TECHNICAL DATA SHEET

MyN

Neodymium magnets

1. DESCRIPTION OF PRODUCTS AND FIELDS OF APPLICATION

MyN is a range of sintered Neodymium (**NdFeB**) magnets, the solution with the highest magnetic energy density currently available on the market. Thanks to its exceptional force of attraction, **MyN** allows you to achieve maximum performance in terms of magnetic field strength, magnetic force and mechanical strength, making it ideal for high efficiency and precision applications.

Thanks to its unique characteristics, **MyN** is used in numerous industrial and technological sectors, including:

- **Automotive**: electric traction, ventilation, handling, sensors.
- **Household appliances**: motors, pumps, compressors.
- **Transportation**: railroad motors, magnetic levitation.
- **Military and Aerospace**: actuators, magnetic guidance systems.
- **Industrial Automation and Packaging**: motors, sensors, magnetic guides.
- **Electromedical**: imaging, MRI, medical equipment motors.
- **Food industry**: aseptic magnetic couplings, motors.
- **Sensors and Measurement Instrumentation**: magnetic switches, level and speed indicators.
- **Heavy mechanics**: lifting systems, magnetic bearings, magnetic levitation.

MyP Magnetica Italiana's **MyN** Neodymium magnets are made of high-quality materials, ensuring **reliable and long-lasting performance**

COMPONENT	%
$Nd_2Fe_{14}B$	88-98
Other Additives	2-12

The additives present in the alloy are designed to optimize magnetic and mechanical properties, improving resistance to demagnetization, high temperatures and corrosion.

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2. TECHNICAL SPECIFICATIONS OF MyN MATERIALS

Magnetic Properties (at 20 °C)

		Br **		HcB		BHmax	
Product	Type	*G*	*mT*	*Oe*	*kA/m*	*MGOe*	*kJ/m ^{3}*
N 28	SH, UH, EH, AH	≥ 9000	≥ 900	≥ 8500	≥ 670	≥ 24	≥ 190
N 29	SH, UH, EH, AH	≥ 9800	≥ 980	≥ 9500	≥ 750	≥ 26	≥ 207
N 30	SH, UH, EH, AH	≥ 10800	≥ 1080	≥ 10100	≥ 804	≥ 28	≥ 223
N 33	SH, UH, EH, AH	≥ 11400	≥ 1140	≥ 10600	≥ 844	≥ 31	≥ 247
N 35	0, M, H, SH, UH, EH, AH	≥ 11700	≥ 1170	≥ 10900	≥ 867	≥ 35	≥ 263
N 38	0, M, H, SH, UH, EH	≥ 12200	≥ 1220	≥ 11300	≥ 899	≥ 36	≥ 287
N 40	0, M, H, SH, UH, EH	≥ 12600	≥ 1260	≥ 11400	≥ 907	≥ 38	≥ 302
N 42	0, M, H, SH, UH	≥ 12900	≥ 1290	≥ 11500	≥ 915	≥ 40	≥ 318
N 45	0, M, H, SH	≥ 13300	≥ 1330	≥ 11600	≥ 923	≥ 43	≥ 342
N 48	0, M, H	≥ 13700	≥ 1370	≥ 11600	≥ 923	≥ 46	≥ 366
N 50	0, M	≥ 14000	≥ 1400	≥ 10000	≥ 796	≥ 48	≥ 382
N 52	0	≥ 14200	≥ 1420	≥ 10000	≥ 796	≥ 50	≥ 398

Type	HcJ		MAX Working T
	Oe	*kA/m*	*°C*
0	≥ 12000	≥ 955	80
M	≥ 14000	≥ 1114	100
H	≥ 17000	≥ 1353	120
SH	≥ 20000	≥ 1595	150
UH	≥ 25000	≥ 1990	180
EH	≥ 30000	≥ 2388	200
AH	≥ 35000	≥ 2786	220

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Physical Properties (at 20 °C)

Durezza	Specific Weight (± 0.1%)	Temperature Coefficient		Working Temperature	Curie Temperature
Hv	*g/cm³*	*Δ Br/ ΔT (%/ °C)*	*Δ JHc/ ΔT (%/ °C)*	*(°C)*	*(°C)*
550-570	7.4	.- (0.095-0,12)	-(0.45-0,70)	-20 / (80) 220	310
	7.6	(20-150 °C)	(20-150 °C)		380

3. HANDLING

MyP Magnetica Italiana's **MyN** Neodymium magnets are high-performance magnetic materials, extremely powerful and subject to special handling precautions.

