

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series HEM12



Displacement sensor for hydraulic applications

- High degree of protection IP67 and max. 250 bar operating pressure
- With external magnetic drag - capsule of the sensor element
- Mounting via internal or external flange
- Measuring lengths from 50 mm to 1000 mm
- Long lifetime (100 million movements)

The sensors are designed for operating pressures of max. 250 bar with peaks of 400 bar. The mechanical detection of linear movement is done by a magnetic drag.

### Electrical Data

Effective electrical travel (+1/-0 mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Total electrical travel ( $\pm 1$ mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Total resistance 1.)	5 kOhm (50..300 mm) / 10 kOhm (350...600 mm) / 20 kOhm (750..1000 mm)
Resistance tolerance	$\pm 20$ %
Independent linearity (best straight line) 1.)	$\pm 0.35$ %
Theoretical resolution 1.)	Almost infinite
Backlash (Hysteresis) 1.)	$\leq 0.25$ mm
Max. / recommended wiper current 1.)	10 mA (@40 °C, 1 min in case of failure) / $< 1$ $\mu$ A
Power rating @40 °C (0 W @120 °C)	$\leq 1$ W (50 mm) / $\leq 2$ W (100 mm) / $\leq 3$ W (150..1000 mm)
Isolation voltage 1.)	$< 100$ $\mu$ A@500 VAC, 1bar, 2s
Isolation resistance 1.)	1000 MOhm@500 VDC, 1bar, 2s

### Mechanical Data, Environmental Conditions, Miscellaneous

Mechanical stroke (+5 mm) 1.)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Lifetime (90 % effective electrical travel) 2.)	$> 25$ million meters or 100 million movements (the smaller value applies)
Max. operational speed	$\leq 5$ m/s
Max. acceleration	$\leq 10$ m/s <sup>2</sup>
Operational force @ RT 1.) 2.)	$< 0.5$ N
Operational temperature	-30 °C up to +100 °C
Storage temperature	-50 °C up to +120 °C
Protection grade (IEC60529)	IP67
Vibration (IEC 68-2-6, Test Fc)	20 g (5..2000 Hz, 0,75 mm)
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms
Housing length (+94.7 mm)	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000
Included in delivery	1 x magnetic cursor
Material housing	Steel AISI 304
Connection type	PUR-Cable 3-pole shielded 1 m

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series HEM12

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

Order Code			
Description	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>		
<b>Series:</b>	<b>HEM12</b>		
<b>Effective electrical travel:</b>			
50 mm		<b>50</b>	
100 mm		<b>100</b>	
150 mm		<b>150</b>	
200 mm		<b>200</b>	
250 mm		<b>250</b>	
300 mm		<b>300</b>	
350 mm		<b>350</b>	
400 mm		<b>400</b>	
450 mm		<b>450</b>	
500 mm		<b>500</b>	
550 mm		<b>550</b>	
600 mm		<b>600</b>	
750 mm		<b>750</b>	
800 mm		<b>800</b>	
850 mm		<b>850</b>	
900 mm		<b>900</b>	
950 mm		<b>950</b>	
1000 mm		<b>1000</b>	
<b>Construction:</b>			
<b>Internal flange</b>			<b>I</b>
<b>External flange</b>			<b>E</b>
<b>Electrical connection:</b>			
<b>Standard PUR cable 3-pole 1 m</b>			<b>K</b>
<i>Option cable length in m</i>			<i>Kxx</i>

**For higher quantities or on-going demand, additional options are available as described below on request**

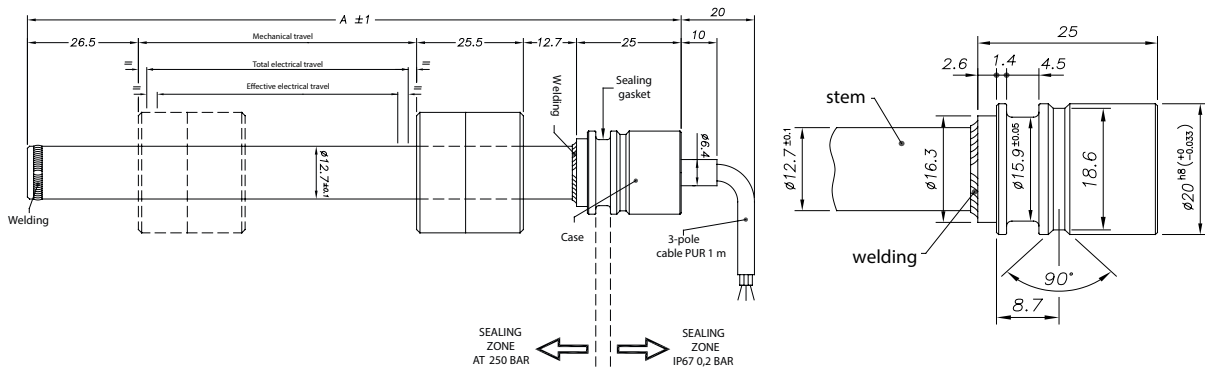
For example:

- Cables with / without connector
- Special axis length and much more

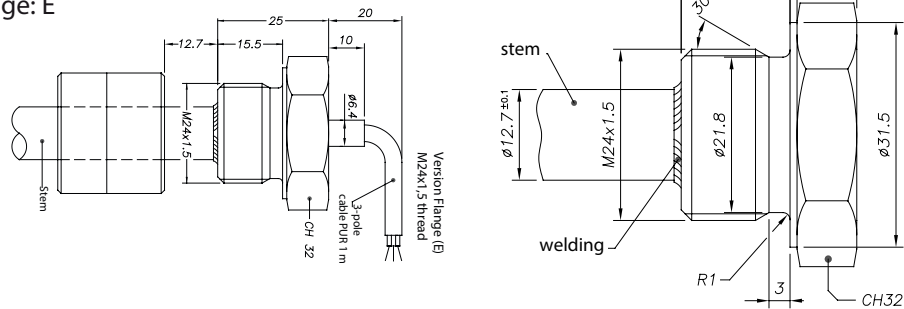
Note: When calibrating the linear transducer, be careful to set the stroke so that the output does not drop below 1 % or rise beyond 99 % of the supply voltage.

