

For IGBT inverter electric welder and pulsating DC fault current voltage independent RCCBS which low Br is needed to get high $\div B(B_s - B_r)$, the nanocrystalline cores are made with transverse-field-annealing processes.

(1). Comparison of nanocrystalline cores with other soft magnetic cores.

Properties	Nanocrystalline core	Ferrite core
Saturate induction(T)	1.25	0.5
Remanace(T)	0.15	0.2
Permeability(Gs/Oe)	20000	2000
CoercivityHc(Oe)	0.005	0.2
Curie temperature($^{\circ}\text{C}$)	570	<200
Core loss(20kHz,0.2T)(w/kg)	≤ 4	7.5
Core loss(20kHz,0.5T)(w/kg)	≤ 40	---
Core loss(50kHz,0.3T)(w/kg)	≤ 60	---



(2). Typical characteristic curves

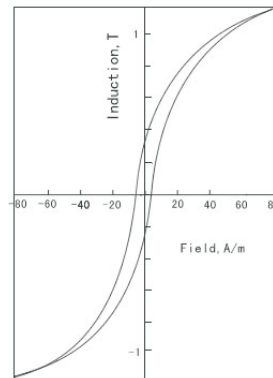


Fig1.Hysteresis loop

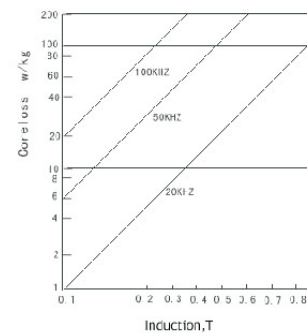


Fig2.Core loss after transverse-field-annealing