

Nonius

Absolute Magnetic Rings

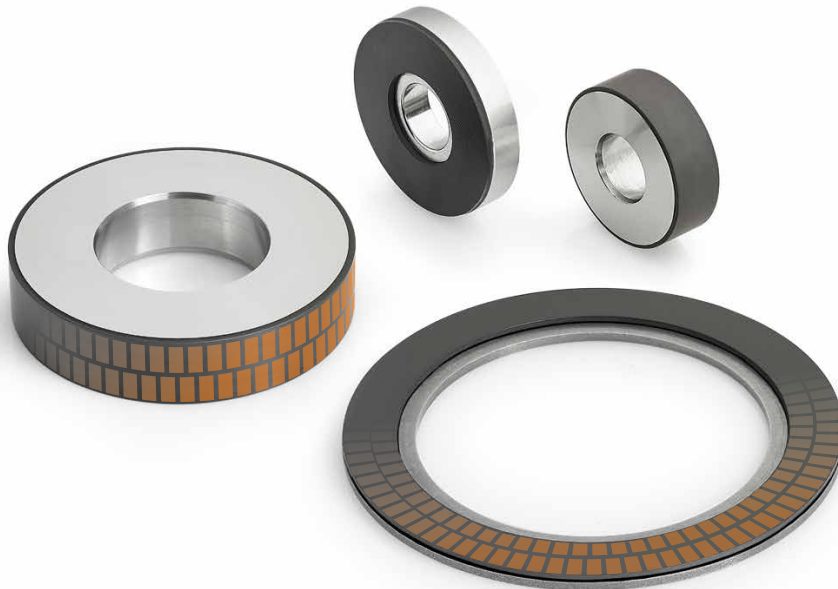
The robust RLS radial and axial magnetic rings consist of an elasto-ferrite layer which is bonded to a steel hub. The elasto-ferrite layer is magnetised with Nonius magnetisation with different pole lengths and different numbers of magnetic periods.

The magnetic rings operate in a temperature range from -40 °C to +85 °C and can be installed by gluing or press-fitting.

HIGH QUALITY
MAGNETISATION

EASY TO
MOUNT

EXCELLENT
PRICE
PERFORMANCE
RATIO



Features and benefits

- ▶ Non-contact technology
- ▶ High speed operation
- ▶ Compatible with existing Nonius sensors and readheads
- ▶ High quality materials
- ▶ Installation by gluing or press-fitting
- ▶ Excellent resistance to dirt and dust
- ▶ High precision machining



COLLABORATIVE ROBOTS



AGVs



GIMBALS



ROBOTIC JOINTS



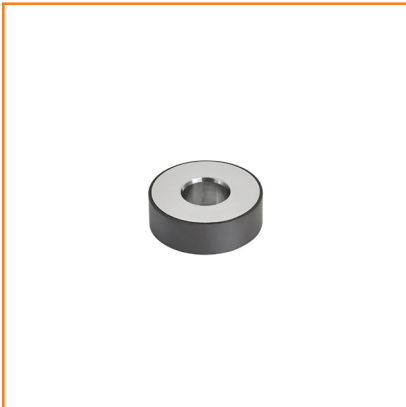
AGRICULTURAL
AUTOMATION

General information

RLS Nonius magnetic rings are available in two radial and two axial sizes.

Choose your Nonius absolute magnetic ring

Radial Nonius absolute magnetic rings



MRN025



MRN051

Axial Nonius absolute magnetic rings



MRN030



MRN064

Storage and handling

Storage temperature



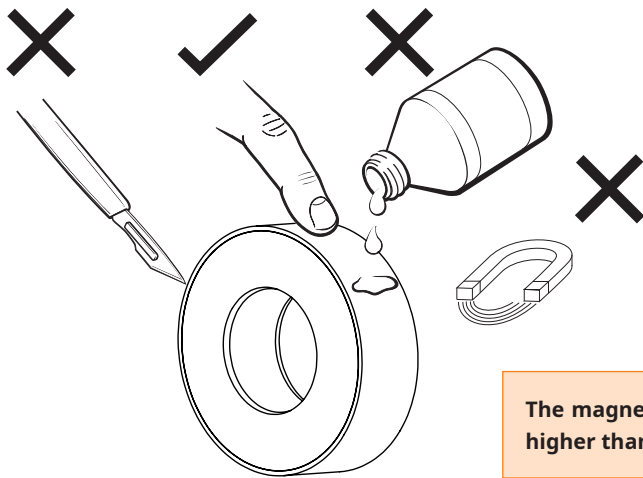
-40 °C to +60 °C

Operating temperature



-40 °C to +85 °C *

* If wider temperature range is required, please [contact RLS](#).



The magnetic ring should not be exposed to magnetic field densities higher than 50 mT on its surface, as this can damage the ring.

