

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

## Series CH37



The CH37 series is designed for use in compact hydraulic cylinders where a small displacement sensor is required for applications up to 340 bar.

- Internal or external flange design
- Space saving design
- Independent linearity  $\pm 0.1\%$
- Conductive plastic with almost infinite resolution
- Measuring lengths from 100 mm to 550 mm
- Long life span (100 million movements)

Electrical Data	CH37 100	CH37 150	CH37 200	CH37 300	CH37 350	CH37 500	CH37 550
Effective electrical travel (mm) 1.)	104 $\pm$ 1	154 $\pm$ 1	204 $\pm$ 1	304 $\pm$ 1	354 $\pm$ 1	504 $\pm$ 1	554 $\pm$ 1
Total electrical travel (mm) 1.)	110 $\pm$ 1	160 $\pm$ 1	210 $\pm$ 1	310 $\pm$ 1	360 $\pm$ 1	510 $\pm$ 1	560 $\pm$ 1
Total resistance 1.)	10 kOhm						
Resistance tolerance	$\pm 20\%$						
Independent linearity (best straight line) 1.)	$\pm 0.1\%$						
Theoretical resolution 1.)	Almost infinite						
Repeatability 1.)	$\leq 0.01$ mm						
Max. / recommended wiper current 1.)	1 mA (@ 40 °C, 1 min in case of failure) / $\leq 0.1$ $\mu$ A						
Power rating @40 °C (0 W @120 °C)	$\leq 3$ W						
Isolation voltage 1.)	< 100 $\mu$ A@500 VAC, 1bar, 2s						
Isolation resistance 1.)	100 MOhm@500 VDC, 1bar, 2s						

Mechanical Data, Environmental Conditions, other	CH37 100	CH37 150	CH37 200	CH37 300	CH37 350	CH37 500	CH37 550
Mechanical stroke (mm) 1.)	104 $\pm$ 1	154 $\pm$ 1	204 $\pm$ 1	304 $\pm$ 1	354 $\pm$ 1	504 $\pm$ 1	554 $\pm$ 1
Lifetime (90 % effective electrical travel) 2.)	> 25 million meters or 100 million movements (the smaller value applies)						
Max. operational speed	$\leq 1.5$ m/s						
Operational force @ RT 1.) 2.)	$\leq 1$ N						
Operational temperature	-30 °C up to +100 °C						
Storage temperature	-50 °C up to +120 °C						
Protection grade (IEC60529)	Direct installation in hydraulic cylinders up to 340 bar						
Vibration (IEC 68-2-6, Test Fc)	20 g (10..2000 Hz, 0.75 mm)						
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms						
Length of shaft (A) $\pm 3$ mm	124.8	174.8	224.8	324.8	374.8	524.8	574.8
Material housing	Stainless steel AISI 303						
Material shaft	Aluminium						
Electrical connection	3 core strands 200 mm (optional 6-pole connector only external flange version)						

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

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## Order Code

Description	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>			
<b>Series:</b>	<b>CH37</b>			
<b>Effective electrical travel:</b>				
100 mm		<b>100</b>		
150 mm		<b>150</b>		
200 mm		<b>200</b>		
300 mm		<b>300</b>		
350 mm		<b>350</b>		
500 mm		<b>500</b>		
550 mm		<b>550</b>		
<b>Construction:</b>				
<b>Internal flange (only with cable)</b>			<b>I</b>	
<b>External flange metric</b>			<b>EM</b>	
<b>External flange inch</b>			<b>EI</b>	
<b>Electrical connection:</b>				
<b>3 core strands 200 mm</b>				<b>K</b>
<i>Option 6-pole connector (only external flange)</i>				<i>A</i>
<i>Option strands length in m</i>				<i>Kxx</i>

