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HEIDENHAIN-SPECTO

Length Gauges with ± 1 µm Accuracy

- **Very compact dimensions**
- **Splash-proof**

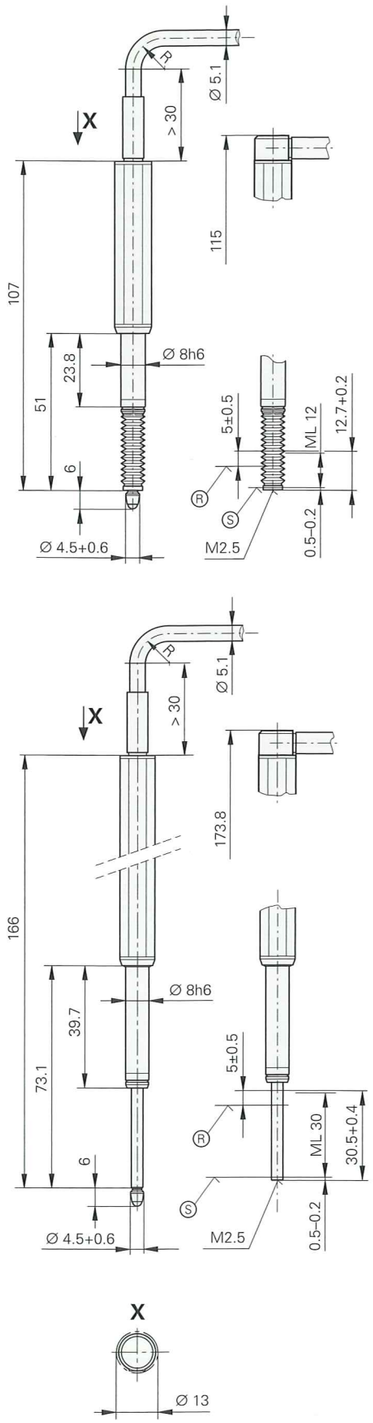
Thanks to their very small dimensions, the HEIDENHAIN-SPECTO length gauges are the product of choice for multipoint inspection apparatus and testing equipment.

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

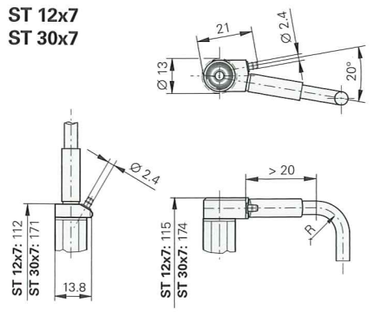
In the pneumatic length gauges **ST 12x7** and **ST 30x7** the plunger is retracted to its rest position by the integral spring. It is extended to the measuring position by the application of compressed air.

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

Output signals
The HEIDENHAIN-SPECTO length gauges are available with various output signals. The **ST 128x** and **ST 308x** length gauges provide sinusoidal voltage signals with **1 V_{PP}** levels, which permit high interpolation. The **ST 127x** and **ST 307x** feature integrated digitizing and interpolation electronics with 5-fold or 10-fold interpolation (as ordered) and square-wave signals in **TTL** levels.



ST 12x7
ST 30x7



Dimensions in mm

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

Ⓡ = Reference mark position
Ⓢ = Beginning of measuring length

Mechanical Data	**ST 1278** ⊓⊔ TTL **ST 1288** ∿ 1 V_{PP}	**ST 3078** ⊓⊔ TTL **ST 3088** ∿ 1 V_{PP}	**ST 1277** ⊓⊔ TTL **ST 1287** ∿ 1 V_{PP}	**ST 3077** ⊓⊔ TTL **ST 3087** ∿ 1 V_{PP}
Plunger actuation Position of plunger at rest	By measured object Extended		Pneumatic Retracted	
Measuring standard	DIADUR grating on glass; grating period 20 µm			
System accuracy	± 1 µm			
Reference mark	Approx. 5 mm below upper stop			
Measuring range	12 mm	30 mm	12 mm	30 mm
Gauging force with retracting plunger[1] Vertically downward Vertically upward Horizontal	0.6 to 2.4 N 0.4 to 2.2 N 0.5 to 2.3 N	0.6 to 1.4 N 0.4 to 1.2 N 0.5 to 1.3 N	0.4 to 3.0 N (depending on pressure and operating attitude)	0.4 to 3.0 N (depending on pressure and operating attitude)
Radial force	≤ 0.8 N (mechanically permissible)			
Operating attitude	Any			
Vibration 55 to 2000 Hz **Shock** 11 ms	≤ 100 m/s² (EN 60068-2-6) ≤ 1000 m/s² (EN 60068-2-27)			
Protection EN 60529	IP 64 (for connecting elements see *Connecting Elements and Cables*)			
Operating temperature	10 to 40 °C; ref. temperature 20 °C			
Fastening	Clamping shank Ø 8h8			
Weight without cable	40 g	50 g	40 g	50 g

Electrical Data *For length gauges*	⊓⊔ **TTL** *ST 127x* *ST 307x*		∿ **1 V_{PP}** *ST 128x* *ST 308x*
Incremental signals* **Signal period**	⊓⊔ TTL x 5 4 µm	⊓⊔ TTL x 10 2 µm	∿ 1 V_{PP} 20 µm
Recommended measuring step	1 µm[2]	0.5 µm[2]	1 µm/0.5 µm
Mech. permissible traversing speed	≤ 72 m/min		
Edge separation a at scanning frequency*/traverse speed 100 kHz ≤ 72 m/min[3] 50 kHz ≤ 60 m/min 25 kHz ≤ 30 m/min	 ≥ 0.48 µs ≥ 0.98 µs ≥ 1.98 µs	 ≥ 0.23 µs ≥ 0.48 µs ≥ 0.98 µs	 –
Electrical connection*	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
Cable outlet*	Axial or radial		
Cable length	≤ 30 m with HEIDENHAIN cable		
Power supply	5 V ± 10 %/< 230 mA (without load)		5 V ± 10 %/< 90 mA

* Please indicate when ordering
[1] See also *Gauging Force—Plunger Actuation*
[2] After 4-fold evaluation
[3] Mechanically limited

ST 1200



ST 3000



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