

POSITION PAPER · FOR POLICYMAKERS

Magnets — the Invisible Key Industry

Why a resilient magnet supply chain is decisive for the competitiveness of German SMEs and European industry.

INNOMAG e.V. — Industry Association for Magnetic Microsystems and Sensors

Coordinated with Joint Action Magnetism (JAM) — 10+ magnetism associations across Europe.

Four numbers policymakers should know

98–99 %

of the rare-earth magnets used by European industry are sourced from China — and the share keeps rising.

47.6 %

magnets are the single largest use of rare-earth elements worldwide (Natural Resources Canada, 2024).

6–12 months

to qualify an alternative supplier — time you do not have once a shortage has already hit.

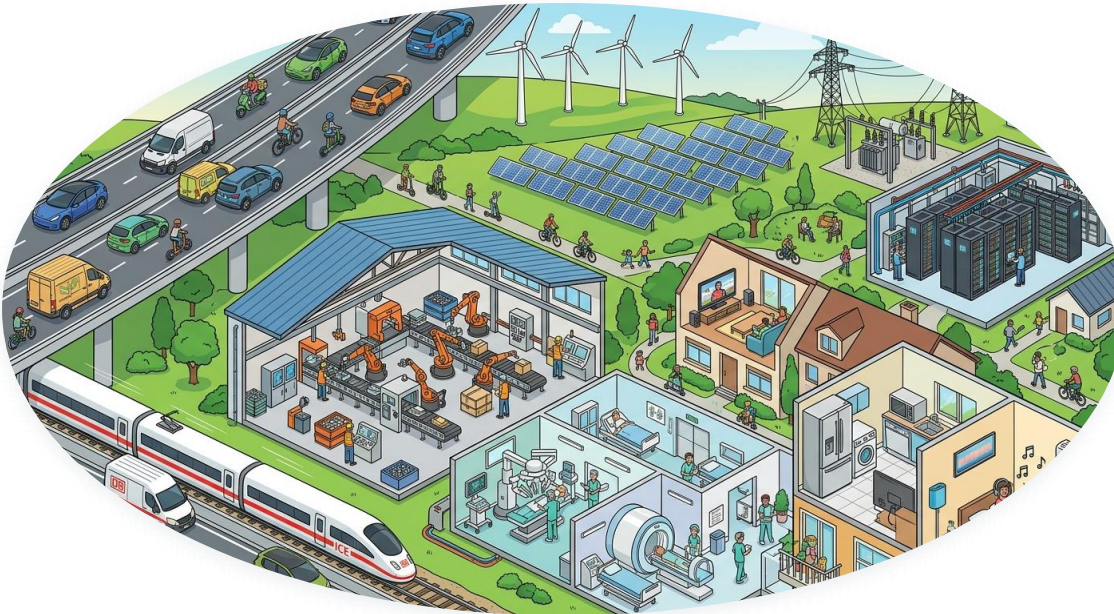
< €100

a missing magnet worth under €100 can halt a finished machine worth €100,000–250,000.

The same world — with magnets, and without

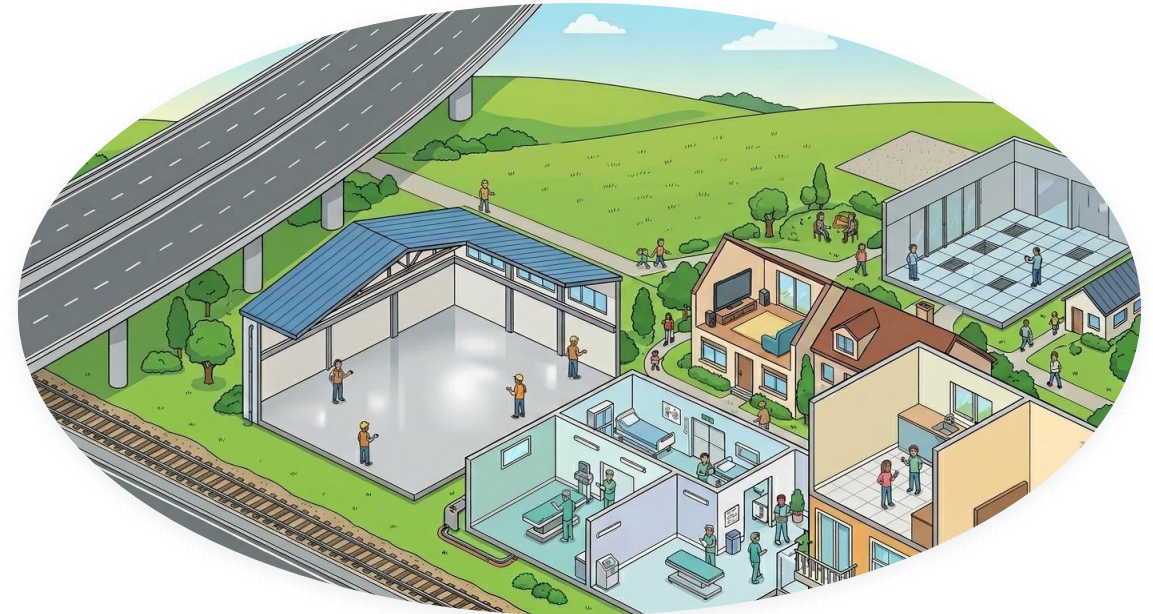
Magnets are built, unseen, into products across every sector — not only wind power and cars. Remove them, and daily life and industry alike come to a standstill.

