

Nd-Fe-B Physical Properties

Physical Properties

Characteristics	Mark	Unit		Unit	
Temperature Coefficient	α	% / °C	-0.11 ~ -0.13		
Curie Temperature	T _c	°C	300 ~ 330	°F	572 ~ 626
Recoil permeability	μ_{rec}		1.05		
Magnetizing Force	HS	KOe	30		
Density	ρ	gr /cm ³	7.3 ~ 7.5	Lb/in ³	0.264 ~ 0.271
Vickers Hardness	HV	D.P.N.	500 ~ 600		
Flexural Strength	B.S.	N/mm ²	250	Mpa	245
Tensile Strength	T.S.	N/mm ²	80	Mpa	80
Electrical Resistivity	R	$\mu\Omega \cdot \text{cm}$	150	-8 $\times 10 \ \Omega \cdot \text{m}$	144
Coefficient of Thermal Expansion (0~200°C)	C//	-6 10 / °C	5	ppm/K	6.5
	C \perp		-1.5		-0.5
Thermal Conductivity	K	W/m • °C	9		
Heat Capacity	C	J/kg • °C	460		

Enhancing the Coercivity of Neodymium Alloys:

When a portion of Neodymium is replaced with heavy rare-earth elements, such as Dysprosium (Dy) and Terbium (Tb), the intrinsic coercivity of the alloy increases. The latter enhancement is coupled with a slight loss of induction as the later rare earth elements couple anti-ferromagnetically with Iron causing loss of saturation magnetization, and therefore loss of induction.