



# HEIDENHAIN



Product Information

## HEIDENHAIN- METRO

**MT 12 Series**  
**MT 25 Series**

Incremental Length Gauges

July 2013



Specifications	MT 12 MT 25	MT 12B MT 25B	MT 12P MT 25P
<b>Plunger actuation</b>	By cable or measured object		Pneumatic
Position of plunger at rest	Extended		Retracted
Plunger guideway	Sliding guide	Ball-bush guide	Sliding guide
<b>Measuring standard</b>	DIADUR grating on glass; grating period 10 µm		
<b>System accuracy</b>	± 0.5 µm		
<b>Reference mark</b>	Approx. 5 mm below upper stop		
<b>Measuring range</b>	<i>MT 12</i> <i>MT 25</i>	12 mm 25 mm	
<b>Gauging force*</b> Vertically downward Vertically upward Horizontal	<i>From the integral spring</i> 0.6 N to 0.85 N 0.28 N to 0.6 N 0.48 N to 0.73 N	<i>From the integral spring</i> 0.6 N to 0.85 N 0.28 N to 0.6 N 0.48 N to 0.73 N  <i>Inherent weight of the plunger in version without spring:</i> <i>MT 12B: 0.12 N downward</i> <i>MT 25B: 0.16 N downward</i>	<i>From application of compressed air</i> 0.2 N to 1.1 N 0.2 N to 0.9 N 0.2 N to 1.0 N
Radial force <sup>1)</sup>	≤ 0.2 N	≤ 0.8 N	≤ 0.2 N
<b>Operating attitude</b>	Any	Any <i>Version without spring:</i> <i>vertically downward</i>	Any
<b>Vibration</b> 55 to 2000 Hz <b>Shock</b> 11 ms	≤ 100 m/s <sup>2</sup> (EN 60068-2-6) ≤ 1000 m/s <sup>2</sup> (EN 60068-2-27)		
<b>Protection</b> EN 60529	IP 50		IP 60
<b>Operating temperature</b> <b>Storage temperature</b>	10 °C to 50 °C; reference temperature 20 °C -30 °C to 70 °C		
<b>Fastening</b>	Clamping shank Ø 8h6		
<b>Weight</b> without cable	<i>MT 12</i> <i>MT 25</i>	120 g 200 g	250 g 300 g
<b>Interface</b>	~ 11 µApp		
<b>Measuring velocity</b>	≤ 60 m/min (plunger coupled; depending on the subsequent electronics)		
<b>Electrical connection</b>	Cable 1.5 m with M23 connector (male) 9 pin		
Cable length	≤ 30 m with HEIDENHAIN cable		
Voltage supply	5 V DC ± 0.25 V / < 70 mA		

