



WhatsApp



## SENSORS & POSITIONING SYSTEMS

## FOR INDUSTRY & MECHANICAL ENGINEERING



# SENSORS AND POSITIONING SYSTEMS PRECISE & VERSATILE

## Technical advantage and many years of expertise

Today, SIKO stands for almost six decades of experience in position, angle and speed detection. The highest demands of our customers from industry and mechanical engineering ensure the quality, precision and functionality of our products and services.

SIKO is certified according to DIN ISO 9001:2015. The careful handling of raw materials and resources is a matter of course for us.



## PRODUCTS & SOLUTIONS

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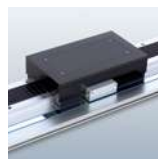
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# Company

## SIKO MILESTONES

### THEN & NOW

**1963**

The first product idea: a handwheel with integrated analog display invented by Doctor of Engineering Günther Wandres.



**1976**

Introduction of the first digital position indicator DA08. Today, SIKO is the world market leader in position indicators.



**1982**

The electronic era of length and angle measurement technology begins; measurement displays and the first electronic hollow wave transmitters are developed.



**1991 / 1992**

Introduction of the first electronic position indicator (DE09), the magnetic measuring principle (MagLine) and the draw-wire encoder.



**1995 / 1996**

Introduction / invention of magnetic compact sensors and magnetic, absolute length measurement.



**2001**

Positioning drives are added to the existing product portfolio.



**2008**

Introduction of bus-capable position displays for monitored format adjustment (AP04).



**2014**

Introduction to Ethernet drives "Industry 4.0 Ready".



**2015 / 2016**

First SIL2 magnetic sensor. Introduction of a draw-wire encoder for direct stroke measurement in hydraulic cylinders.



## FOUNDATION & DEVELOPMENT

### COMPANY

1963



Foundation of SIKO GmbH by Doctor of Engineering Günther Wandres at Buchenbach.



1980

An important step toward the global market: Foundation of the subsidiary SIKO Products in the USA.



1999

Introduction of brand "MagLine".



2001

Foundation of the subsidiary SIKO Italia in Milan.



2005

Foundation of the subsidiary SIKO Trading Shanghai in China.



2008

Foundation of the subsidiary SIKO MagLine AG in Switzerland.



2012

Establishment of the subsidiary SIKO Products Asia in Singapore.



2020

Completion of the new production plant for electrical products and the administration building in Bad Krozingen.



2020

SIKO is once again distinguished as a top-rate employer.





# Company

## COMPANY PROFILE

### DYNAMIC & INNOVATIVE

Our measuring technologies are successfully represented worldwide and in the entire mechanical engineering sector. Approximately **60 representatives** ensure direct contact technical support for our customers, both nationally and internationally. Our **five successful subsidiaries** in the USA, China, Singapore, Switzerland and Italy strengthen the global presence of SIKO GmbH.

Global success is  
no coincidence.



#### Direct contact to our product specialists

We are happy to answer any questions you might have.

- Personal and qualified advice
- Worldwide accessibility with sales offices and representatives
- Technical support
- International trade fair presence
- Multilingual website, with download area for the latest brochures, data sheets, 3D design data and much more.

#### Into the future with a vision

Graduated Industrial Engineer Horst Wandres, son of the company founder, has led the company into the future with a vision since 1990. Sven Wischnewski was appointed to the Executive Board in August 2014 for reinforcement. Already today, Buchenbach and Bad Krozingen are consistently setting the course for the coming decades.

#### Working for you

From a global perspective, more than 250 SIKO employees are working hard for you today, with a lot of team spirit and know-how in the field. Continuously and with the necessary level of ambition and passion, we want to "do it even better." The steady and healthy company growth of SIKO GmbH is a real team achievement.

#### The human element

At SIKO, you find motivated employees who personally identify with the products they manufacture. The necessary technical know-how and a portion of pride in our own products are a factor not to be underestimated. In addition, SIKO provides its employees with modern jobs and a comprehensive package of social benefits.

The promotion of cross-departmental communication is also in the foreground. Teamwork and the appreciation of each individual employee are fundamental values that are lived at SIKO. Excellent products can only be produced with this spirit, in which "the last 2%" are also perfect.



## Products and Solutions

SIKO specializes in high-quality products and solutions for industry and mechanical engineering:

**Positioning systems:** Mechanical and electronic position indicators and positioning drives

**Linear sensors:** Bearingless linear encoders (MagLine), draw-wire encoders and position sensors for hydraulic cylinders

**Rotary sensors:** Bearingless rotary encoders (MagLine), encoders and inclination sensors

## Customized solutions

## Quality Characteristics

Continuous product optimization is a matter of course for SIKO. Competence as well as state-of-the-art work equipment and facilities ensure the best possible quality:

- Company-wide 3D CAD design
- Rapid prototyping
- In-house testing and experiment laboratories for endurance tests and material testing
- Use of programs for simulations and collision tests
- Quality management  
DIN EN ISO 9001



## Production in Germany and Switzerland

SIKO relies on resource-saving lean production, which implements customer requirements on time thanks to on-demand production. Automated and specialized manual work are carried out at our production sites in Germany and Switzerland. In short, SIKO is Made in Germany and Swiss Made.

# Products

## POSITIONING SYSTEMS

### PRECISE FORMAT ADJUSTMENT

### AT PRODUCTS CHANGES

We are the inventor of the famous orange SIKO counter and are the **world market leader** in the field of **mechanical position indicators** with our comprehensive product portfolio.





## MECHANICAL POSITION INDICATORS

### ROBUST & COST-EFFECTIVE

Mechanical position indicators enable a reliable, absolute measurement value display and the reproducible positioning of adjustment axes.

#### Advantages

- Inexpensive, robust measuring system
- Unique, precise digital display values thanks to integrated counter
- Simple hollow shaft mounting
- Individual conversions and display representations

#### Specifications

- Hollow shafts of  $\varnothing 6 \dots 35$  mm
- Metric or inch display
- Mechanical locking / arresting
- Design selectable (reading position)



## ADJUSTING KNOBS

### COMPACT & HANDY

Adjusting knobs are handy adjustment units with integrated measuring system.

#### Advantages

- Compact design
- Unit consisting of handwheel and position indicator
- Any installation position

#### Specifications

- Hollow shafts of  $\varnothing 10 \dots 14$  mm
- Display integrated in adjustment element
- Design selectable (reading position)



## ANALOG POSITION INDICATORS & HANDWHEELS

### TIMELESS & PRACTICAL

Fine resolution analog displays measure and visualize rotational movements.