### Drawing

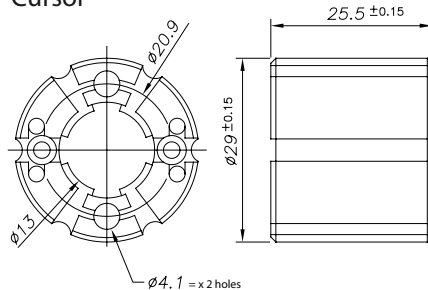
#### Construction - intern flange: I



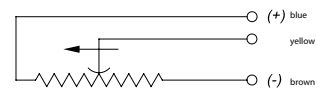
#### Construction - extern flange: E



#### Cursor



#### Connection diagram

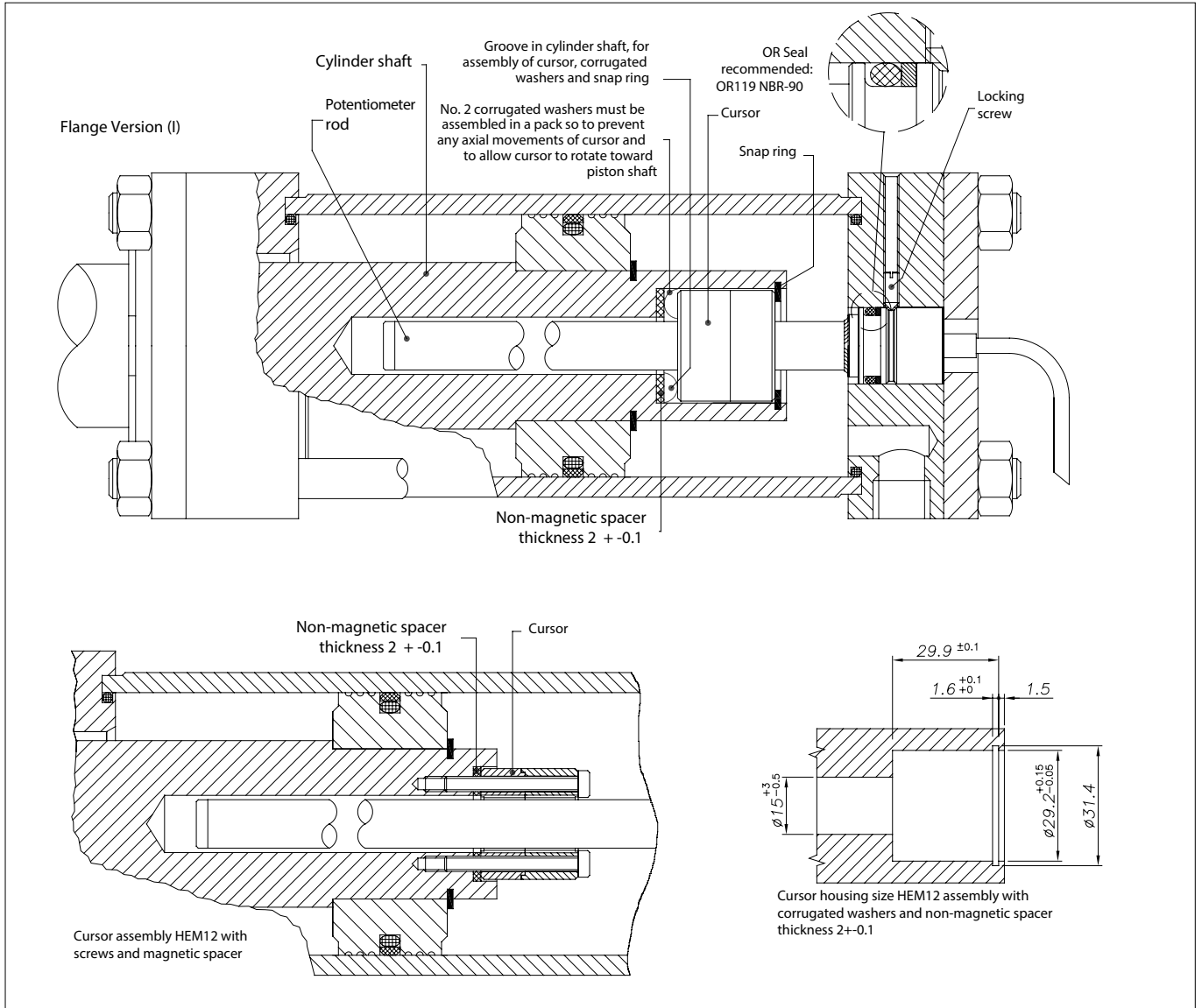


#### Dimensions in mm

A [+94 mm] 50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000

Installation in cylinder

Installation inside cylinder with intern flange: I



Installation in cylinder

Installation inside cylinder with extern flange: E

