

# HEIDENHAIN-SPECTO

## Length Gauges with $\pm 1 \mu\text{m}$ 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.

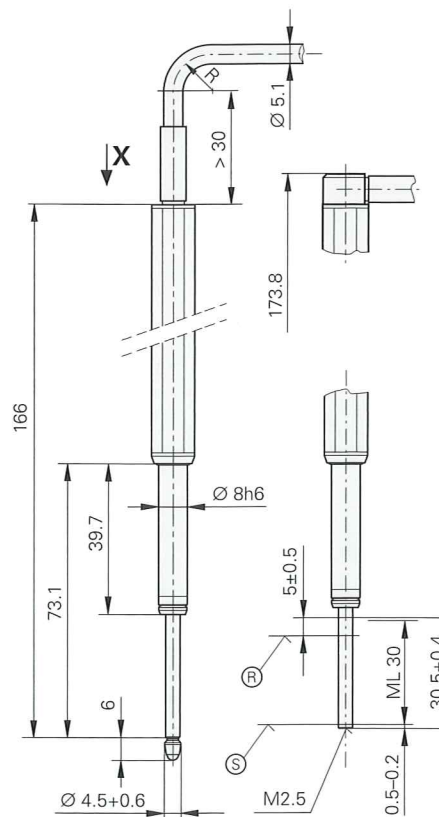
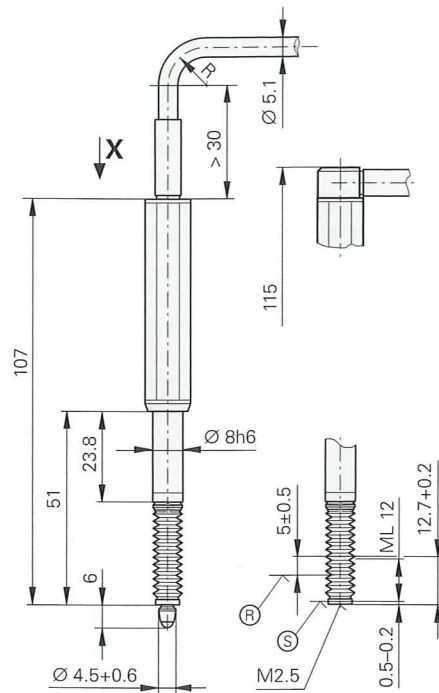
In the pneumatic length gauges **ST 12x7** and **ST 30x7** the plunger is retracted to its rest position by the integral spring. It is extended to the measuring position by the application of compressed air.

### Mounting

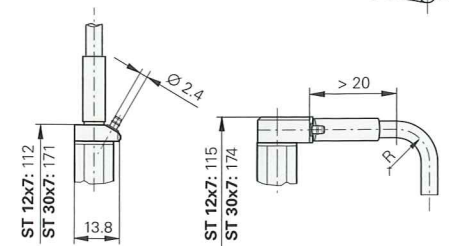
The HEIDENHAIN-SPECTO length gauges are fastened by their 8h6 standard clamping shank.

### 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<sub>PP</sub>** 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:  $\pm 0.2$  mm

⊗ = Reference mark position  
⊙ = Beginning of measuring length

Mechanical Data	ST 1278 $\square$ TTL ST 1288 $\sim$ 1 V <sub>PP</sub>	ST 3078 $\square$ TTL ST 3088 $\sim$ 1 V <sub>PP</sub>	ST 1277 $\square$ TTL ST 1287 $\sim$ 1 V <sub>PP</sub>	ST 3077 $\square$ TTL ST 3087 $\sim$ 1 V <sub>PP</sub>
<b>Plunger actuation</b> Position of plunger at rest	By measured object Extended		Pneumatic Retracted	
<b>Measuring standard</b>	DIADUR grating on glass; grating period 20 $\mu\text{m}$			
<b>System accuracy</b>	$\pm 1 \mu\text{m}$			
<b>Reference mark</b>	Approx. 5 mm below upper stop			
<b>Measuring range</b>	12 mm	30 mm	12 mm	30 mm
<b>Gauging force</b> with retracting plunger <sup>1)</sup> 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)
<b>Radial force</b>	$\leq 0.8$ N (mechanically permissible)			
<b>Operating attitude</b>	Any			
<b>Vibration</b> 55 to 2000 Hz <b>Shock</b> 11 ms	$\leq 100$ m/s <sup>2</sup> (EN 60068-2-6) $\leq 1000$ m/s <sup>2</sup> (EN 60068-2-27)			
<b>Protection</b> EN 60529	IP 64 (for connecting elements see <i>Connecting Elements and Cables</i> )			
<b>Operating temperature</b>	10 to 40 °C; ref. temperature 20 °C			
<b>Fastening</b>	Clamping shank $\varnothing$ 8h8			
<b>Weight</b> without cable	40 g	50 g	40 g	50 g

Electrical Data	$\square$ TTL For length gauges ST 127x ST 307x	$\sim$ 1 V <sub>PP</sub> ST 128x ST 308x
<b>Incremental signals*</b> Signal period	$\square$ TTL x 5 4 $\mu\text{m}$	$\square$ TTL x 10 2 $\mu\text{m}$
<b>Recommended measuring step</b>	1 $\mu\text{m}$ <sup>2)</sup>	0.5 $\mu\text{m}$ <sup>2)</sup>
<b>Mech. permissible traversing speed</b>	$\leq 72$ m/min	
<b>Edge separation a at scanning frequency*/traverse speed</b> 100 kHz $\leq 72$ m/min <sup>3)</sup> 50 kHz $\leq 60$ m/min 25 kHz $\leq 30$ m/min	$\geq 0.48 \mu\text{s}$ $\geq 0.98 \mu\text{s}$ $\geq 1.98 \mu\text{s}$	$\geq 0.23 \mu\text{s}$ $\geq 0.48 \mu\text{s}$ $\geq 0.98 \mu\text{s}$
<b>Electrical connection*</b>	Cable, 1.5 m, with 15-pin D-sub connector (interface electronics integrated)	
<b>Cable outlet*</b>	Axial or radial	
<b>Cable length</b>	$\leq 30$ m with HEIDENHAIN cable	
<b>Power supply</b>	5 V $\pm 10$ % / < 230 mA (without load)	5 V $\pm 10$ % / < 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

