

# ROTA<sup>MAG</sup> Magnetic Rotary Encoders

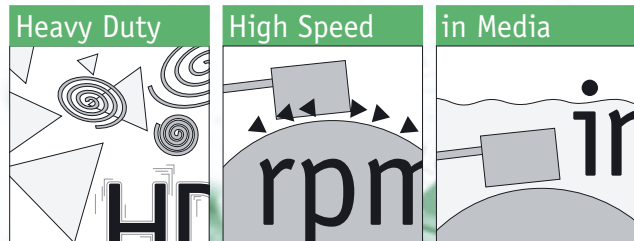
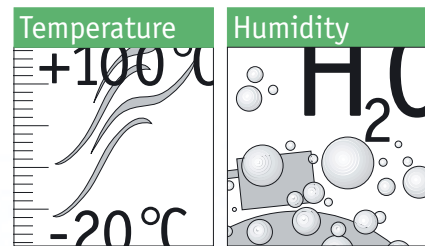
Precise measurement of  
angle of rotation, anytime –  
... unaffected  
by dirt and  
vibration



## Short profile

The ROTA<sup>MAG</sup> family of rotary encoders opens up areas of application where optical measurement of distance, angle and rotational speed may lead to incorrect results. ROTA<sup>MAG</sup> encoders are based on an indestructible magnetic scanning technology, which combines decisive advantages:

- Particularly high shock, vibration, and temperature resistance
- Absolutely insensitive to oil, lubricants, dirt and water
- Wear- and maintenance-free sensor unit
- Optional encapsulation of electronics enables its use also in the oil bath
- ROTA<sup>MAG</sup> is universally applicable owing to different hollow and solid shaft versions
- Compact design thanks to a highly integrated sensor unit



# Magnetic rotary encoders – precise, tireless, and extremely reliable.

Time for a new generation, time for new standards!

Magnetic or optical? Under extreme industrial condition there is only one choice: SIKO's ROTAMAG .

With unprecedented reliability and precision, this SIKO development uses the fascinating advantages of a technology that is based on the varying pole forces of magnetism and is, therefore, not dependent on free sight or tidiness of the system.

Resolution, scanning accuracy and sturdiness of these compact measuring systems open new areas of application that go far beyond those possible with optical rotary encoders.

The high integration density of the device and its adjustment to established standards allow easy replacement of previously used encoders.

## That's how the technology works:

Rotary movements of shafts or spindles are transmitted to a special electronic sensor system (2) via a magnetic ring (1) attached to the hollow or solid shaft. The pole division magnetised on the magnetic ring is transformed by a purpose-designed translation module into up to 2560 pulses per revolution. The incremental counting pulses are provided as a square-wave signal and can, therefore, be interpreted by any counting electronics. Furthermore, the sealing of the electronic components permits their safe use even in fluid media.

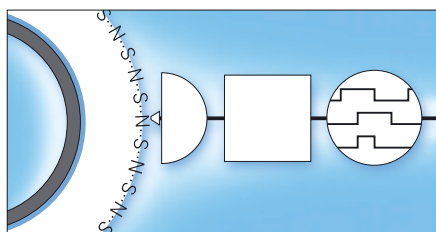
The high integration density of the device and its adjustment to established standards allow easy replacement of previously used encoders.

This technology is intended for operating environments where dirt and humidity prevail or where vibrations caused by the machinery make precise working difficult. The contactlessly measuring rotary encoders are nearly universally usable – even in combination with aggressive solutions such as salt water or in temperature-regulated oily environments.

In many industrial sectors, including food or packing industries, energy production or wood processing, passenger transport or in the complete area of mechanical engineering: the limits of optical measuring systems are insurmountable due to their inherent principle.