#### Advantages

- Freely printable scales for flexible display values
- Excellent reading quality
- Precise display thanks to an indicator shaft supported by two bearings
- Sturdy handwheels made of full metal or glass-fiber reinforced plastic material

#### Specifications

- Handwheel of  $\varnothing 56 \dots 200$  mm
- Display analog with scale
- Optionally with digital display
- Corrosion and vibration resistant, optionally oil filled
- Handwheel made of metal or plastic



# Products

## POSITIONING SYSTEMS

### ELECTRONIC POSITION INDICATORS

Electronic position indicators are programmable and provide guided and therefore **100% process-safe format adjustment** thanks to the available bus-controlled variants. Setting values can be logged and monitored digitally. Waste and faulty settings are consequently a thing of the past.



Process reliability:  
AP05 with bus inter-  
faces for monitored  
format adjustment.



Play film

Solutions for Pharma-  
ceutical Production &  
the Packaging Industry



The flyer "Monitored  
Format Adjustment"  
can be found at  
[www.siko-global.com](http://www.siko-global.com)

## ELECTRONIC POSITION INDICATORS

### DE SERIES

Battery-operated electronic position indicators for precise spindle settings – programmable and flexible.

#### Advantages

- Display values, direction of rotation and decimal places are freely programmable
- Function keys for reset, chain dimension and offset detection
- Assembly-compatible with mechanical SIKO counters

#### Specifications

- Absolute LCD displays
- Battery powered
- Programmable parameters



## ELECTRONIC POSITION INDICATORS

### AP SERIES

Bus-capable absolute position indicators for the monitored format setting of spindles and linear sliders.

#### Advantages

- Bus-capable for monitored format adjustment
- Display values, direction of rotation and decimal places are freely programmable
- Function keys for reset, chain dimension and offset detection
- Assembly-compatible with mechanical SIKO counters

#### Specifications

- Bus interfaces: IO-Link, RS 485, CANopen, Industrial Ethernet
- Absolute LCD displays
- Battery-buffered
- Programmable parameters



**PROFINET**

EtherNet/IP  
ODVA

EtherCAT

ETHERNET  
POWERLINK

CANopen

SIKONET5  
RS485

IO-Link

# Products

## POSITIONING SYSTEMS

## POSITIONING DRIVES

“Short cycle and changeover times, high productivity and quality with low investment costs.”

Compact positioning drives for **automated conversion** to different product formats.



Packaging machine manufacturers use SIKO positioning drives in complex packaging machine lines with growing demands on variety, productivity and accuracy.



▶ Play film

Positioning drives for the packaging industry



▶ Play film

Positioning drive AG05/AG06



▶ Play film

Retrofit solutions



The flyer “Format Adjustment” can be found at [www.siko-global.com](http://www.siko-global.com)

## POSITIONING DRIVES

### COMPACT & FUNCTIONAL

As an alternative to manual adjustment, positioning drives enable quick and efficient format adjustment at the touch of a button.

#### Advantages

- Compact design even for confined spaces
- Very little installation and assembly effort
- High availability and maintenance-free
- Short cycle and changeover time
- High level of productivity and quality

#### Specifications

- Hollow shafts of  $\varnothing 10 \dots 20 \text{ mm}$
- Torque up to 14 Nm
- Speed up to  $500 \text{ min}^{-1}$
- Magnetic multiturn encoder with a resolution of up to 1600 pulses/revolution
- Interfaces: OP, LD5, LD24, Analog (R, U, I), Fieldbus and Industrial Ethernet





# Products

## LINEAR SENSORS

## BEARINGLESS ENCODERS &

## DRAW-WIRE ENCODERS

Since the 90s, we have been developing and producing magnetic encoders and draw-wire encoders for you. Regardless of whether factory automation, drive technology or mobile machines, our sensors always operate **under the most adverse conditions reliably, precisely and durably.**

CANopen®

IO-Link

CANopen®  
safety easy to use

SAE J1939

ANALOG

RS485

SSI

EtherNet/IP®  
ODVA

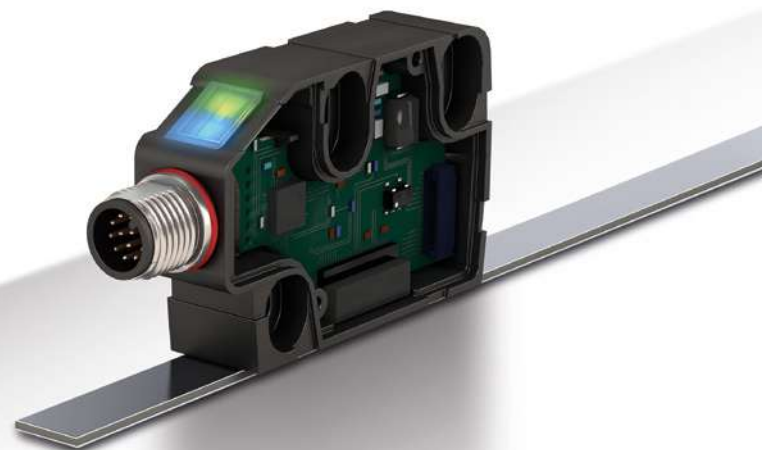
PROFIBUS  
DP

BiSS  
INTERFACE

DRIVE-CLIQ

A  
/A  
B  
/B

SIL2  
Functional  
Safety  
PLd



Play film

SIKO MagLine  
"Easy Installation"

## BEARINGLESS LINEAR ENCODER | MAGLINE

### HIGH-PRECISION & NON-CONTACT

The magnetic and wear-free MagLine encoders provide high system accuracy and reproducibility. The compact measuring systems are successfully used

in virtually all areas of mechanical engineering and are particularly popular thanks to their reliability as well as their easy handling and installation.

#### Advantages

- Absolutely wear-free technology
- Insensitive to dust, chips, moisture, oils, grease, etc.
- Robust when exposed to shocks and vibration
- No measuring errors caused by gear ratios or gear backlash
- Almost maintenance free
- High system accuracy and reproducibility

#### Specifications

- Resolution max. 0.2  $\mu\text{m}$ , 0.1 mm
- System accuracy up to  $\pm 10 \mu\text{m}$
- Reproducibility max.  $\pm 1 \mu\text{m}$
- Reading distance 0.1 ... 20 mm
- Measuring lengths up to max. 100 m
- Freely programmable parameters



## MEASUREMENT DISPLAYS WITH BEARINGLESS LINEAR ENCODER | MAGLINE

### MEASUREMENT VALUES ALWAYS IN SIGHT

MagLine measurement displays for direct display of the linear measured values.

