

Nonius

Absolute Magnetic Rings

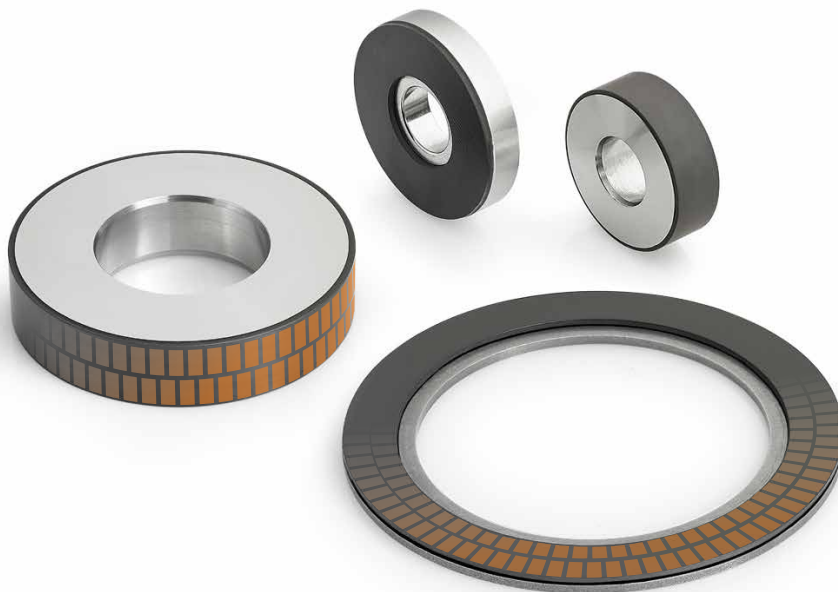
The robust RLS radial and axial magnetic rings consist of an elasto-ferrite layer which is bonded to a steel hub. The elasto-ferrite layer is magnetised with Nonius magnetisation with different pole lengths and different numbers of magnetic periods.

