Data Sheet for Linear Sensors

Potentiometric Linear Transducer (Conductive Plastic) — Series HEM12

HEM12 internal flange

HEM12 external flange

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 (±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	±20 %
Independent linearity (best straight line) 1.)	±0.35 %
Theoretical resolution 1.)	Almost infinite
Backlash (Hysteresis) 1.)	≤ 0.25 mm
Max. / recommended wiper current1.)	10 mA (@40 °C, 1 min in case of failure) / < 1 µA
Power rating @40 °C (0 W @120 °C)	≤ 1 W (50 mm) / ≤ 2 W (100 mm) / ≤ 3 W (150..1000 mm)
Isolation voltage 1.)	< 100 µA@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	≤ 5 m/s
Max. acceleration	≤ 10 m/s²
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 (Ø Leads: 3 x 0.14 mm²)

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

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

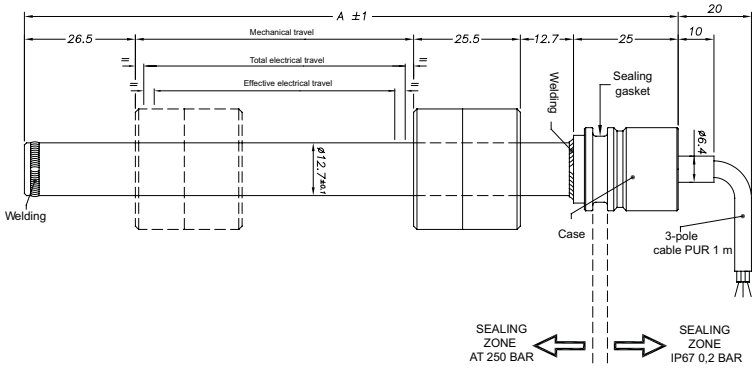
For example:
- Cables with / without connector
- Special axis length and much more

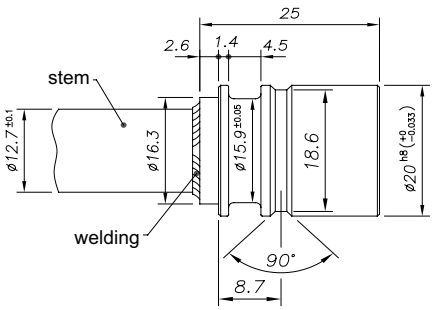
Note: When calibrating the linear transducer, be careful to set the stroke so that the output does not drop below 1 % or rise beyond 99 % of the supply voltage.