#### Advantages

- Incremental, absolute or quasi-absolute variants
- Extensive selection of interfaces
- Low-power technology
- High contrast
- Different accuracy classes and resolutions

#### Specifications

- LCD dot matrix displays, 12-digit, 0.001 mm
- LCD displays, decimal and fraction/inch, 0.01 mm
- LED matrix displays, 5-digit, 0.01 mm
- Power supply: variants with 10 – 30 V, 24 V, 110 V, 230 V or battery/backup battery



## DRAW-WIRE ENCODERS

### ROBUST & DURABLE

Draw-wire encoders are an easy-to-install solution for linear position and speed measurement. Even under the most adverse environmental conditions, our customers have been relying on our proven SIKO draw-wire encoders "since the beginning of the 1990s."

#### Advantages

- Temperature range from -40 °C ... +85 °C
- Robust application even when wet and dirty
- Flexible system integration thanks to any output signals and interfaces
- Optional: increased safety thanks to redundant sensors

#### Specifications

- Measuring lengths of 600 ... 15000 mm
- Output potentiometer: 1 kΩ, 5 kΩ, 10 kΩ
- Current output: 4...20 mA, 4 ... 20 mA redundant
- Robust housings made of plastic or metal
- Various wire designs
- Optional: with integrated inclination sensor



## POSITION SENSORS FOR HYDRAULIC CYLINDERS

### PROVEN INTEGRATED TECHNOLOGY

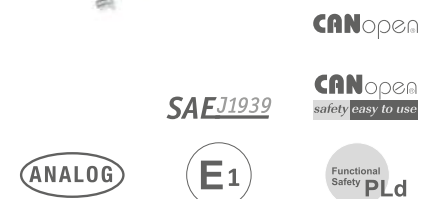
Position sensors according to the proven draw-wire principle, for demanding and safety-critical applications in the field of mobile hydraulics and the industrial use of hydraulic cylinders, telescopic cylinders or piston accumulators.

#### Advantages

- Complete integration of the sensor in hydraulic cylinder
- No hollow-drilling of the piston is necessary!
- Can also be used in telescopic cylinders and piston accumulators
- Very compact construction
- Durable and robust

#### Specifications

- Absolute detection of the cylinder position
- Measurement range up to 5000 mm
- A wide range of analog and fieldbus interfaces are available
- Can be used in mobile and industrial hydraulics
- Can be used in safety applications up to PLd



## CUSTOMER-SPECIFIC LINEAR SENSORS

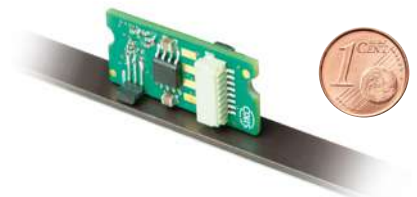
### FIND THE IDEAL SOLUTION WITH US

SIKO is known for flexibility and agility when it comes to implementing customer-specific solutions. Brand label products for well-known machine manufacturers or sensor manufacturers collaborating with us are also part of our range.

Decades of experience distinguish us. We see ourselves as your partner and develop individual linear sensors for

you or with you in accordance with your technical requirements – and at fair conditions with already manageable quantities.

**Feel free to contact us without** obligation and our application, and our development engineers will find a suitable product solution for you. Going at least one step further together is our philosophy.



# Products

## ROTARY SENSORS

### BEARINGLESS ENCODERS, ROTARY ENCODERS AND INCLINATION SENSORS

Our rotary sensors provide you with a wide technical range. Whether contactless and wear-free, as an open PCB solution, as a heavy-duty or safety version, we provide the right solution for your applications.

