Rare Earth Magnet

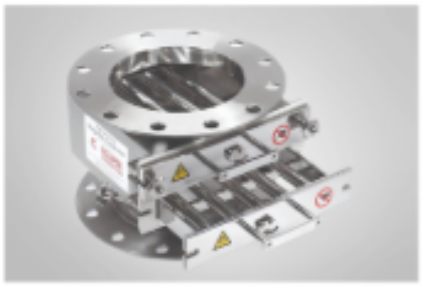
Source: FE

China has decided to lift restrictions on the export of **rare earth magnets** to India, providing a significant boost to sectors like automobiles, **renewable energy,** consumer electronics, defence, aerospace, and healthcare.

Rare Earth Magnets

- **Definition:** Rare earth magnets are the **strongest type of permanent magnets** commercially available, known for **high magnetic strength and resistance to demagnetisation.**
- **Composition:** Made primarily from **rare earth elements** like **neodymium, praseodymium, and dysprosium**, often in alloys such as **neodymium-iron-boron (NdFeB).**
- **Applications:** Crucial in miniaturised and energy-efficient devices where weight, space, and thermal resistance are key. Used in electric motors, sensors, speakers, and other high-performance components.
    - Adoption has surged over the past 6–8 years due to their compact size, high effectiveness, and thermal resistance compared to traditional magnets.
- **Global Market:** China accounts for **~70% of rare earth metals** mining and nearly 90% of rare earth magnet production.
- **India's Plans for Self-Reliance:** India is facilitating short-term imports of rare earth magnets from non-China sources like **Vietnam, Brazil, and Russia**, while aiming to build a full domestic production chain within 3–5 years, supported by incentives and public-private partnerships.

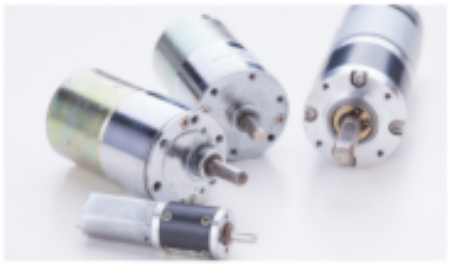
Examples of Rare Earth Neodymium (NdFeB) Applications



Magnetic Separators

Actuators

Microphones



DC Motors

Read more: Rare Earth Metals