Specifications are subject to change without notice

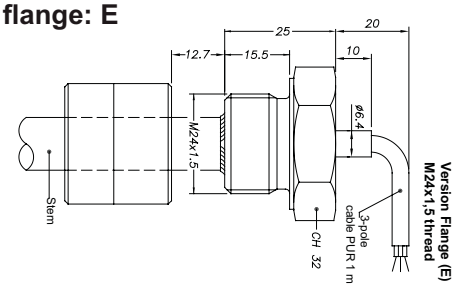
Drawing

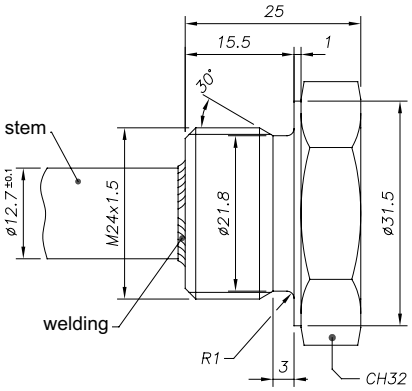
Construction - intern flange: I



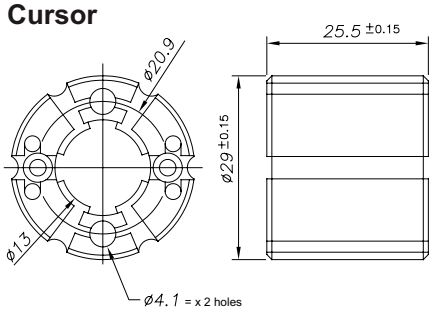


Construction - extern flange: E

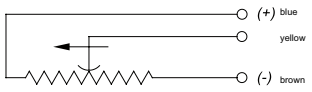




Cursor



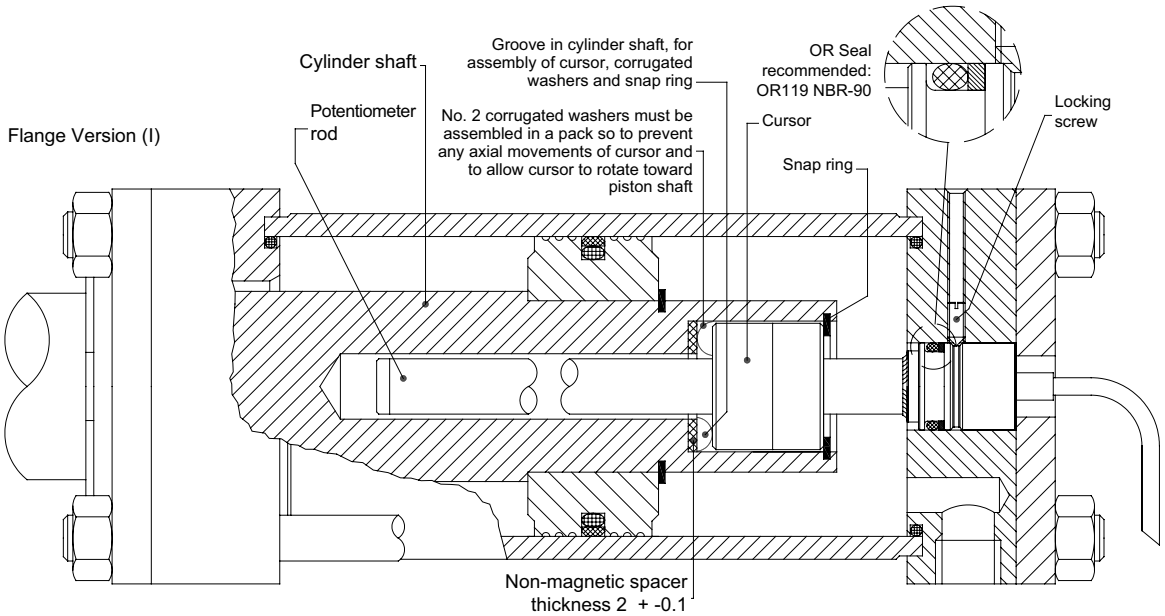
Connection diagram

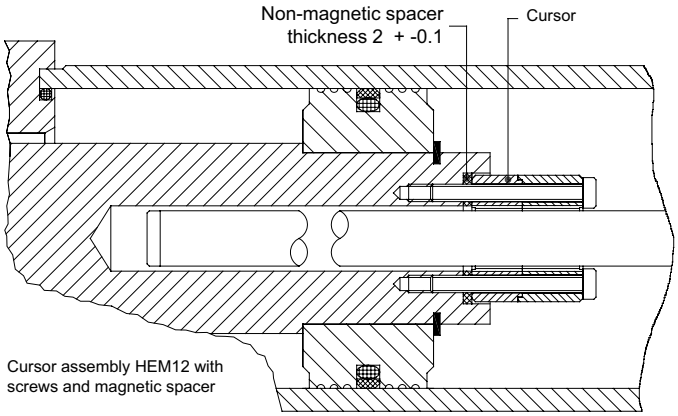


	Dimensions in mm
A [+94 mm]	50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 550 / 600 / 750 / 800 / 850 / 900 / 950 / 1000