CANopen

IO-Link

CANopen  
safety easy to use

ANALOG

SAFETY J1939

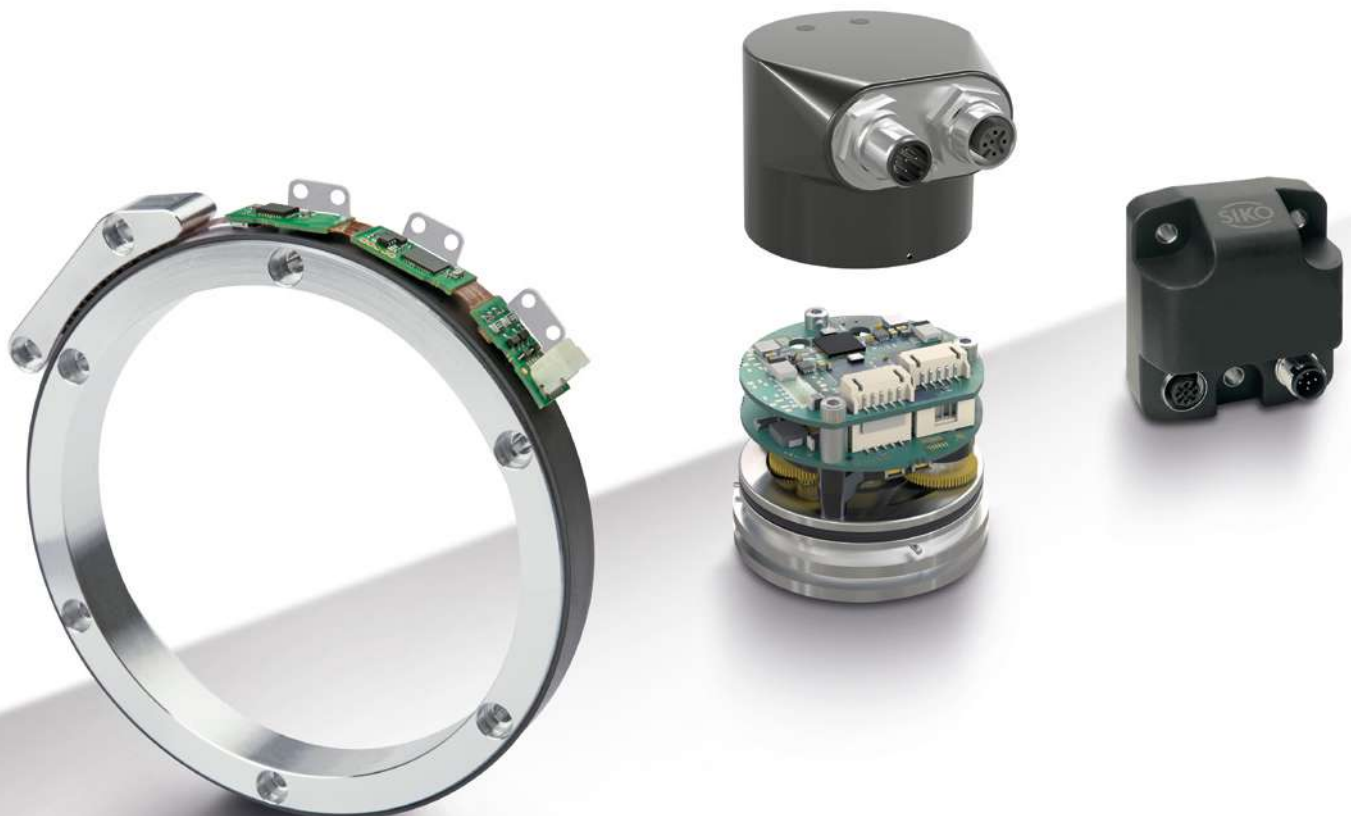
EtherNet/IP  
ODVA

SSI  
SINUSPOSITIONS-INTERFACE

EtherCAT

PROFINET

BiSS  
INTERFACE





## BEARINGLESS ENCODER | MAGLINE

### NON-CONTACT & WEAR-FREE

The magnetic rotary encoders are the ideal alternative to conventional optical rotary encoder systems, especially when it comes to exact rotational speed or angle measurement under demanding application conditions.

#### Advantages

- Absolutely wear-free technology
- Insensitive to dust, chips, moisture, oils, grease, etc.
- Robust when exposed to shocks and vibration
- No measuring errors caused by gear ratios or gear backlash
- Almost maintenance free
- High system accuracy and reproducibility

#### Specifications

- Absolute resolution up to 20 bit
- Repeatability 0.01°
- Reading distance 0.1 ... 2 mm
- Industrial and medical applications e.g., motor feedback, handling automation and robotics
- Industry 4.0 ready



## MEASUREMENT DISPLAYS WITH BEARINGLESS ENCODERS | MAGLINE

### DISPLAY VALUES ALWAYS IN VIEW

MagLine measurement displays for direct display of the linear measured values.

#### Advantages

- Incremental, absolute or quasi-absolute variants
- Extensive selection of interfaces
- Low-power technology
- High contrast
- Various accuracy classes and resolutions

#### Specifications

- LCD dot matrix displays, 12-digit, 0.001 mm
- LCD displays, decimal and fraction/inch, 0.01 mm
- LED matrix displays, 5-digit, 0.01 mm
- Power supply: Variants with 10 – 30 V, 24 V, 110 V, 230 V or battery/backup battery



## ROTARY ENCODERS

### PRECISE POSITION MONITORING

We offer a wide range of encoders. From cost-effective incremental encoders to high-resolution absolute encoders with analog and fieldbus interfaces, in industrial or heavy-duty models.

#### Advantages

- Incremental or absolute
- Single or multiturn
- Optical and magnetic encoders
- Precise positioning & high resolution
- Smallest designs
- Variants with heavy-duty housings

#### Specifications

- Hollow shaft of 6 ... 28 mm
- Solid shaft of 5 ... 12 mm
- Available with many analog and fieldbus interfaces
- High shock, vibration and temperature resistance
- Speeds up to 12000 rpm



## SAFETY ROTARY ENCODERS

### SAFETY IN EVERY APPLICATION

Our safety encoders are in use in safety-critical applications up to performance level d (PLd) and are E1(UN ECE R10)-compliant.

#### Advantages

- Absolute, redundant safety encoders
- Interfaces: CANopen Safety or CANopen and SAE J1939 redundant
- Can be used in applications up to performance level d (PLd)
- Salt spray-tested housing available

#### Specifications

- Hollow shafts up to Ø15 mm
- Protection category IP67
- High EMC compatibility
- E1(UN ECE R10)-compliant



## INCLINATION SENSORS MEMS

### SAFE & ROBUST

Inclination sensors from SIKO, which are colloquially called “electronic spirit levels”, are much more than that. They determine tilt angles in systems, inclinations and installation angles in mobile machines and are used for precise tracking of para-

bolic troughs and photovoltaics in power plants. The sensors from SIKO impress with their robust design, intelligent signal processing and, above all, their high temperature stability. As a result, you can safely detect any inclination!

#### Advantages

- Absolute measuring system
- Compact and robust design
- High IP protection category
- Redundant sensors up to PLd available
- High temperature stability
- Simple assembly
- Wide selection of interfaces
- High resolution of the position

#### Specifications

- 1-axis or 2-axis versions
- Protection category up to IP6K9K
- Temperature range -40 °C ... +85 °C
- Up to 360° measuring range (1-axis)
- Up to ±80° measuring range (2-axis)
- Resolution up to 0.001°
- Interfaces: Analog, CANopen, CANopen Safety
- Available with PURE.MOBILE technology



CANopen

CANopen  
safety easy to use

ANALOG

## CUSTOMER-SPECIFIC ROTATIVE SENSORS

### FIND THE IDEAL SOLUTION WITH US

SIKO is known for flexibility and agility when it comes to implementing customer-specific solutions. Brand label products for well-known machine manufacturers or sensor manufacturers collaborating with us are also part of our range.

Decades of experience distinguish us. We see ourselves as your partner and develop individual rotary sensors for you or with you according to your technical requirements – and at fair conditions with already manageable quantities.

**Feel free to contact us without obligation** and our application, and our development engineers will find a suitable product solution for you.

Going at least one step further together is our philosophy.

