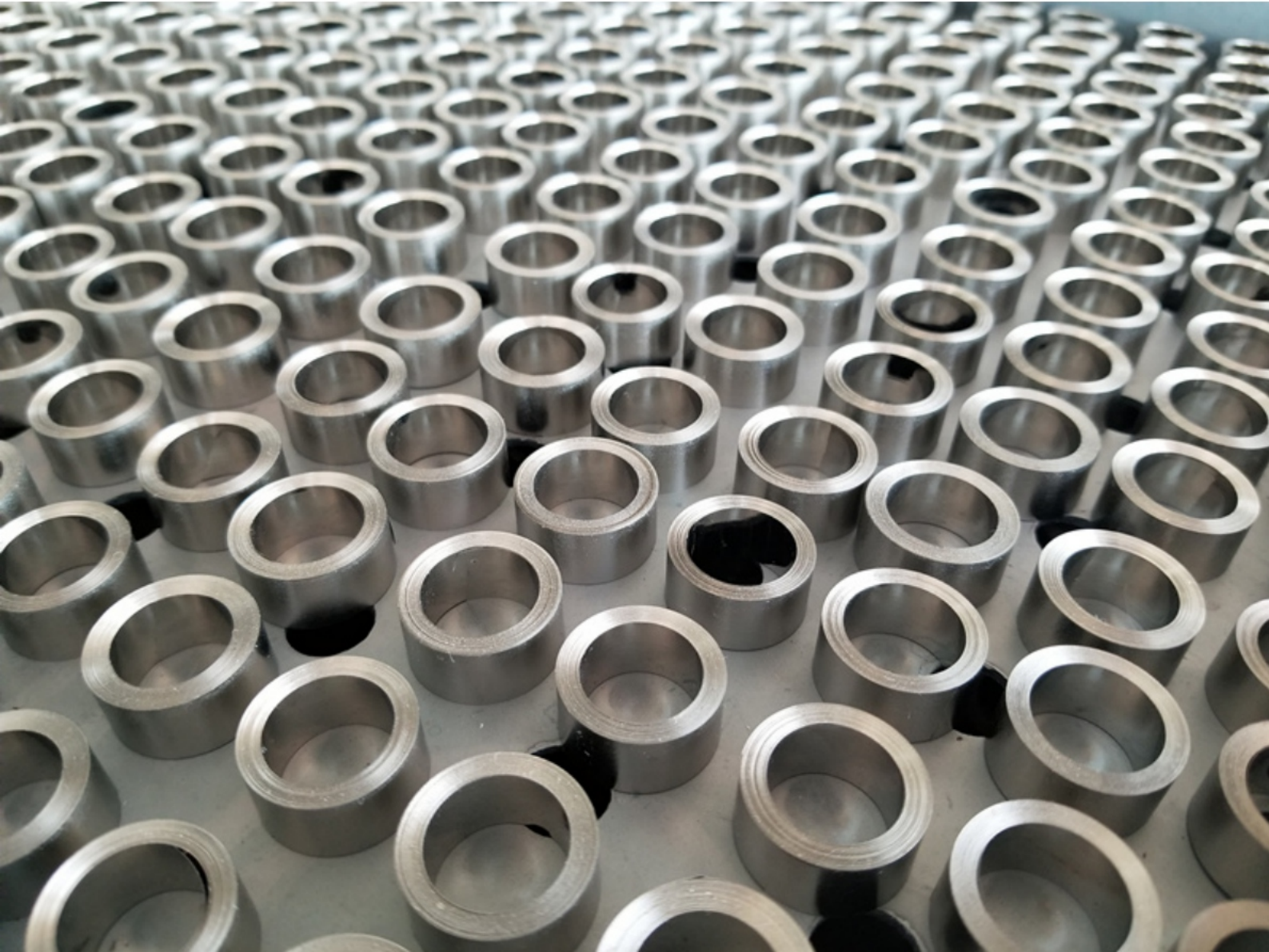


NANO CRYSTALLINE CORE

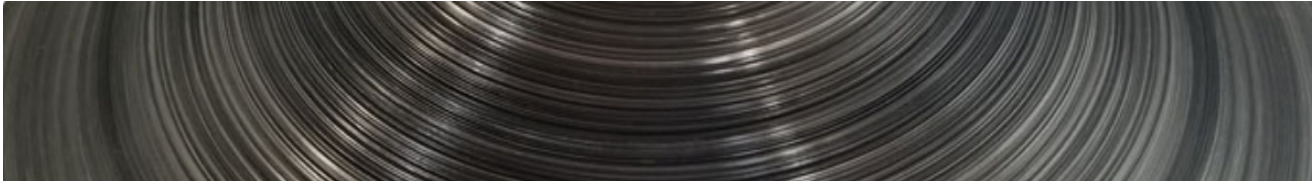


NANO CRYSTALLINE RIBBON



NANO CRYSTALLINE CORE



Nanocrystalline ribbon

Fe-based nanocrystalline material with composition of mostly Fe with Cu,Nb,Si,B, which first by rapid quenching technology to form amorphous ribbon, then by crystalline heat treatment to gain fine grains with nano scale. Through this revolutionary process, we can get superior magnetic properties with high saturation flux density, high initial permeability, low coercivity, low core loss. Nanocrystalline material is an environmental protection, green, low carbon,high efficiency new magnetic material.

Fe-based nanocrystalline material can be applied to cores for common mode chokes, high frequency transformers, current transformers, driver transformers, network transformers, bead cores, magnetic amplifiers, filter inductors, reactors, PFC chokes in various electrical and electronic area, now have been widely used in switched mode power supply, household electrical appliance, industrial electrical equipment, communication power supply, network power supply, solar energy equipment, wind power generator, IGBT inverter power supply, laser power supply and medical equipment power supply.

