

# ***Magnet Rings***

with incremental coding for rotative measurement



- Interpolation up to 22800 pulses/revolution possible
- Direct assembly on axes possible (e. g. motor shaft)
- Contactless and wear free measurement principle
- Applicable in roughest environments
- Vibration- and shock-resistant

# Magnet Rings - with incremental coding for rotative measurement

## General:

All the advantages of the magnetic measuring principle can be used for rotary movements by using magnet rings e.g. revolutions -, angular- or circumferential measurements. The magnetic rings are a wear-free and space-saving alternative to optical rotary encoders and are insensitive against dirt, dust, liquids and vibrations.

For scanning the magnetic rings, ELGO's incremental measuring systems of the product series GMIX, LMIX and EMIX, as well as the incremental position indicators IZ14/IZ15/IZ16 can be used.

The ring - provided with a magnetic code (north/south poles) - is scanned contactless with a magnetic sensor.

At present three different standard magnet ring sizes are available (on request customized versions are possible):

1. **Large:** outer  $\varnothing$  72 mm, inner  $\varnothing$  54 mm, width = 7 mm
2. **Medium:** outer  $\varnothing$  38 mm, inner  $\varnothing$  31 mm, width = 6.5 mm
3. **Small:** outer  $\varnothing$  19.75 mm, inner  $\varnothing$  14.7 mm, width = 4.1 mm



The magnetic rings are available in three different versions and are selected depending on the measuring system used:

- 5 mm pole width (for GMIX and LMIX sensors)
- 2 mm pole width (for EMIX and RMIX2 sensors)
- 2.5 mm pole width (for incremental position indicators IZ14/IZ15/IZ16) (only available with outer  $\varnothing$  of 38 mm)

## Mounting on an Axis or Shaft:

The magnetic ring can be mounted on the axle or shaft either as a thermal fit or by bonding.

**Recommended Adhesive:** For bonding the magnetic ring on the shaft, we recommend the use of Loctite AA 326 adhesive with pre-treatment with Loctite 7649 activator.

## Installation with sensor head:

Just like when using magnetic tape, make sure that the active sensor area - taking the radius of the magnetic rings into account - is within the prescribed distance to the magnetic ring. Mounting instructions can be found in the different manuals of the measuring systems.

## Applications:

Rotative or angular measurements like revolutions, speed, angles, drafts etc.



Example: Angle adjustment with smallest magnet ring



Magnet ring with EMIX1 measuring system

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### Technical specifications:

System accuracy at 20°C	< ± 1 %		
Total error	< 0.15 ° (standard) / < 0.007 ° (special applications)		
Material	Hard ferrite 8/22 according to DIN 17410, sintered isotrop		
<b>Pole width</b>	<b>2 mm</b>		
<b>Systems</b>	<b>EMIX1/2/3 and RMIX2</b>		
Magnetic Rings	MR2030	MR3860	MR72114
Outer Ø in mm	19,75 (- 0.05)	38 (- 0.1)	72 (± 0.05)
Inside Ø in mm	14,7 (+0.2/- 0.15)	30 (± 0.5)	54 (± 0.8)
Width in mm	4,1 (+ 0.05)	6,5 (± 0.05)	7 (± 0.1)
Number of poles (P)	30	60	114
Interpolation factor (IF)	200		
max. pulse/r = IF x P	6000 (MR2030) 12000 (MR3860) 22800 (MR72114)		
<b>Pole width</b>	<b>2,5 mm</b>		
<b>Systems</b>	<b>IZ14/15/16</b>		
Magnetic Rings	MR3848		
Outer Ø in mm	38 (- 0.1)		
Inside Ø in mm	30 (± 0.5)		
Width in mm	6,5 (+ 0.05)		
Number of poles (P)	48		
Interpolation factor (IF)	250		
max. pulse/r = IF x P	12000 (MR3848)		
<b>Pole width</b>	<b>5 mm</b>		
<b>Systems</b>	<b>GMIX2</b>	<b>LMIX1/2/3</b>	<b>GMIX1A</b>
Magnetic Rings	MR2012	MR3824	MR7244
Outer Ø in mm	19,75 (- 0.05)	38 (- 0.1)	72 (± 0.05)
Inside Ø in mm	14,7 (+0.2/- 0,15)	30 (± 0.5)	54 (± 0.8)
Width in mm	4,1 (+ 0.05)	6,5 (± 0.05)	7 (± 0.1)
Number of poles (P)	12	24	44
Interpolation factor (IF)	2	200	500
max. pulse/r = IF x P	24 (MR2012) 48 (MR3824) 88 (MR7244)	2400 (MR2012) 4800 (MR3824) 8800 (MR7244)	6000 (MR2012) 12000 (MR3824) 22800 (MR7244)

## Order reference:

For orders, please use the following order code:

MR -       
    A A A A

### A Format

MR2012

MR3824 (for LMIX and GMIX) pole width 5 mm  
MR7244

MR2030

MR3860 (for EMIX and RMIX2) pole width 2 mm  
MR72114

MR3848 (for IZ14/IZ15/IZ16) pole width 2.5 mm

Currently, 3 mechanical versions are available:

(when using reducing rings are also smaller inner diameters are possible)

1. big: outside Ø 72 mm  
    inside Ø 54 mm  
    width 7 mm
2. medium: outside Ø 38 mm  
    inside Ø 30 mm  
    width 6.5 mm
3. small: outside Ø 19.7 mm  
    inside Ø 14.7 mm  
    width 4.1 mm

### For Example:

MR - 7 2 4 4  
    A A A A

Magnetic ring with 72 mm's diameter, pole width 5 mm, pole number = 46, Type designation: **MR7244**, assembled with LMIX1 (interpolation factor 200), the max. number of pulses results from IF X P:  $200 \times 44 = 8800$  pulses.

Your order:

MR -       
    A A A A

