

Magnetic and mechanical properties of soft magnet alloys

Material		1J50	1J51	1J77	1J79	1J85	1J22	1J12
Main Components		FeNi		FeNiMo			FeCoV	FeAl
Forms of Supply	Wire	◎	◎	◎	◎	◎	◎	
	Strip	◎	◎	◎	◎	◎	◎	
	Plate	◎		◎	◎	◎	◎	◎
	Bar	◎		◎	◎	◎	◎	◎
Init Permeability μ_i (mH/m)		3.8~5.0	Square ratio ≥ 0.90	37.5~75	25~44	37.5~68	B800 $\geq 1.8T$ B2400 $\geq 2.1T$	≥ 3.1
Max. Permeability μ_{max} (mH/m)		44~62.5	≥ 75	175~312	150~310	137.5~33	B4000 $\geq 2.15T$ B8000 $\geq 2.2T$	≥ 31.3
Coercivity H_c (A/M)		≤ 12	≤ 14.4	≤ 1.2	≤ 1.6	≤ 1.6	≤ 128	≤ 12
Saturation Induction B_s (T)		≥ 1.5	≥ 1.5	≥ 0.60	≥ 0.75	≥ 0.70	2.45	1.44
Density (g/cm ³)		8.2	8.2	8.6	8.6	8.75	8.2	6.7
Curie temperature (°C)		500	500	350	450	400	980	655
Max. work temperature (°C)								
Saturation Magnetostrictive Coefficient (10 ⁻⁶)		25	25		2	0.5	60~100	30
Resistivity ($\mu\Omega \cdot m$)		0.45	0.45	0.55	0.55	0.56	0.40	1.0
Hardness HB	cold	170	250	210			HRC 35	250~300
	annealed	130		120			HRB 90	
Tensile strength MPa	cold	785	950	1030			1350	
	annealed	450		560			490	780
Yield strength MPa	cold	685	750	980				
	annealed	150		150			340	580
Elongation %	cold	3	1	3			1	
	annealed	37		50				1