Packaging

Nonius magnetic rings are packed individually in an antistatic box.

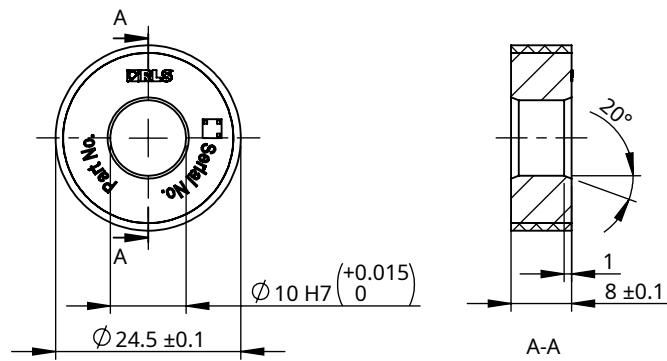
Dimensions and installation drawings

Dimensions and tolerances are in mm.

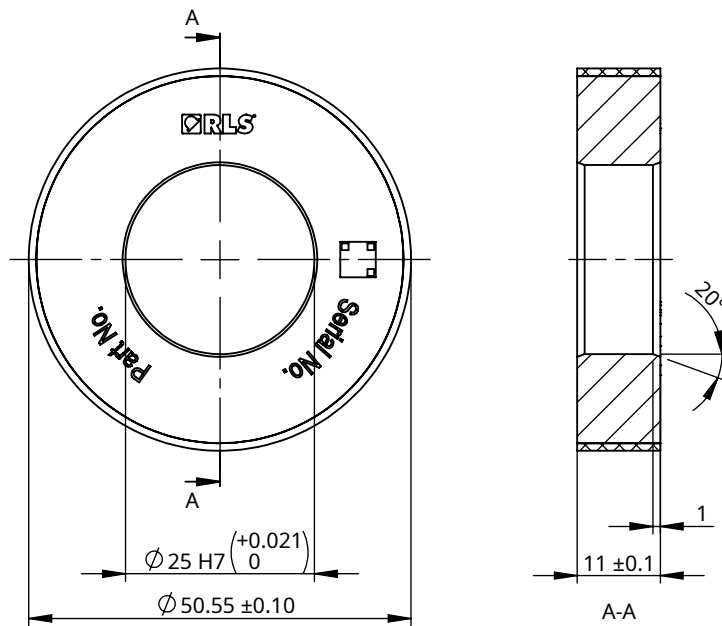
Radial magnetic rings

Master track is on the side with engraved markings.
Nonius track is on the side without engraving.