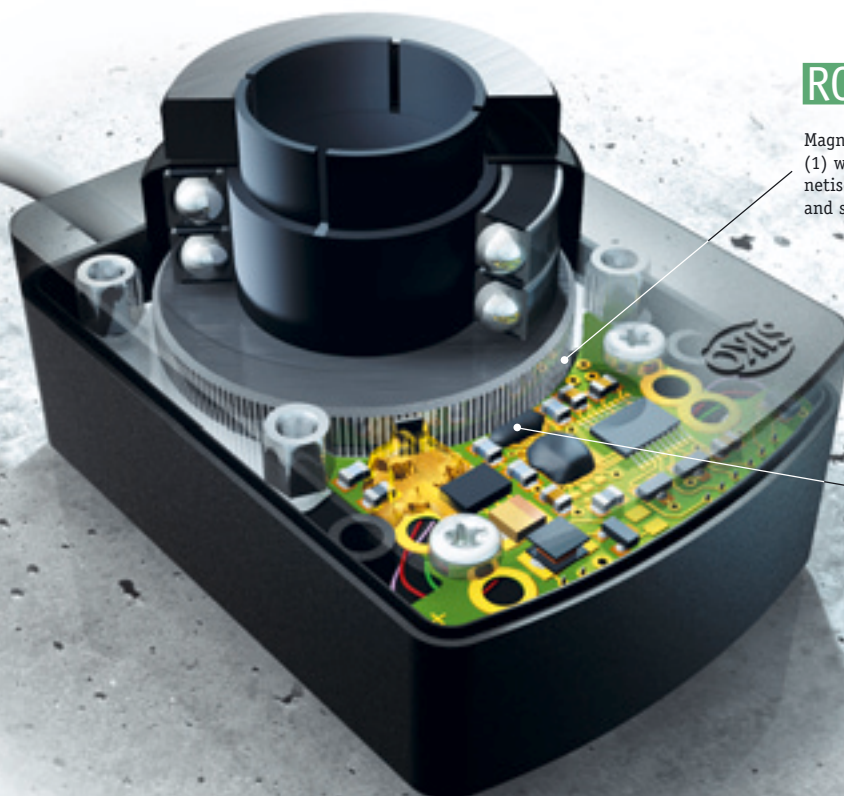
In contrast, SIKO's magnetic systems are in top form for these applications.

**The signal path:** A sensor scans the north and south poles of the specially magnetized ferrite ring and generates



pulses that are processed real-time and provided as digital signals.

Digital output signal (3)



## ROTA<sup>MAG</sup>

Magnetic ring (1) with magnetised north and south poles

Sensor (2) with following real-time processing

Extreme vibrations as well as humid, caked abrasion make measurement control in rough wood processing difficult.



Abrasion, a fatty-greasy environment, temperature fluctuation as in lift technology or vibrations from punching or pressing machines that weigh many tons are no problem for the ROTAMAG.



Scanning the measuring value under highly dynamic conditions: Balancing wheels involves a greasy environment full of micronised dust.

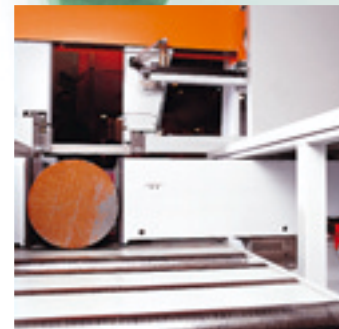


Many food production processes are accompanied by humidity, temperature fluctuation and aggressive cleaning agents.

“When you plane, you get shavings.” Together with dust and abrasion and in combination with humidity, lubricants, vibration and temperature, these shavings are an absolute “killer environment” for constantly precise measurements. SIKO presents its new ROTAMAG magnetic measuring technology for rotary encoders, which guarantees consistent production safety in all border areas of industrial production.

industries should not be underestimated. Here, maintenance-free operation and reliability in a rough competitive environment are indispensable. Where else are so many applications interconnected, which all require similarly high and reliable production quality?

Therefore, the magnetic ROTAMAG rotary encoders are ideal for applications such as...



Vibrations, refrigerants and lubricants determine the atmosphere for metal-cutting saws.

## Magnetic measurement Heavy-duty industrial applications... – clear advantage

Everybody understands the difficult conditions

of stone working or tunnelling. However, the parallel in wood or metal processing

- Sheet metal processing with punching and deformation techniques
- Lifting techniques
- Offshore environments
- Packaging and food industries
- Chemical-pharmaceutical industries
- Energy production (e.g., wind generators)
- Wherever precise measurement is required under difficult conditions

# Main areas of application

Versatile, simple and always ready: SIKO's ROTAMAG rotary encoders

## Environmental conditions

## Functioning

## Advantages

### Humidity



Insensitive to humidity, since the scanning principle does not require visual contact.

- No mounting precautions necessary with regard to protection from humidity



e.g., metal-cutting saws, food production, car washes, stoneworking ...

### Shock and vibration



Indestructible: The components used are unbreakable; there is no glass pane as known from optical encoders, all components are safely integrated.

- High reliability
- No complicated mechanical uncoupling necessary



e.g., pressing and punching machines, construction equipment, lifts, rough wood processing...

### Fluctuation of climate



Absolutely safe operation with condensation due to rapid changes of temperature or icing up of components in free-standing installations.

- High operational safety
- Maintenance-free



e.g., cranes, forklifts, wind generators, ski lifts...

### Dirt



The encapsulated housing as well as scanning without sight and contact make the technique robust against invading particles.

- High operational safety
- no additional precautions necessary



e.g., wood processing, construction equipment, tunnel advance ...