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



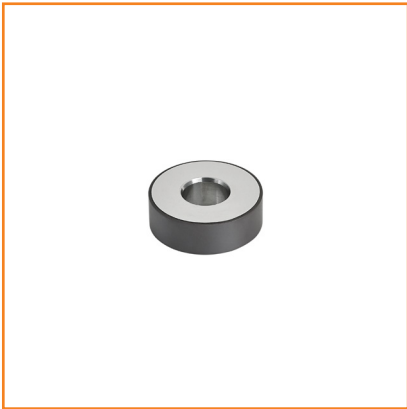
AGRICULTURAL
AUTOMATION

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

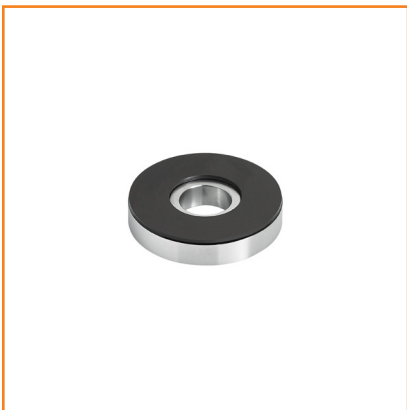


MRN025



MRN051

Axial Nonius absolute magnetic rings



MRN030



MRN064

Storage and handling

Storage temperature



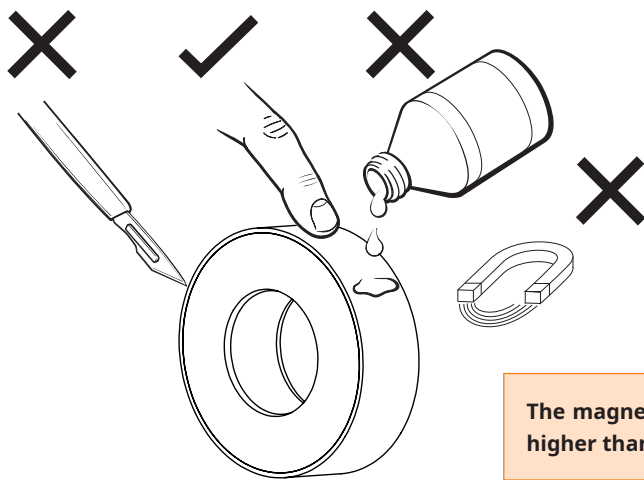
–40 °C to +60 °C

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

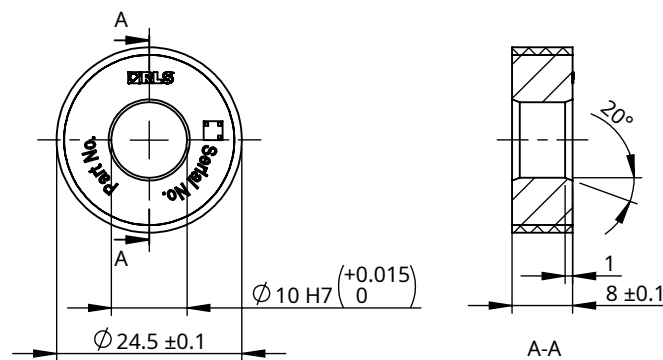
Dimensions and tolerances are in mm.

Radial magnetic rings

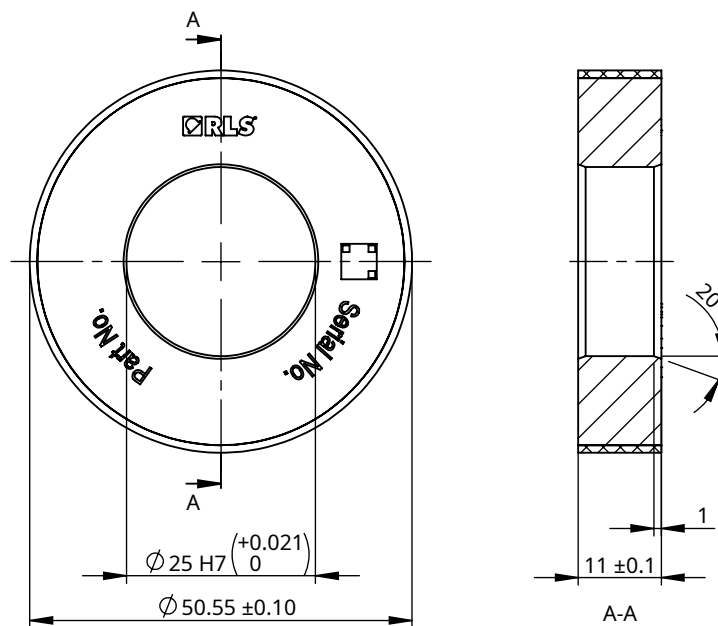
Master track is on the side with engraved markings.

Nonius track is on the side without engraving.

MRN025



MRN051

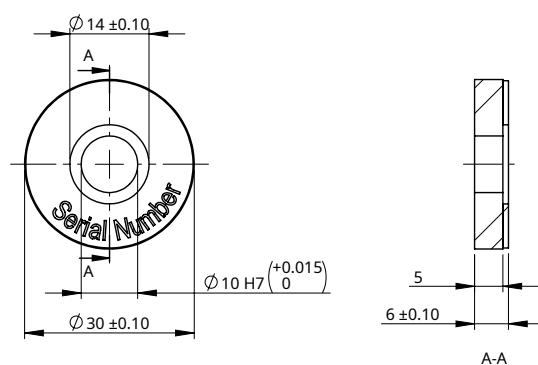


Axial magnetic rings

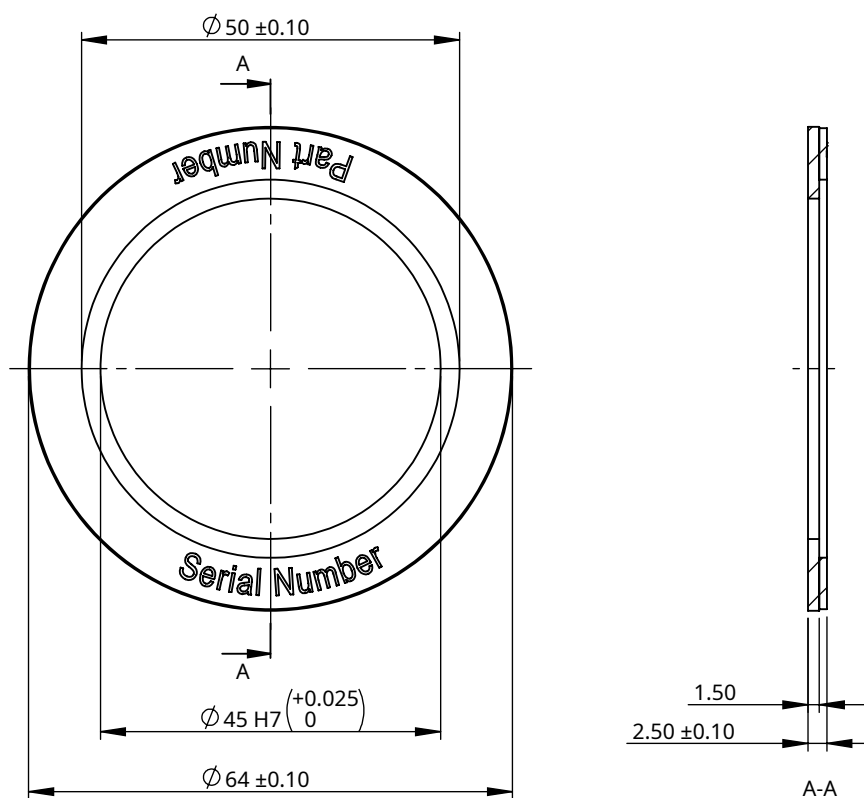
Master track is on the outside of the ring.