- **High magnetic strength**: neodymium magnets are much stronger than ferrite and can violently attract each other or metal surfaces, risking crushing one's fingers or breaking the magnet.
- **Brittleness**: Despite being metallic, neodymium magnets are brittle due to their crystalline structure and can chip or break when subjected to impact.
- **Corrosion sensitivity: MyN neodymium magnets** must be protected by coatings (nickel, zinc, epoxy resin) to prevent oxidation and degradation over time.
- **Non infiammabili**, ma sensibili a temperature elevate: sopra i **150-200°C**, i magneti in neodimio possono perdere irreversibilmente parte della loro magnetizzazione.
- **Normative di sicurezza**: i magneti in neodimio in **neodimio MyN** rispettano le normative **REACH (Regolamento CE 1907/2006)** e **RoHS (direttiva 2011/65/UE e successivi aggiornamenti)**, relative alla restrizione dell'uso di sostanze pericolose.

Precautions for use

- Handle magnets with protective gloves, avoiding sudden attraction to each other or to other ferromagnetic objects.
- Avoid contact with electronic devices (e.g. hard drives, credit cards, pacemakers), as the strong magnetic field can damage them.
- Keep out of reach of children to avoid extremely dangerous accidental ingestions.

For further details, MyP Magnetica Italiana S.r.l. refers to the relevant **Safety Data Sheet for Neodymium Magnets (MyN)**.

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4. STORAGE

MyN neodymium magnets require special attention for the correct storage and preservation of their magnetic properties:

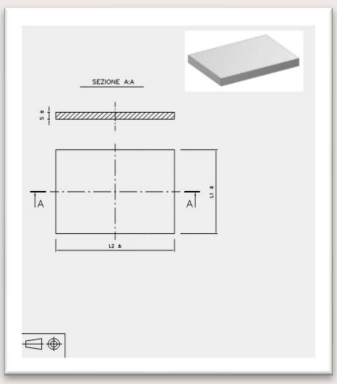
- **Avoid moisture**: NdFeB magnets are prone to corrosion; therefore, they should be stored in a **dry environment** and, if possible, with an effective protective coating.
- **Maintain a controlled temperature**: avoid temperatures above **60°C**, which can accelerate oxidation or cause permanent loss of magnetization.
- **Separate magnets with spacers**: very strong magnets should be kept separate from each other to avoid sudden attractions that could cause breakage or difficulty in handling.
- **Keep away from sensitive equipment**: due to their high magnetic strength, it is recommended to store NdFeB magnets away from **hard drives, measuring instruments, LCD screens and pacemakers**.
- **Protect from ferromagnetic dust**: metal dust can stick to magnets and make it difficult to handle them.

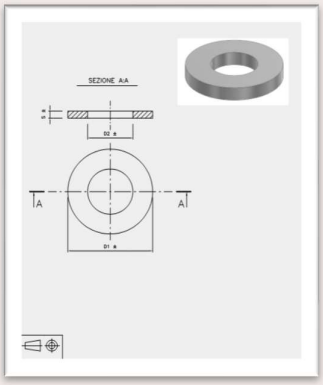
By following these guidelines, you will ensure a **long service life and maximum efficiency** of **MyN** neodymium magnets.

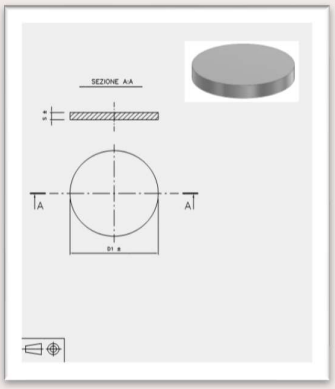
5. SHAPES AND SIZES

Thanks to the **melting and sintering processes**, NdFeB magnets can be **made into complex and tailor-made shapes**.
The standard shapes are: parallelepipeds, rings, rods.

1DIMENSIONAL TOLERANCES **







DESCRIPTION			
	S [mm]	D1 [mm]	D2 [mm]
TOLERANCES + -	0,15	0,10	0,10

Thanks to our partnership with a Chinese manufacturer, MyP Magnetica Italiana is able to supply NdFeB magnets of all types of shapes and sizes.