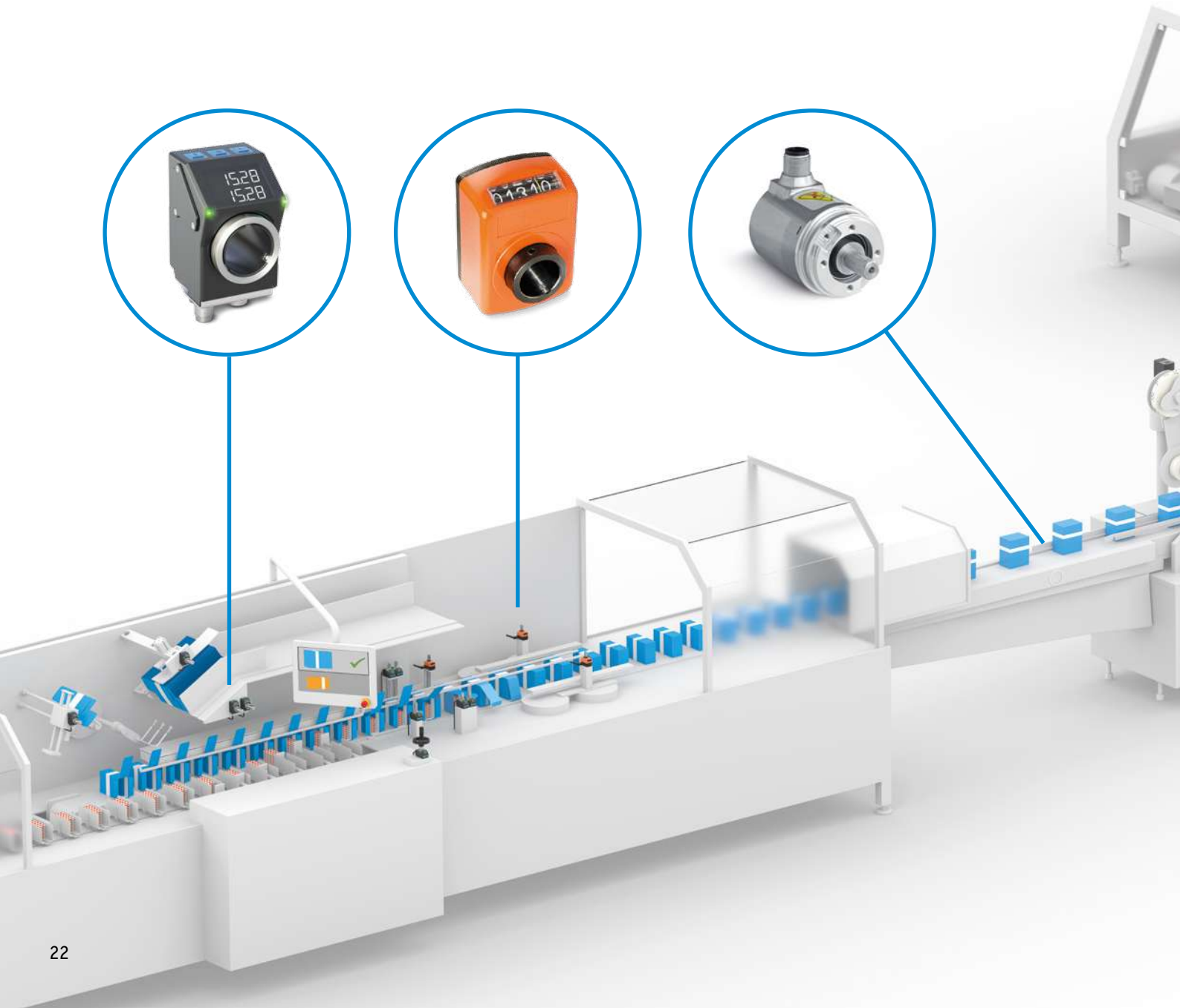
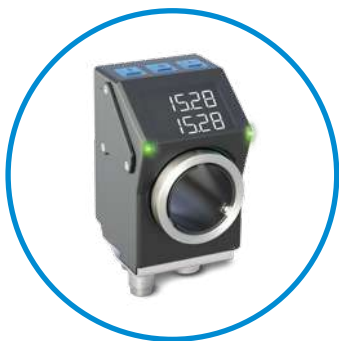


