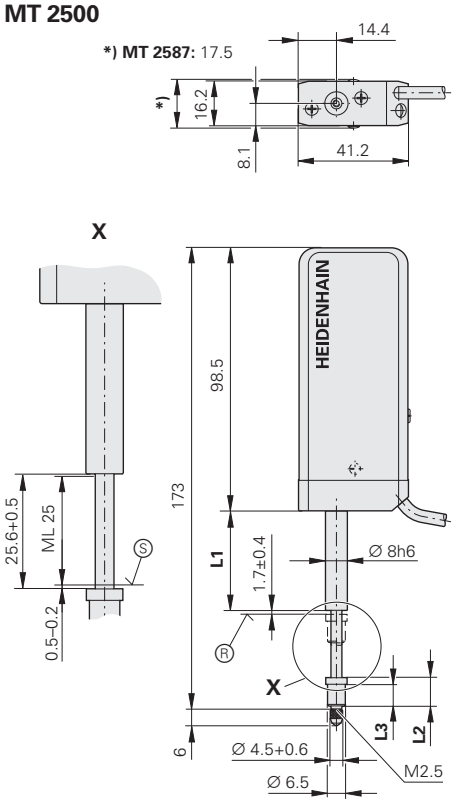
**Output signals**
The MT 1200 and MT 2500 length gauges are available with various output signals. The **MT 128x** and **MT 258x** length gauges provide sinusoidal voltage signals with **1 $V_{PP}$** levels, which permit high interpolation. The **MT 1271** and **MT 2571** feature integrated digitizing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

**MT 1200**



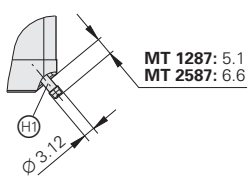

| | MT 12x1 | MT 1287 |
|---|---|---|
| **L1** | 18,5 | 22,0 |
| **L2** | 10,1 | 6,2 |
| **L3** | 8,1 | 4,2 |

**MT 2500**




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

**MT 1287**
**MT 2587**




Dimensions in mm

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

Ⓡ = Reference mark position
Ⓢ = Beginning of measuring length
Ⓗ1 = Air connection for 2 mm tube

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

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

* Please indicate when ordering

| | **MT 1271** ⊓⊔TTL<br>**MT 1281** ∿ 1 $V_{PP}$ | **MT 2571** ⊓⊔TTL<br>**MT 2581** ∿ 1 $V_{PP}$ | **MT 1287** ∿ 1 $V_{PP}$ | **MT 2587** ∿ 1 $V_{PP}$ |
|---|---|---|---|---|
| | By cable or measured object<br>Extended | | Pneumatic<br>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<br>0.35 to 0.6 N<br>0.48 to 0.73 N<br><br>0.12 N | 0.6 N<br>0.28 N<br>0.44 N<br><br>0.16 N | 0.2 to 0.9 N<br>0.2 to 0.6 N<br>0.2 to 0.7 N | 0.2 to 1.2 N<br>0.2 to 0.9 N<br>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)<br>≤ 1000 m/s$^2$ (EN 60068-2-27) | | | |
| | IP 50 | | IP 64 (with sealing air) | |
| | 10 to 40 °C; ref. temperature 20 °C | | | |
| | Clamping shank ∅ 8h8 | | | |
| | 100 g | 180 g | 110 g | 190 g |

| | **⊓⊔TTL**<br>*MT 1271*<br>*MT 2571* | | **∿ 1 $V_{PP}$**<br>*MT 128x*<br>*MT 258x* |
|---|---|---|---|
| | ⊓⊔TTL x 5<br>0.4 µm | ⊓⊔TTL x 10<br>0.2 µm | ∿ 1 $V_{PP}$<br>2 µm |
| | 0.1 µm[2)] | 0.05 µm[2)] | 0.1 µm/0.05 µm |
| | ≤ 30 m/min | | |
| | ≥ 0.23 µs<br>≥ 0.48 µs<br>≥ 0.98 µs<br>– | –<br>≥ 0.23 µs<br>≥ 0.48 µs<br>≥ 0.98 µs | – |
| | Cable, 1.5 m, with 15-pin D-sub connector (interface electronics integrated) | | Cable 1.5 m with<br>• D-sub connector, 15-pin<br>• 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**

Representante oficial de:

HEIDENHAIN

[Argentina – Bolivia – Chile – Colombia - Costa Rica – Ecuador - El Salvador –
Guatemala – Honduras – Nicaragua – Panamá – Paraguay – Perú -
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