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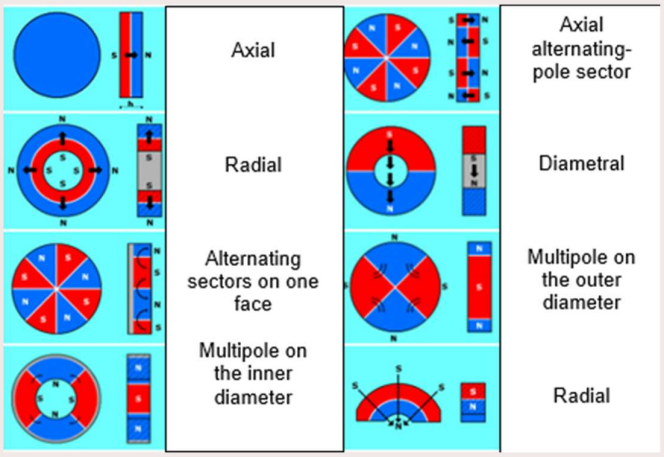
6. MAGNETIZATION

MyN neodymium magnets can be magnetized in different ways depending on the application. Due to their **high coercivity and magnetization intensity**, they allow for a greater variety of configurations than ferrite.

However, once produced, **they cannot be easily remagnetized or demagnetized** without the use of extremely high magnetic fields. The main magnetization configurations are:



AXIAL MAGNETIZATION

Description: The magnetic field is oriented along the main axis of the magnet (from top to bottom).
Applicazioni: Magneti cilindrici, dischi e blocchi utilizzati in **motori elettrici, sensori, altoparlanti e attuatori**.

DIAMETRAL MAGNETIZATION

Description: The magnetic field is oriented along the diameter of the magnet, with the poles located on opposite sides.
Applications: Circular magnets for **stepper motors, magnetic couplings and non-contact transmissions**.

MULTIPOLAR MAGNETIZATION ON FLAT SURFACE

Description: The magnetization takes place on a flat surface with several alternating magnetic poles (North and South).
Applications: High-performance magnetic strips and sheets, magnetic rollers, clamping systems and separating devices.

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MULTIPOLAR MAGNETIZATION ON CYLINDRICAL SURFACE

Description: The magnetization is distributed alternately along the circumference of a cylinder.
Applications: Mainly used in **brushless motors, magnetic encoders and precision generators**.

RADIAL MAGNETIZATION

Description: The magnetic field develops from the center outwards or vice versa along the radius of the magnet.
Applications: Magnetic rings for **synchronous motors, high-performance magnetic couplings and aerospace applications**.

CUSTOM MAGNETIZATION

Description: Some magnets can be magnetized with custom patterns for specific needs, such as unique magnetic codes or complex magnetic field orientations.
Applications: **High-precision magnetic encoders, magnetic levitation, advanced sensors, and biomedical devices**.

7. CUSTOMIZATION

MyN neodymium (NdFeB) magnets They can be customized to suit different industrial and commercial applications. Customization includes surface finishes, special treatments and the application of adhesives for fixing.

Surface Finishes and Special Coatings

In addition to the classic **Ni-Cu-Ni, Zn, epoxy, gold and Parylene** coatings, the magnets can be customized with:

- **Protective varnishes** to improve aesthetics and chemical resistance.
- **Special coloring** using **single-sided adhesive film** for identification or aesthetic purposes.
- **Specific treatments** to withstand particular environmental conditions (e.g. saline environments or high temperature).

Double-sided adhesive surfaces

To facilitate installation and mounting, **MyN** magnets can be supplied with **high-strength double-sided adhesives** already applied to the surface.

Characteristics of the adhesives used:
✓ **High resistance to ageing**, light and weathering.
✓ **Effective adhesion** to different materials (metal, plastic, glass, wood).
✓ **Thermal resistance** from **-20°C to +100°C**, with options up to **+150°C** for special applications.
✓ **Premium adhesives** from top brands available, with specific details provided at the offer stage.

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Thanks to these **customization options,** MyN **magnets** can be optimized for industrial, electronic, medical and design applications.

8. CUSTOMER CARE

For anything not directly reported in this Technical Data Sheet, MyP Magnetica Italiana s.r.l. makes its Commercial and Technical Offices available to advise you on the material that best suits your needs and to support new projects and/or requests.

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*The values of the parameters reported and marked with ** are guaranteed and certified by MyP Magnetica Italiana s.r.l.. Additional values can be supplied, guaranteed and certified only, and exclusively, subject to agreement with the Commercial Office of MyP Magnetica Italiana s.r.l..*

Note: what is reported in this sheet is the result of direct observations and practical experiences. However, since it is not possible to have and keep under control all the conditions and all the operating parameters at the user's premises, MyP Magnetica Italiana s.r.l. does not assume responsibility for the improper use of such information.