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)	Shaft outer diameter (Dsp)
	for gluing (mm)	for press-fit method (mm) *
MRN025	10 g6 $\begin{pmatrix} -0.005 \\ -0.014 \end{pmatrix}$	10 $\begin{pmatrix} +0.028 \\ +0.021 \end{pmatrix}$
MRN051	25 g6 $\begin{pmatrix} -0.007 \\ -0.020 \end{pmatrix}$	25 r6 $\begin{pmatrix} +0.041 \\ +0.028 \end{pmatrix}$
MRN030	10 g6 $\begin{pmatrix} -0.005 \\ -0.014 \end{pmatrix}$	
MRN064	45 g6 $\begin{pmatrix} -0.009 \\ -0.025 \end{pmatrix}$	

* 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 °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

Head office

RLS Merilna tehnika d.o.o.

Poslovna cona Žeje pri Komendi
Pod vrbami 2
SI-1218 Komenda
Slovenia

T +386 1 5272100

F +386 1 5272129

E mail@rls.si

www.rls.si

Global support

Visit our [website](#) to contact your nearest sales representative.

This product is not designed or intended for use outside the environmental limitations and operating parameters expressly stated on the product's datasheet. Products are not designed or intended for use in medical, military, aerospace, automotive or oil & gas applications or any safety-critical applications where a failure of the product could cause severe environmental or property damage, personal injury or death. Any use in such applications must be specifically agreed to by seller in writing, and is subject to such additional terms as the seller may impose in its sole discretion. Use of products in such applications is at buyer's own risk, and buyer will indemnify and hold harmless seller and its affiliates against any liability, loss, damage or expense arising from such use. Information contained in this datasheet was derived from product testing under controlled laboratory conditions and data reported thereon is subject to the stated tolerances and variations, or if none are stated, then to tolerances and variations consistent with usual trade practices and testing methods. The product's performance outside of laboratory conditions, including when one or more operating parameters is at its maximum range, may not conform to the product's datasheet. Further, information in the product's datasheet does not reflect the performance of the product in any application, end-use or operating environment buyer or its customer may put the product to. Seller and its affiliates make no recommendation, warranty or representation as to the suitability of the product for buyer's application, use, end-product, process or combination with any other product or as to any results buyer or its customer might obtain in their use of the product. Buyer should use its own knowledge, judgment, expertise and testing in selecting the product for buyer's application, end-use and/or operating environment, and should not rely on any oral or written statement, representation, or samples made by seller or its affiliates for any purpose. EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH IN THE SELLER'S TERMS AND CONDITIONS OF SALE, SELLER MAKES NO WARRANTY EXPRESS OR IMPLIED WITH RESPECT TO THE PRODUCT, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, WHICH ARE DISCLAIMED AND EXCLUDED. All sales are subject to seller's exclusive terms and conditions of sale which, where the seller is (a) RLS Merilna tehnika d.o.o., are available at <https://www.rls.si/eng/salesterms>, (b) Renishaw, Inc., are available at <https://www.renishaw.com/legal/en/-42186>, or (c) another person, are available on request, and in each case, are incorporated herein by reference, and are the exclusive terms of sale. No other terms and conditions apply. Buyer is not authorized to make any statements or representations that expand upon or extend the environmental limitations and operating parameters of the products, or which imply permitted usage outside of that expressly stated on the datasheet or agreed to in writing by seller.

RLS Merilna tehnika d.o.o. has made considerable effort to ensure the content of this document is correct at the date of publication but makes no warranties or representations regarding the content. RLS Merilna tehnika d.o.o. excludes liability, howsoever arising, for any inaccuracies in this document. © 2021 RLS d.o.o.