

TECHNICAL GUIDE | APPLICATION-SPECIFIC REVIEW REQUIRED

Magnet Coating Selection Guide

A decision guide for connecting corrosion protection with dimensional stack, bonding, handling, and measurable acceptance criteria.

Use this guide to prepare an engineering discussion. Final material, grade, coating, magnetization, tolerance, and inspection requirements must be confirmed for the actual application.

Coating is part of the dimensional and assembly stack

Surface protection should be selected with the operating environment, edge condition, adhesive, cleanliness, appearance, and measurement method. A coating name alone does not define corrosion life.

Route	Common reason to consider	Review before release
NiCuNi	General industrial protection, metallic finish, common bonding routes	Humidity, salt exposure, chipped edges, coating thickness, adhesive compatibility
Zinc	Cost-sensitive protection and selected industrial environments	Appearance, corrosion target, handling damage, and downstream bonding
Epoxy	Additional barrier protection and dark finish options	Edge coverage, abrasion, dimensional build, cure route, and adhesive chemistry
Phosphate or passivation	Thin surface route where dimensional build is tightly limited	Environment severity, storage, handling, and project-specific validation
Engineered coating	Application-specific chemical, vacuum, cleanliness, or durability needs	Supplier capability, test method, thickness, masking, and acceptance criteria

Five questions that change the coating decision

- Will the part see condensation, salt, cleaning fluids, oils, adhesives, or abrasive handling?
- Are edges, holes, countersinks, or machined features especially vulnerable?
- Does coating thickness change the air gap, press fit, balance, or sensor position?
- Will the magnet be bonded, overmolded, sleeved, plated after assembly, or supplied unmagnetized?
- What inspection method and acceptance evidence are required for prototype and repeat orders?

RFQ checklist

Category	Details to share
Environment	Temperature, humidity, salt, fluid, chemical, vacuum, cleanliness, and service life
Part design	Dimensions, tolerance, edge condition, holes, masking, and coating allowance
Assembly	Adhesive, sleeve, housing, press fit, overmolding, and handling sequence
Evidence	Appearance standard, thickness, adhesion, corrosion test, records, and packaging

Coating performance is process and application dependent. Confirm the actual coating specification, substrate preparation, thickness range, inspection method, and environmental test with the selected manufacturing route.