

- Polymer bonded hard ferrite magnets Sprox -

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- Polymer bonded hard ferrite magnets Sprox -**1. Application and purpose**

These technical terms of delivery are considered to be a drawing supplement and consequently part of the contract. All the values and agreements stated in component drawings and specifications take priority over these technical terms of delivery.

Sprox magnets are manufactured by Magnetfabrik Bonn GmbH using an injection molding process.

2. Definitions:

Not magnetized: Residual magnetism due to the production process is permitted. The scope and the testing procedure need to be agreed with the customer in individual cases.

Non-magnetic: No residual magnetism permitted. Testing with steel balls according to testing instruction No. 8.

3. Characteristic material properties

Hard ferrites are subject to a temperature coefficient of flux density and of physical coercive field strength of:

$$TK_{Br} \cong - 0.2 \% / K; TK_{HcJ} \cong + 0.4 \% / K$$

In the case of intense cooling, irreversible losses may occur due to temperature-related operating point displacements. The maximum operating temperature for Sprox magnets is $\sim +150$ °C.

Magnetized Sprox magnets have to be protected against exposure to stray magnetic fields > 80 mT (800 Gauß or 64 kA/m respectively) as these may result in a reduction in the inherent magnetization.

4. Geometrical dependency

Thin wall thicknesses have a negative impact on the pole orientation of pole-oriented injection molded Sprox magnets. The faster cooling of the molten compound in the tool and the associated increase in viscosity hinder the orientation of the ferrite particles to the poles of the magnetizing fields. Injection areas and seam lines may affect the magnetic orientation.

4.1 Minimum volumes/minimum dimensions for injection molded Sprox magnets
DIN IEC 60404-8-1 refers to the interdependency between magnetic values and the magnet geometry.

The minimum magnetic values apply only to magnets with a cross-section which remains unchanged along the axis of magnetization, with a volume of between 1 cm² and 200 cm² and with an extent of at least 8 mm in all spatial dimensions.

If these dimensions are not achieved then the maximum deviations set out below are permitted:

B_r	=	10 %	less than the minimum catalog value
H_{cB}	=	10 %	" " "
H_{cJ}	=	10 %	" " "
$(BH)_{max}$	=	15 %	" " "

5. Permitted deficiencies

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5.1 Self-chafing

Permitted within the limits of tolerance.

5.2 Shrink marks

Permitted outside of the limits of tolerance.

5.3 Waist formation

Permitted outside of the limits of tolerance.

5.4 Flash formation

≤ 0.1 mm permitted within the mold parting line and the mold venting areas.

5.5 Blow holes

Permitted provided that mechanical and magnetic requirements are not impaired.

5.6 Excess material overhanging the injection area.

5.7 Seam lines

Material-dependent seam lines are permitted.

6. Coating

Sprox magnets do not need coating.

7. Safety instructions

Detailed information about the handling of permanent magnets is available on our homepage: www.magnetfabrik.de, under Downloads "Safety instructions"

8. Health risk on contact with food and drinking water

We **always** recommend **avoiding** direct contact between food or drinking water and Sprox magnets.

9. Hazardous substances

Our statement regarding Hazardous substances (ROHS & REACH) is provided on our homepage: www.magnetfabrik.de/ in the download documents.

As part of the initial sampling documentation, the material data sheet can be attached on request, from which the composition of the product can be taken.

For customized products, an entry is usually made in the International Material Data System (IMDS). Information about an entry is provided automatically via the customer's USER ID in the IMDS.