WITH MAGNETS



A functioning home, factory, hospital and city.

WITHOUT MAGNETS



Everything that relies on magnets simply disappears.

The breadth is the point: the risk runs through the entire economy, not just the headline magnet users.

Where magnets are hiding



Vehicles

ABS/ESP wheel sensors, crank- & camshaft sensors, EV drive motors, steering-angle sensors.



Industry & Machinery

Robot axes, CNC machines, conveyors, position sensors, motor speed monitoring.



Energy Technology

Wind-turbine rotor sensing, generators, inverters, meters, battery storage.



Medical Devices

MRI scanners, infusion & ventilator pumps, surgical robots, prosthetics.



Household Appliances

Washing machines, fridges, dishwashers, robot vacuums, air conditioning.



Consumer Electronics

Smartphone compasses, laptops, headphones & speakers, game controllers.



Building & Security

Alarm door/window contacts, lifts, automatic doors, access & fire systems.



Not just wind & cars

The same tiny component sits inside all of these — which is exactly why the exposure is economy-wide.

A few cents of magnet — the whole value chain

Permanent magnets often cost only cents or a few euros — yet they are system-critical. If the magnet is missing, the entire value chain stops.



Before the chip comes the magnet

Lithography and wafer steppers need magnetic drives, actuators and sensors. No magnets → no wafer steppers → no chips.



Patient care

MRI scanners, surgical robots and infusion & ventilator pumps rely on magnetic drives and sensors.



Energy & defence

Heat pumps, generators, industrial drives, actuators and sensors all depend directly on magnet availability.

THE MULTIPLIER

< €100

a single missing magnet

€100,000 – 250,000

the machine it can hold up — undeliverable until that one part arrives.

The dependence on magnets thus lies, unseen, even before the much-discussed dependence on chips.

A critical industry — without a voice

Germany's magnet-making and magnet-using industries are dominated by small and mid-sized firms — many of them “hidden champions” with leading global positions in specialised niches.

— No powerful trade association

Unlike the semiconductor or battery industries, magnets have no strong lobby behind them.

— No defined lead market

And no dedicated funding programme to anchor investment.

— SMEs act alone, and late

Individual firms lack the market power and the overview to respond — each reacts on its own.

“

Political attention is inversely proportional to actual dependence —

even though entire value chains, and the jobs behind them, hang on these unassuming components.

Why time is running out



The crisis is creeping in quietly

Lead times lengthen, minimum order quantities rise, technical support erodes. Wait until it peaks and the 6–12 months you need are gone.



The first options are already closing

Strategic stockpiling of SmCo has been effectively blocked by Chinese export restrictions.



New capacity is being allocated now

The few new European magnet and metallisation plants are being tied up by large customers — SME needs risk being left behind.



Controls now reach the machine

Since 2024 the equipment to make magnets is export-restricted too; even independently procured lines can't run without Chinese support.

The action plan: five dimensions

1



Diversification

Build alternative, non-Chinese supply in Japan, Europe and North America.

2



Strategic stockpiling

Buffers for critical materials — above all those already restricted, e.g. SmCo.

3



Recycling

Close material loops within Europe and secure the material flows.

4



Redesign / substitution

Reduce or replace magnet use in products as a medium-to-long-term hedge.

5



Facilities & expertise

Secure Europe's machinery base — “buy local”, in the spirit of a Chips Act 2.0.



The common thread — consolidating demand. Many small, individually insignificant SME needs are bundled — antitrust-compliant, through a neutral body — into negotiable volumes compatible with the EU Raw Materials Mechanism.

What we ask of policymakers

Individual SMEs cannot meet this challenge alone. We ask for support at all three levels of government.

STATE LEVEL

- Cluster & network funding (e.g. a Magnet Cluster Hessen)
- Sites for recycling and production
- SME provisions written into regional funding programmes

FEDERAL LEVEL

CORE ASK

- Give magnets the same standing as chips: lead market, funding line, a seat at the table
- Funding for magnet-related product redesign
- “Buy local” for equipment makers; a national stockpiling framework
- Trust-building to bundle demand

EU LEVEL

- Name magnets explicitly in the “Made in the EU” flagship markets
- Resilience contracts-for-difference for strategic volumes
- Recycled-content targets
- Link to the EU Raw Materials Mechanism & the European Critical Raw Materials Centre

THE BOTTOM LINE

Give magnets the same standing as chips — before the shortage, not after.

INNOMAG e.V. stands ready as a partner in dialogue. We welcome political support at state, federal and European level.

About INNOMAG e.V. is the industry association for magnetic microsystems and sensor technology, with members across the entire value chain. Through Joint Action Magnetics (JAM) it coordinates with 10+ magnetics associations across Europe.

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