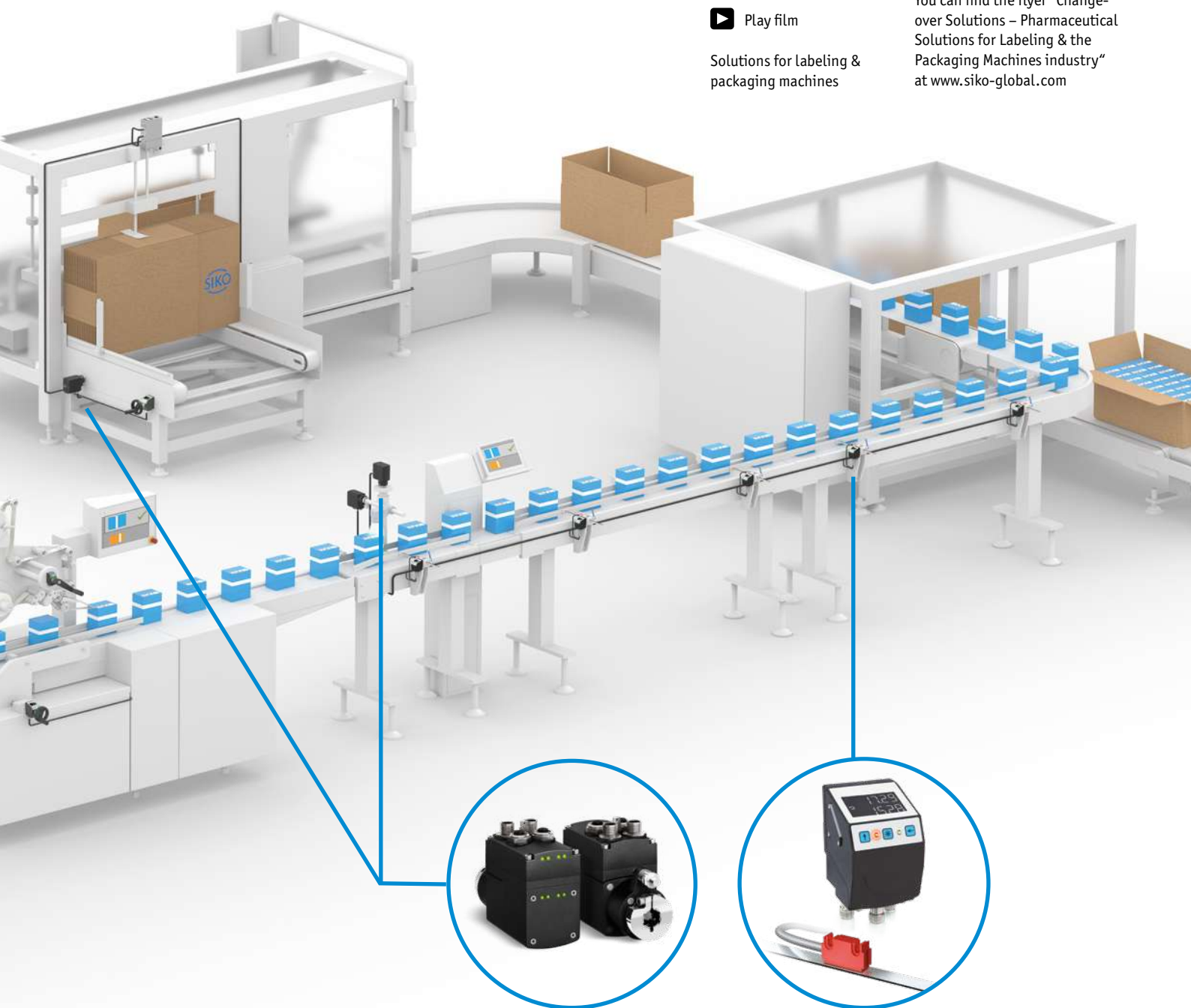
# Solutions

## CHANGEOVER SOLUTIONS

### SMART FORMAT ADJUSTMENT

With Changeover Solutions, more flexibility in the format adjustment of modern production systems. With a wide product variety and increasingly small batch sizes, optimum system availability is becoming even more important. Short set-up times are therefore a standard requirement for production and packaging machines.





▶ Play film

Solutions for labeling & packaging machines



You can find the flyer "Change-over Solutions – Pharmaceutical Solutions for Labeling & the Packaging Machines industry" at [www.siko-global.com](http://www.siko-global.com)



## MANUAL

### FORMAT ADJUSTMENT

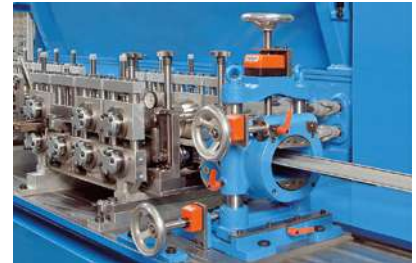
Ergonomic manual adjustment thanks to easy-to-read position values.



Format adjustment in packaging technology



Reproducible adjustment of cardboard box erecting machines



Precise adjustment of a sheet metal working machines

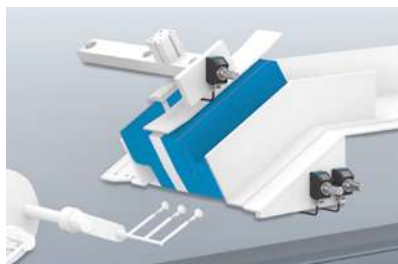
## MONITORED

### FORMAT ADJUSTMENT

Manual settings made more efficient, intuitive by LED signals, process-safe and with feedback to the machine control. Set-up times are drastically reduced and system availability is increased.



Monitored lateral guidance in packaging machines



Intuitive adjustment of a pharmaceutical packaging machine



Height adjustment of label inspection

## AUTOMATED

### FORMAT ADJUSTMENT

Conversion to different product formats at the touch of a button, simple and flexible thanks to compact positioning drives.



SIKO positioning drives ensure precise product position during the on-the-fly production change



Quick and safe format adjustment of cardboard box erecting machines at the touch of a button



Scanner setting depending on product format



Height adjustment of labeling device



Fast and safe positioning of linear axes in packaging technology

## RETROFIT

### FORMAT ADJUSTMENT

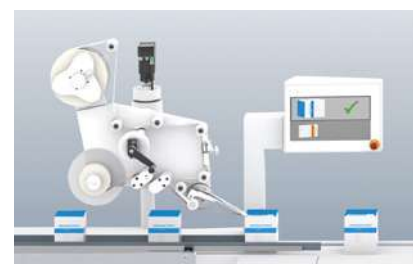
Existing machines and systems can be easily retrofitted via "plug-and-play" with monitored and automated format adjustment. A specially designed controller enables simple and intuitive management of formulas.



Fully automatic format adjustment through a single conversion of the manual positioning



Touch panel for easy formula management format conversion



Efficient conversion to monitored and automated

# Solutions

## MAGNETIC MEASUREMENT TECHNOLOGY IN A VARIETY OF APPLICATIONS

SIKO encoders have been used for decades in the field of **motor feedback on linear and torque motors**.



SIKO MagLine – Sensors  
for linear and rotary  
motor feedback



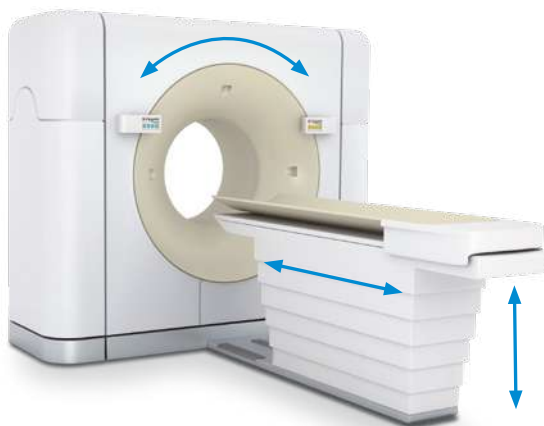
Play film



The flyer "Motor &  
Position Feedback"  
can be found at  
[www.siko-global.com](http://www.siko-global.com)

- Real-time detection of motor feedback on linear motors
- Ensuring high control quality in dynamic processes
- Integration of open PCB solutions in small installation spaces and compact drive solutions
- Speed and angle measurement in robotics
- Speed and angle measurement even under extreme conditions (e.g., in an oil bath)

Building on our **many years of experience**, we provide our customers from the fields of **medical, analytical and laboratory technology** precise length, angle and speed measurement technology.

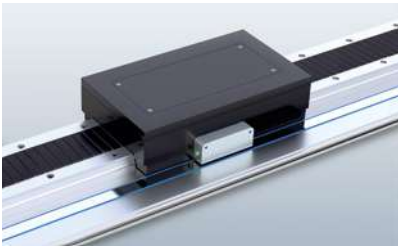


The flyer "Medical & Laboratory  
Technology" can be found  
at [www.siko-global.com](http://www.siko-global.com)

- Tomographs and X-ray equipment
- Operation tables and patient tables
- Laboratory and analytical technology
- Robotics
- Rehabilitation machines

## HIGH-PRECISION ENCODER SOLUTIONS

Even under particularly difficult environmental conditions, high-precision measurement and position detection can be reliably implemented.