MRN025



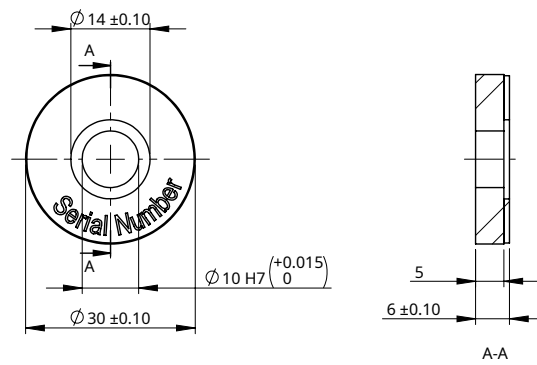
MRN051



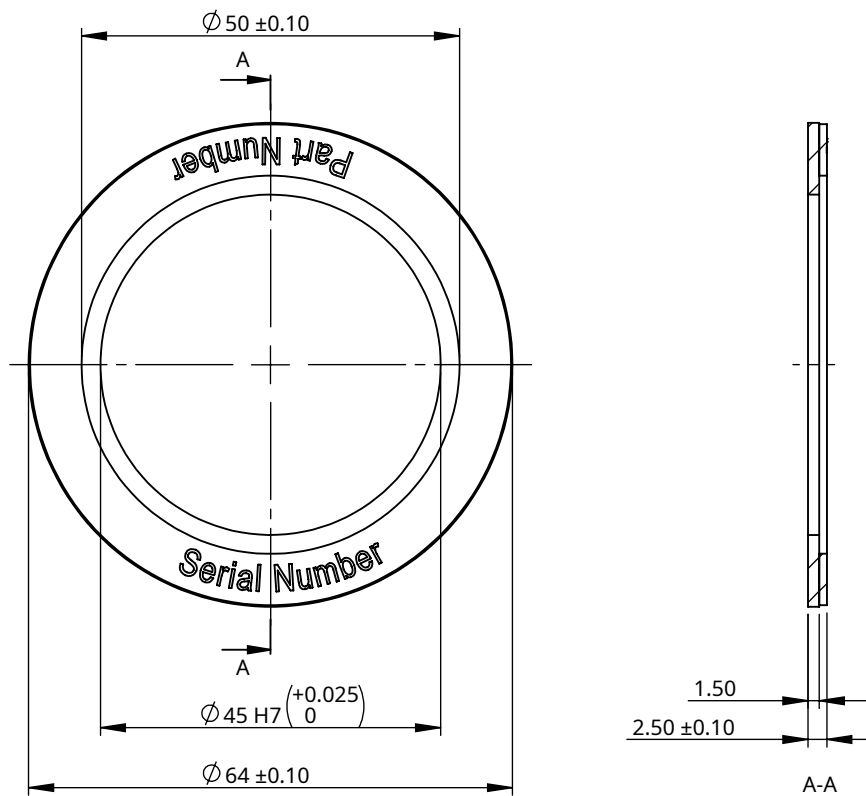
Axial magnetic rings

Master track is on the outside of the ring.
Nonius track is on the inside of the ring.

MRN030



MRN064



Technical specifications

System data	MRN025	MRN051	MRN030	MRN064
Magnetic periods	32/31	64/63	32/31	64/63
Pole length (mm)	1.28	1.28	1.28	1.50
Radius at defined pole length (mm)	13.04	26.08	13.03	30.56
Maximum speed (RPM)	7,000	4,000	12,000	10,000
Magnetic field density 550 μm from ring surface (mT)	30 \pm 5	30 \pm 5	25 \pm 5	25 \pm 5

Mechanical data	MRN025	MRN051	MRN030	MRN064
Hub material	EN 1.4057	EN 1.4057	EN 1.4057	EN 1.4016
Inner diameter (mm)	10	25	10	45
Outer diameter (mm)	24.5	50.55	30	64
Height (mm)	8	11	6	2.5
Mass (g)	23	121	26	22
Moment of inertia (kgm ²)	2.0 \times 10 ⁻⁶	47.0 \times 10 ⁻⁶	3.4 \times 10 ⁻⁶	16.2 \times 10 ⁻⁶

Environmental data

Temperature	Operating	-40 °C to +85 °C *
	Storage	-40 °C to +60 °C

* If wider temperature range is required, please **contact RLS**.

Installation instructions

Machine the mounting shaft according to the dimensions given in the table below:

Magnetic ring	Shaft outer diameter (Ds) for gluing (mm)	Shaft outer diameter (Dsp) for press-fit method (mm) *
	MRN025	10 g6 $\left(\begin{smallmatrix} -0.005 \\ -0.014 \end{smallmatrix}\right)$
MRN051	25 g6 $\left(\begin{smallmatrix} -0.007 \\ -0.020 \end{smallmatrix}\right)$	25 r6 $\left(\begin{smallmatrix} +0.041 \\ +0.028 \end{smallmatrix}\right)$
MRN030	10 g6 $\left(\begin{smallmatrix} -0.005 \\ -0.014 \end{smallmatrix}\right)$	
MRN064	45 g6 $\left(\begin{smallmatrix} -0.009 \\ -0.025 \end{smallmatrix}\right)$	

* Valid for steel with typical properties $\rho=7850 \text{ kg/m}^3$, $E = 210 \text{ kN/mm}^2$, $R_{p0.2} = 500 \text{ N/mm}^2$, $\alpha = 1.1 \times 10^{-5} \text{ K}^{-1}$ with coefficient of friction $\mu = 0.3$, under operating conditions $a_{\text{max}} = 20,000 \text{ rpm/s}$, temperature from -40 °C to $+85 \text{ °C}$ and shaft surface roughness Ra 0.8.

Part numbering

	MRN	025	C	B	010	A	A	00
Series	MRN - Nonius magnetic ring							
Outer diameter	025 - 24.50 mm 030 - 30 mm 051 - 50.55 mm 064 - 64 mm							
Cross section	A - Axial, height 2.5 mm B - Axial, height 6 mm C - Radial, height 8 mm D - Radial, height 11 mm							
Magnetisation	B - 32/31 pole pairs, 1.28 mm magnetic pole length C - 64/63 pole pairs, 1.28 mm magnetic pole length F - 64/63 pole pairs, 1.50 mm magnetic pole length							
Inner diameter	010 - 10 mm 025 - 25 mm 045 - 45 mm							
Material	A - Stainless steel hub with bonded rubber tape (-40°C to +85°C)							
Packaging	A - Individual packaging							
Special requirements	00 - No special requirements (standard)							

Table of available combinations

Series	Outer diameter	Cross section	Magnetisation	Inner diameter	Material	Packaging	Special requirements
MRN	025	C	B	010	A	A	00
	030	B					
	051	D	C	025			
	064	A	F	045			

Accessories



Magnet viewer
MM0001

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Global support

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