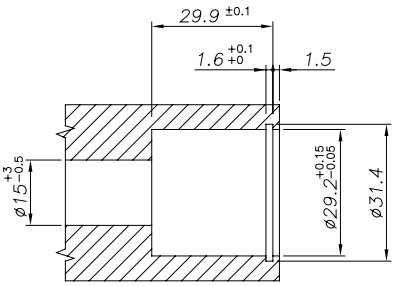
Installation in cylinder

Installation inside cylinder with intern flange: I





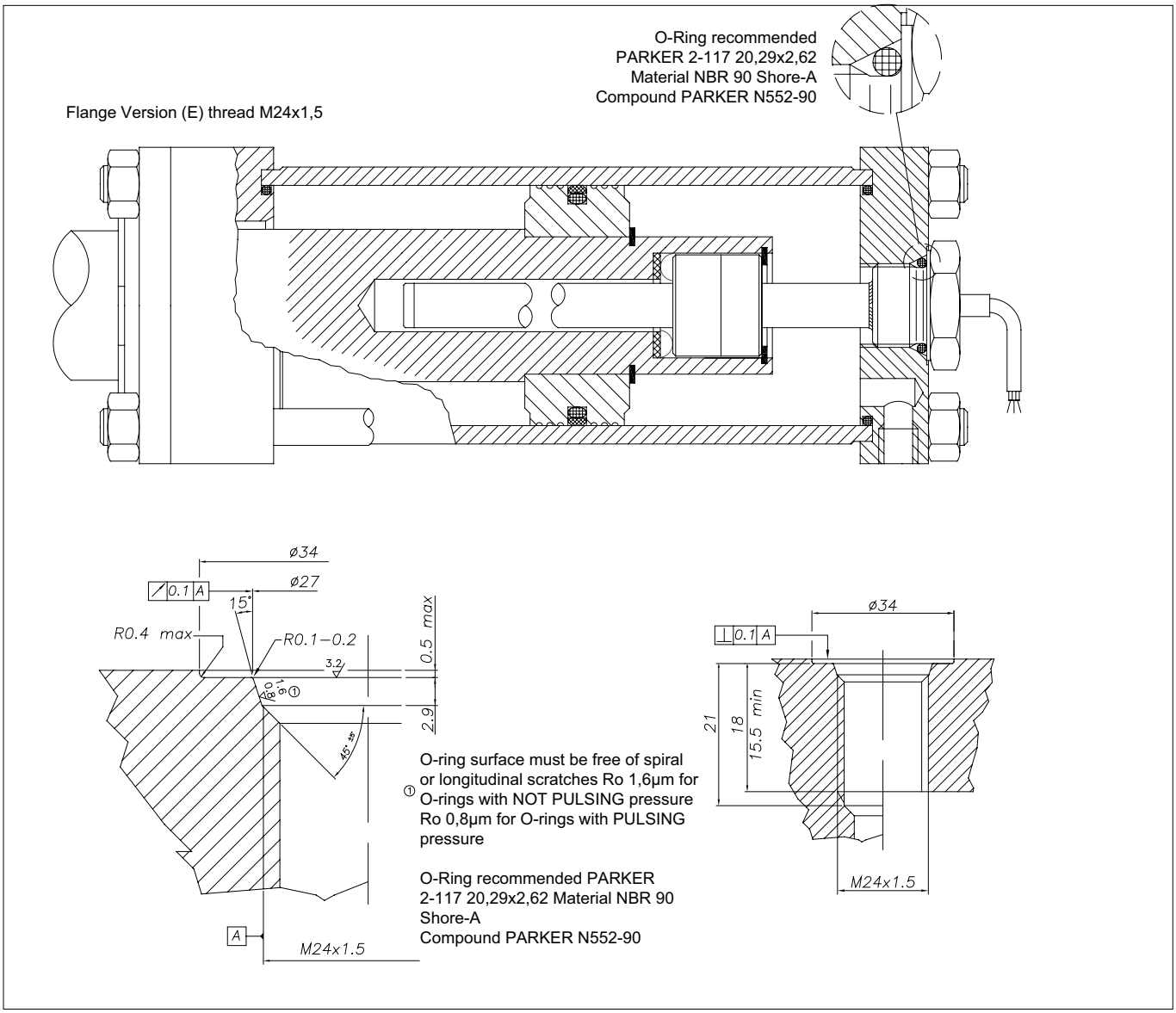
Cursor assembly HEM12 with screws and magnetic spacer



Cursor housing size HEM12 assembly with corrugated washers and non-magnetic spacer thickness 2+-0.1

Installation in cylinder

Installation inside cylinder with extern flange: E



① O-ring surface must be free of spiral or longitudinal scratches Ro 1,6µm for O-rings with NOT PULSING pressure Ro 0,8µm for O-rings with PULSING pressure

O-Ring recommended PARKER 2-117 20,29x2,62 Material NBR 90 Shore-A
Compound PARKER N552-90