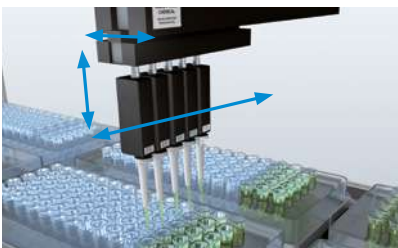
Incremental and absolute position feedback for a wide range of designs of linear motors



Use in printed circuit board production



Synchronization of the feed motors for gantry drives with a separate measuring system



Position feedback in pipetting systems (laboratory and analytical technology)

## FLEXIBLE ENCODER SOLUTIONS

MagLine successful in use – display, magnetic encoder and measuring band fit perfectly into the application.



Magnetic measurement technology as a customer-specific solution in a format circular saw



Accurate speed measurement even in demanding applications



Direct display of the measured values on a vertical panel saw

## ROBUST

### ENCODER SOLUTIONS

The systems provide reading distances of up to 20 mm and accuracy data that are also adapted to particularly long detection distances.



Monitoring of height and length adjustments even under harsh environmental conditions



MagLine encoder used in warehouse and conveyor technology

## ROTARY

### ENCODER SOLUTIONS

Extremely robust and designed for direct angle and speed detection – the applications of rotary encoder solutions benefit from the non-contact, magnetic measuring method.



Combination of encoder and bearingless magnetic ring



High-precision angle and position measurement in robotics and automation technology



Speed measurement in applications with high requirements for shock and vibration



Easy integration of the measuring system for mechanical and plant engineering



Speed and position monitoring of tire balancing systems



# Solutions

## MOBILE AUTOMATION

## ROBUST POSITION SENSORS

**Modern commercial vehicles** as we know them today are **intelligent, flexible** and **networked**. However, the requirements of robustness and longevity remain the same, SIKO provides a **wide range of position sensors**, specially and exclusively developed for mobile machines and mobile hydraulics. **Robust, reliable** and **safe**.

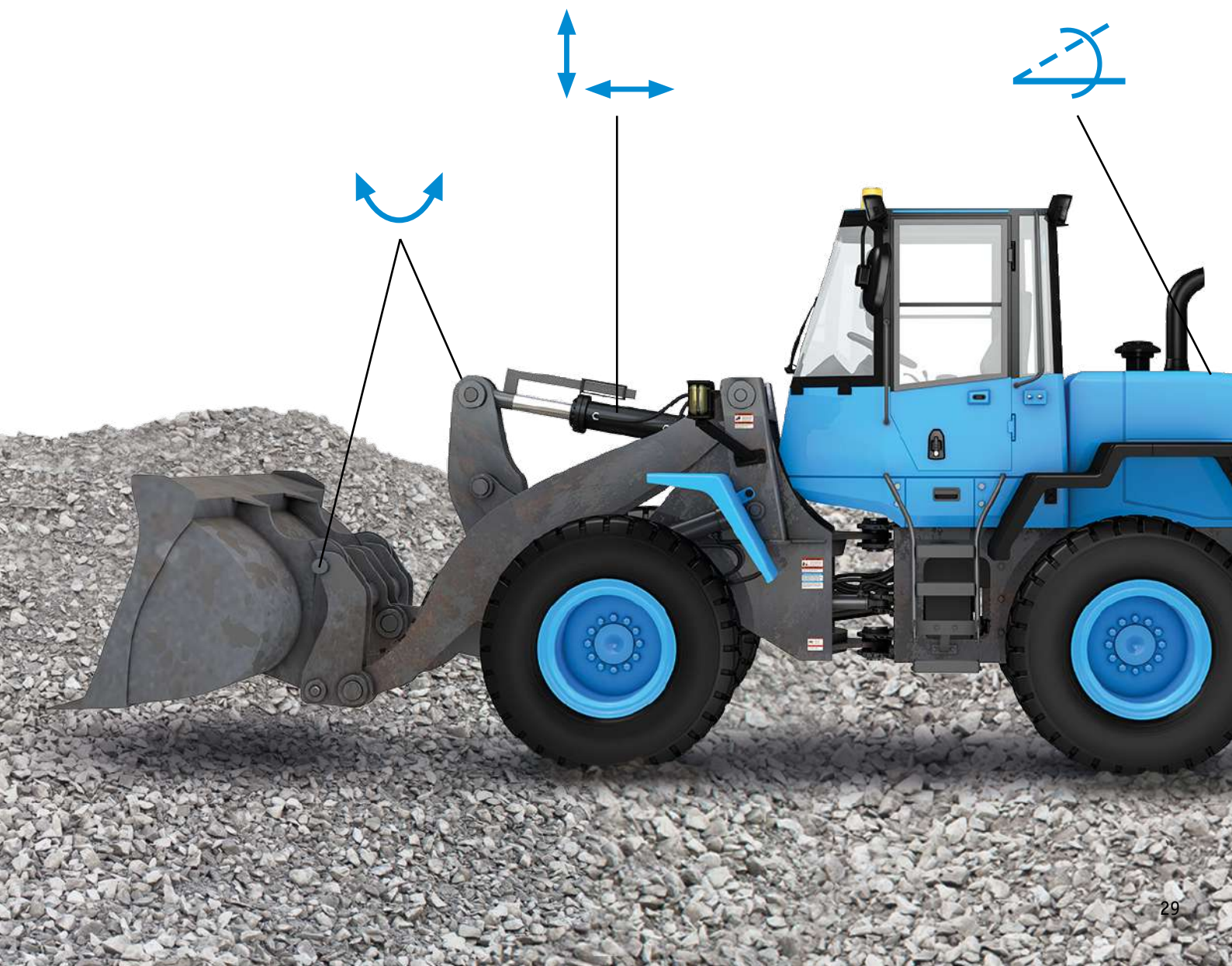


Play film

PURE.MOBILE –  
100% focus on  
mobile machines



The flyer "Construction  
machinery, crane & lifting  
technology" can be found  
at [www.siko-global.com](http://www.siko-global.com)



## CRANE & LIFTING TECHNOLOGY

### SENSOR SOLUTIONS

Regardless of whether mobile crane, lifting work platforms or telescopic loaders, crane and lifting technology always depends on secure positioning and the movement of heavy loads. Thanks to intelligent sensors from SIKO, can not only be ensured that the vehicle has secure positioning, but also operates more efficiently and consequently provides the user with added value.



Position detection of the supports by draw-wire encoders and SGH sensors for the realization of a variable support base



Safety First! Safe position sensors in lifting platforms make a significant contribution to stability.



