

Interview: Encoders for hydraulic and telescopic cylinders

Draw-wire sensors based on rotary encoders have some advantages compared to other solutions. Matthias Roth, Siko's Industry Manager Mobile Automation explains them on the example of the SGH series.

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(Source: Siko)

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Q: In summary: What is special about the SGH series?

A: With these wire-actuated encoders, we are the only metrology specialist to have a worldwide exclusive technique for measuring the position of hydraulic cylinders, telescopic cylinders, or piston accumulators. The wire-actuated encoder-based sensors can be fully integrated into cylinders. The advanced, cable-based concept of the sensors provides additional benefits, which comparable products cannot offer. For example, our sensors cover a very wide range of applications as well as entire measuring ranges. The used techniques also excel with regard to immunity against shock and vibration. It ensures absolute best values in this area. The cable-based functional principle also makes the sensors the only integrated position sensors in the world which can also be used in telescopic cylinders.

Q: How should we view the development of your sensor techniques?

A: We benefit from 30 years of wire-actuated encoder know-how in terms of development, design, and production. Of course, our development, product design, and ultimately the customer also benefit from this knowledge. Like the SGH10, which measures zero-to-one-meter lengths, our latest generation of wire-actuated encoder generators, we have developed by our own the SGH25 and the SGH50 measuring zero to 2,5 meters respectively from zero to five meters. Wire-actuated encoders are therefore our core competence. In this respect, it is not surprising that the entire design of the devices is done in-house. In other words, we specify parameters such as the correlation of forces, the spring characteristic curve or the number of revolutions depending on the respective product. This makes our sensors extremely robust and durable. Both electronically and mechanically, they are designed and tested for the entire service life of the cylinder. The service life thus meets the quality requirements that have been posed to us by the market. And that is the most important criterion for us.

Q: What challenges were faced during the development?

A: Sensor solutions intended for hydraulic cylinders must fulfill a central requirement: they should not affect the length of a cylinder. In other words, by installing such a sensor, the length of the cylinder should ideally not increase or be minimal. To fulfill this requirement, we use an innovative functional principle that achieves a hitherto unknown compactness. The stroke measurement technique takes a completely different approach than other market-based measurement systems that use bar-based, inductive, or reverberation-based techniques. To record the stroke or movement speed, our sensors use flexible cable pull mechanics installed directly in the cylinder.

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