### In delivery included:

- Lock ring and wave washer for mounting the wiper carrier

### General handling guidelines:

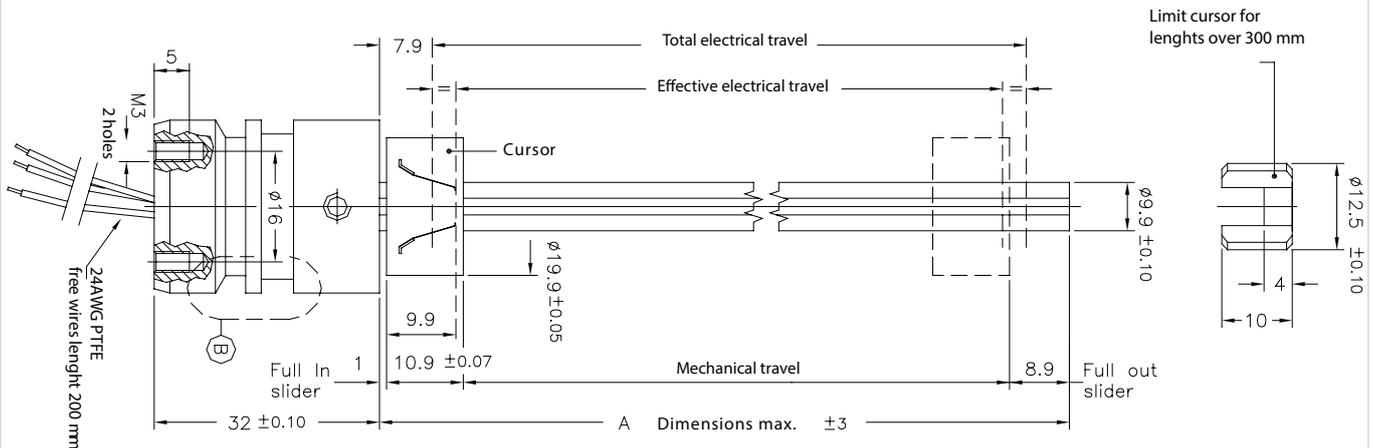
To ensure proper potentiometer function, requirements as listed below have to be maintained

- "Installation requirements" and "general operating data" to be respected at storage and system integration
- The suitability of the hydraulic oil used in conjunction with the open sensor element must be checked by the user.
- Slider operation permissible within effective electrical travel only at handling, system integration and sensor operation.  
Slider operation beyond the limits of total electrical travel is not permissible (travel definitions see IEC60393-1 chapt. 4.4.5 and 4.4.6)
- Removing the product from package when processing by gripper (robot) or protective glove (manual handling) only.  
Fingerprints on product are not permissible.
- Mechanical damage (Scratches, dents, deflections etc.) on resistance and on wiper element is not permissible
- Storage of product packed in package as delivered permissible only. Open storage (unpacked) is not permissible.
- Non system defilement (e.g. wear of actuator etc.) on resistance- and on wiper element is not permissible.
- Any kind of cleaning treatment on product is not permissible
- Evaporation of silicon in the environment is not permissible

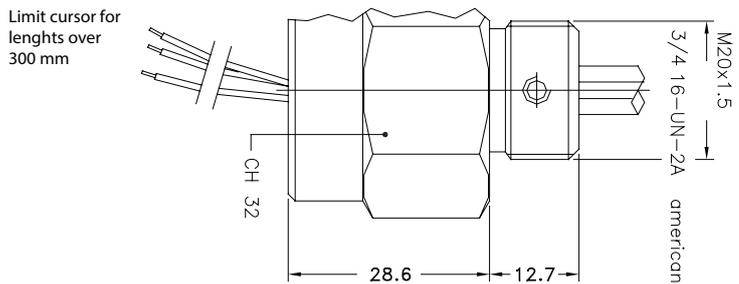
Note: When calibrating the linear transducer, be careful to set the stroke so that the output does not drop below 1 % or rise beyond 99 % of the supply voltage.

### Drawing

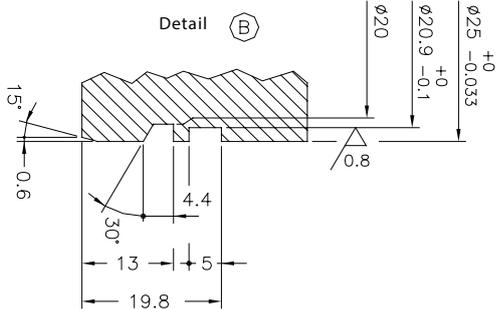
#### Internal Flange Version



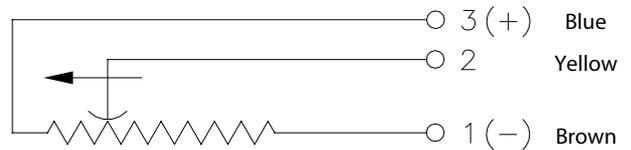
#### External Flange Version



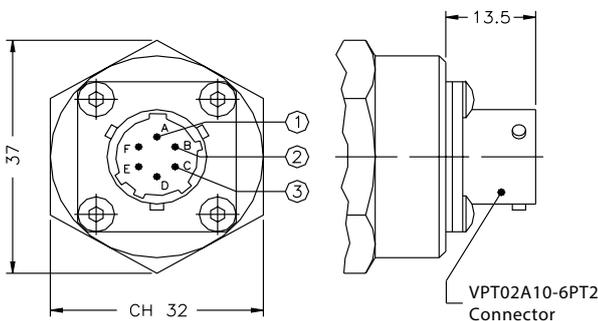
#### Detail B



#### Connection diagram



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



Dimensions	CH37 100	CH37 150	CH37 200	CH37 300	CH37 350	CH37 500	CH37 550
A [mm]	124.8	174.8	224.8	324.8	374.8	524.8	574.8

Dimensions in mm