\* Please select when ordering

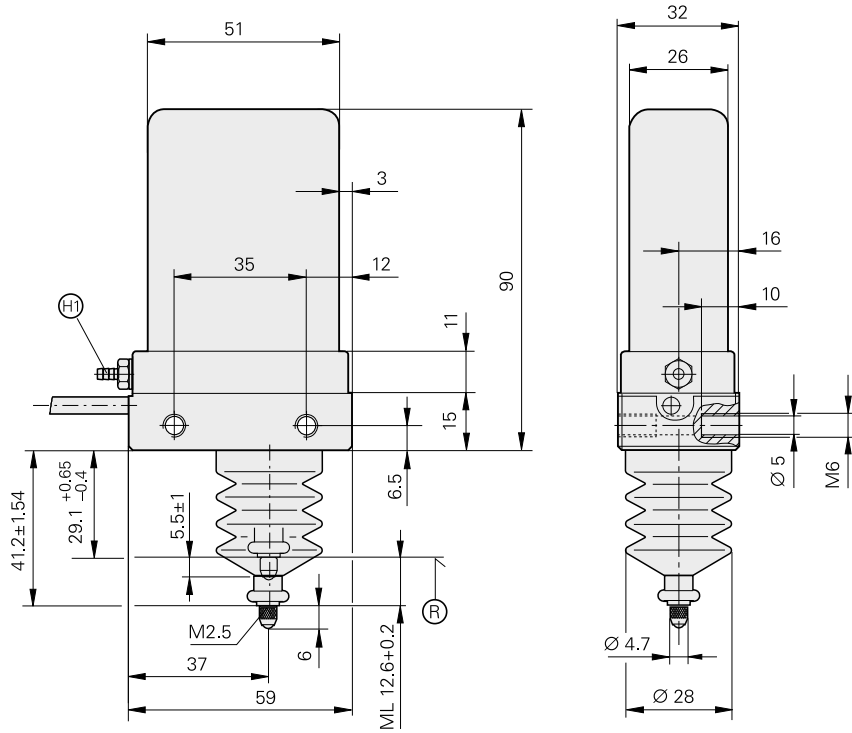
<sup>1)</sup> Mechanically permissible


# HEIDENHAIN-METRO

## MT 12W, MT 25W series

- Splash-proof, sturdy design
- Plunger actuation through the workpiece or negative gauge pressure

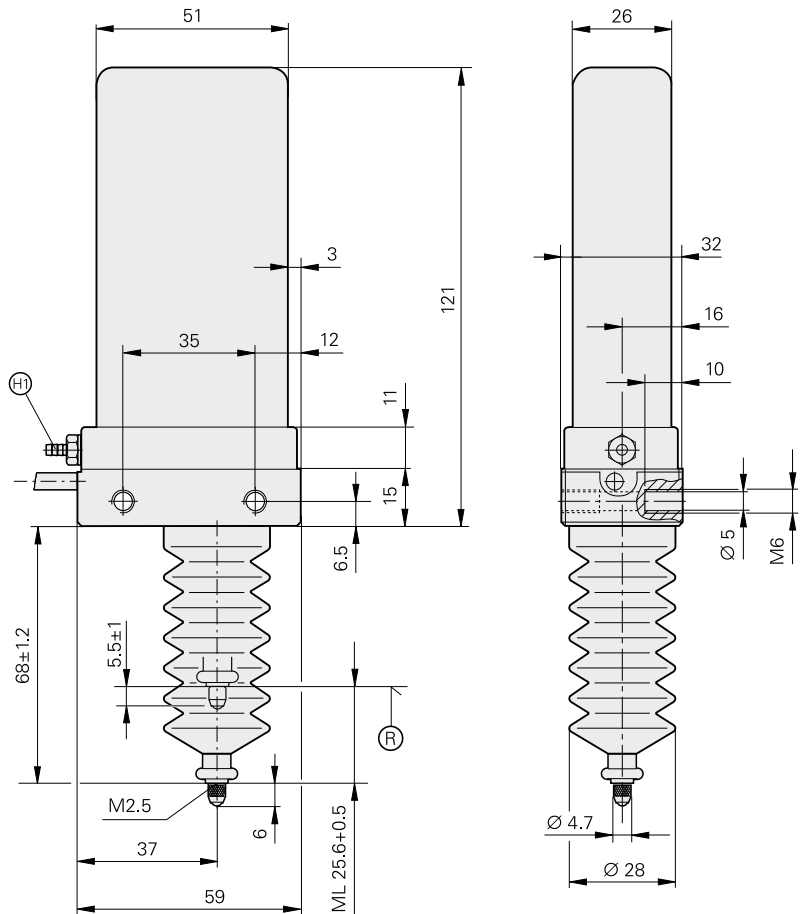
MT 12W



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

ML = Measuring length  
 ⊗ = Reference mark position  
 ⊕ = Air connection for 2 mm tube

MT 25W

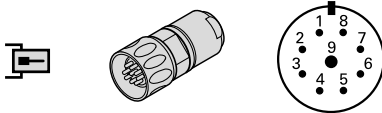
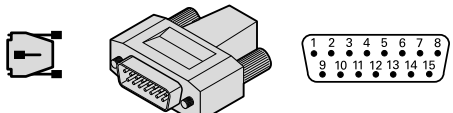