Move heavy loads safely from A to B! Rotary encoders in tower cranes.

## CONSTRUCTION MACHINERY

### SENSOR SOLUTIONS

Construction machinery must provide maximum performance with optimum precision and efficiency as smoothly as possible. To increase this efficiency sustainably and further optimize and automate work processes, robust position sensors are required that provide the necessary data for this purpose.



Automated earth movements through intelligent position detection of the boom, stick and bucket



Heavy machines in special-purpose civil engineering require precise, reliable & safe sensors. Safety sensors from SIKO are the first choice here!



Cylinder-integrated sensors ensure optimum leveling and automated blade positioning in bulldozers

## INDUSTRIAL TRUCKS & AGV

### SENSOR SOLUTIONS

Intralogistics is an important component of global supply chains. To keep the logistics chains running around the clock, smart sensors are needed for industrial trucks as well as AGVs and mobile platforms. SIKO provides a wide range of sensors for rotary and linear position detection as well as speed and inclination detection for this purpose.



Draw-wire encoders and cylinder-integrated sensors for detecting the fork position on the lifting frame of forklift trucks



Speed and direction detection on driverless transport systems (AGV/AGC) with innovative bearingless rotary encoders

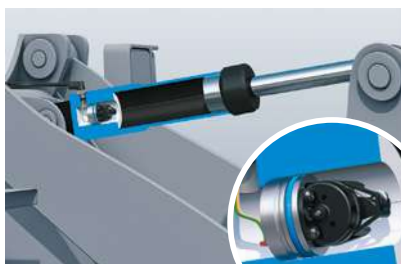


Absolute and reliable steering angle detection up to safety level PLd on reach stackers

## POSITION SENSORS

### FOR HYDRAULIC CYLINDERS

SGH technology converts hydraulic cylinders and telescopic cylinders into "smart cylinders" used for lifting in commercial vehicles (construction machines, agricultural machines, municipal machines, forestry machines, airfield vehicles). And this with a design and operating principle that is unique in the world.



Integrated stroke and speed detection for hydraulic cylinders. Regardless of whether in mechanical engineering or



Safe positioning of hydraulic cylinders, even under the most adverse conditions



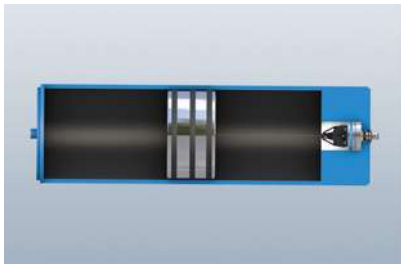
Smart SGH sensors detect the wear of hydraulic systems. This enables predictive maintenance, even today!



## POSITION SENSORS

### FOR PISTON ACCUMULATORS

The condition monitoring of piston accumulators is a crucial factor of machine availability and safety. Position sensors of the SGH series can be mounted in a space-saving and efficient manner in the gas or oil area of the piston accumulator and detect important operating states such as the filling quantity of the piston accumulator.



Integrated fill level monitoring of piston accumulators thanks to SGH sensors



Position and fill level monitoring in hydraulic systems contribute significantly to overall safety!



Piston accumulators become intelligent thanks to sensors and are an important component of energy hybrid systems in mobile machines

## PURE.MOBILE

### 100% FOCUS ON MOBILE MACHINES

Unlike a sensor from the industry, which is only adapted for commercial vehicles, for example, a position sensor from the SIKO technology platform PURE.MOBILE has been designed and developed 100% for the acquisition

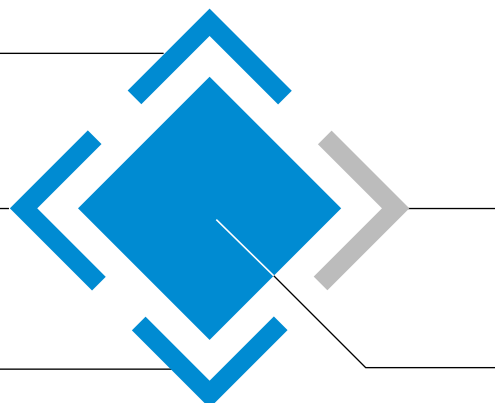
of measured values in commercial vehicles. PURE.MOBILE does not stand for a special product line, but describes several **quality features** that a sensor marked with PURE.MOBILE technology must fulfill.



All sensors are also available in a safe variant up to performance level d (PLd).

Protection categories up to IP6K9K and extended temperature range.

High EMC compatibility as well as shock and vibration resistance.



Expandable and configurable thanks to the flexible modular principle.

Designed and developed 100% for position detection in mobile machines.

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### Website with download area

PDF files and program routines for our programmable devices are available on the SIKO homepage. You can find them at **[www.siko-global.com](http://www.siko-global.com)**:

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- Catalogs
- Manuals
- User information
- Integration Files
- 3D design files
- Product films
- Distributor directory
- Programming software
- And lots more



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#### The advantages are:

- Native and neutral data formats, suitable for your CAD system
- Preview function and direct download
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- 24 h access to product catalog
- Wide range of display options
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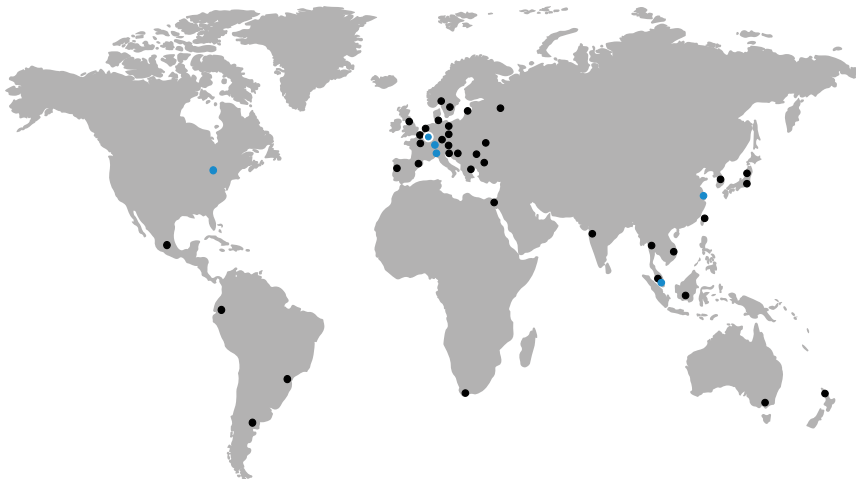
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