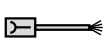


Specifications		MT 12W MT 25W	
<b>Plunger actuation</b>		Through measured object or application of negative gauge pressure (0.8 bar absolute)	
Position of plunger at rest		Extended	
Plunger guideway		Sliding guide	
<b>Measuring standard</b>		DIADUR grating on glass; grating period 10 µm	
<b>System accuracy</b>		± 1 µm	
<b>Reference mark</b>		Approx. 5 mm below upper stop	
<b>Measuring range</b>	MT 12 MT 25	12 mm 25 mm	
<b>Gauging force</b> Vertically downward Vertically upward Horizontal		<i>With extending plunger</i> 3.5 N to 0.5 N 3 N to 0.2 N 3.25 N to 0.35 N	<i>With retracting plunger</i> 4.4 N to 1.4 N 3.8 N to 1.4 N 3.95 N to 1.05 N
<b>Radial force</b> <sup>1)</sup>		≤ 0.2 N	
<b>Operating attitude</b>		Any	
<b>Vibration</b> 55 to 2000 Hz <b>Shock</b> 11 ms		≤ 100 m/s <sup>2</sup> (EN 60068-2-6) ≤ 1000 m/s <sup>2</sup> (EN 60068-2-27)	
<b>Protection</b> EN 60529		IP 64	
<b>Operating temperature</b> <b>Storage temperature</b>		10 °C to 50 °C; reference temperature 20 °C -30 °C to 70 °C	
<b>Fastening</b>		Plane surface 59 mm x 14 mm; 2 M6 screws	
<b>Weight</b> without cable	MT 12 MT 25	400 g 500 g	
<b>Interface</b>		~ 11 µAPP	
<b>Measuring velocity</b>		≤ 60 m/min (plunger coupled; depending on the subsequent electronics)	
<b>Electrical connection</b>		Cable 1.5 m with M23 connector (male) 9 pin	
Cable length		≤ 30 m with HEIDENHAIN cable	
Voltage supply		5 V DC ± 0.25 V/70 mA	

<sup>1)</sup> Mechanically permissible

# Electrical connection

## Pin layout

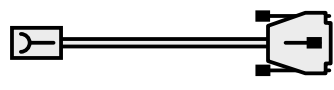
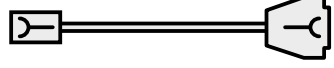
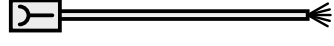
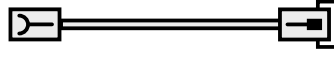
<b>9-pin connector, M23</b>					<b>15-pin D-sub connector</b> For ND 28x/PWM 20 or on encoder					
										
	Voltage supply				Incremental signals					
	<b>3</b>	<b>4</b>	<b>Housing</b>	<b>9</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
	<b>4</b>	<b>2</b>		<b>6</b>	<b>1</b>	<b>9</b>	<b>3</b>	<b>11</b>	<b>14</b>	<b>7</b>
	<b>U<sub>P</sub></b>	<b>0V</b>	<b>External shield</b>	<b>Internal shield</b>	<b>I<sub>1</sub>+</b>	<b>I<sub>1</sub>-</b>	<b>I<sub>2</sub>+</b>	<b>I<sub>2</sub>-</b>	<b>I<sub>0</sub>+</b>	<b>I<sub>0</sub>-</b>
	Brown	White	-	White/Brown	Green	Yellow	Blue	Red	Gray	Pink

**U<sub>P</sub>** = Power supply

Vacant pins or wires must not be used!

**Shield** on housing

Color assignment applies only to extension cable.

<b>PUR connecting cable Ø 8 mm</b> [3(2 × 0.14 mm <sup>2</sup> ) + (2 × 1 mm <sup>2</sup> )]; A <sub>V</sub> = 1 mm <sup>2</sup>		
<b>Complete</b> With M23 coupling (female), 9-pin and D-sub connector (male), 15-pin for ND 28x, EIB 741; only 1 V <sub>PP</sub> : ND 11xx, ND 12xx		653231-xx
<b>Complete</b> With M23 coupling (female), 9-pin and D-sub connector (female), 15-pin, for ND 780, PT 880, IK 220		368172-xx
<b>With one connector</b> With M23 coupling (female), 9-pin		309780-xx
<b>Complete</b> With M23 coupling (female), 9-pin and M23 connector (male)		309774-xx

A<sub>P</sub>: Cross section of power supply lines

# HEIDENHAIN

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This Product Information supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information valid when the contract is made.

### For more information

- Catalog: *Length Gauges*