Characteristics:

- > High permeability -- increasing inductance and reducing winding turns
- > High saturation induction -- minimizing size of component
- > High frequency -- suitable used in frequency range from 50Hz up to 100KHz
- > High curie temperature -- higher working temperature, continuous working at up to 120°C
- > Low coercivity -- increasing the efficiency and reducing hysteresis loss
- > Low core loss -- reducing energy consumed and minimizing temperature rise
- > Low magnetostriction -- low audible noise compared to traditional magnetic materials
- > Excellent thermal stability -- extremely small deviations from -20°C to 120°C
- > Low cost -- good choice to replace traditional materials like permalloy

Magnetic Properties:

- > Saturation induction B_s -- 1.25 T
- > Saturation magnetostriction λ_s -- 2×10^{-6}
- > Curie temperature T_c -- 560 °C
- > Crystallization temperature T_x -- 510°C
- > Ribbon thickness -- 18~25 μm
- > Density d -- 7.25 g/cm³
- > Resistivity ρ -- 115 $\mu\Omega\cdot\text{cm}$
- > Vicker's Hardness H_v -- 880 kg/mm²

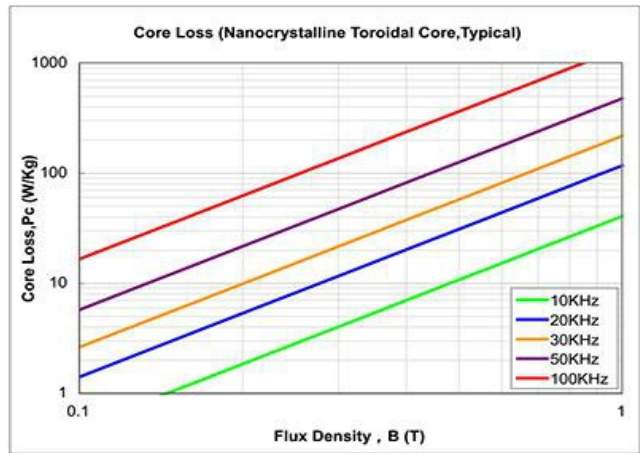
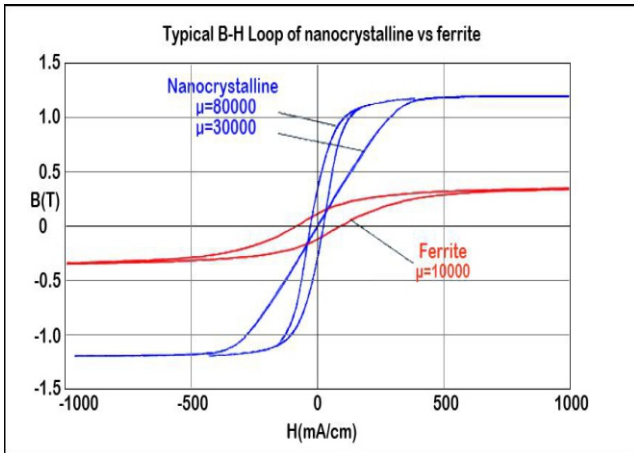
Magnetic Properties Comparison: Amorphous and Nanocrystalline VS Traditional Soft Magnetic Materials:

Magnetic Properties	Fe-Si Steel	Mn-Zn Ferrite	50Ni Permalloy	80Ni Permalloy	Cobalt-based Amorphous	Fe-based Amorphous	Fe-based Nanocrystalline
Saturation Flux Density Bs(T)	2.03	0.5	1.55	0.74	0.58	1.56	1.25
Coercivity Hc (A/m)	40	8	12	2.4	0.4	2.4	1.2
Initial Permeability μ_i	1500	3000	6000	40000	100000	5000	80000
Max Permeability μ_m	20000	6000	60000	200000	1000000	50000	400000
Electrical Resistivity ($\mu\Omega.cm$)	50	5×10^7	30	60	140	130	115
Curie Temperature Tc(°C)	750	220	500	450	250	399	570

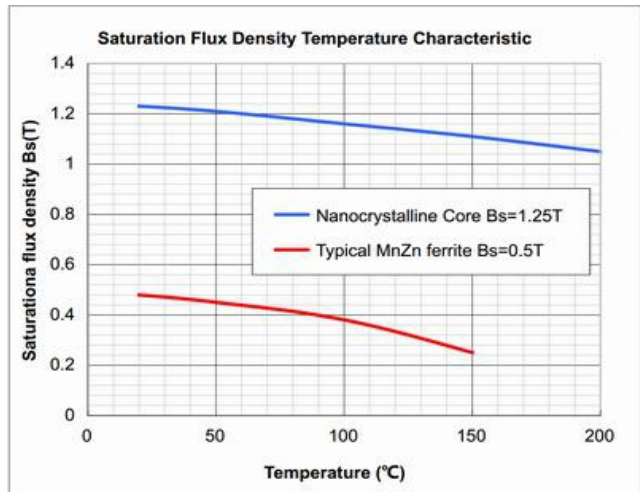
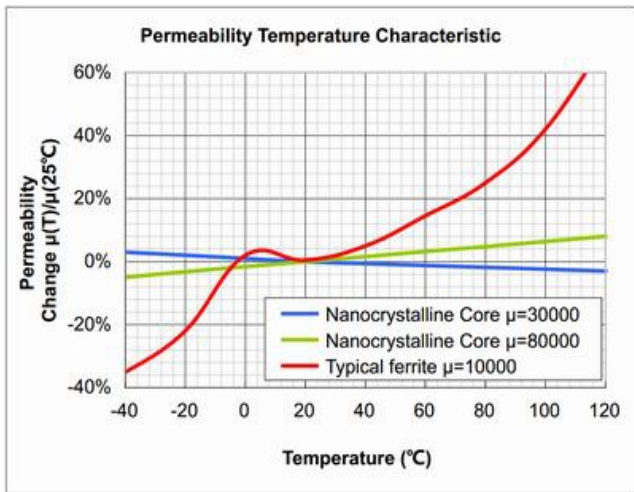
Applications of Amorphous and Nanocrystalline Cores:

Application	Fe-based Amorphous	Co-based Amorphous	Fe-based Nanocrystalline
EMC Common Mode Choke, EMI Filter			√
Oval EMC Core for New Energy Car			√
High Frequency Transformer			√
Current Transformer		√	√
Magnetic Amplifier		√	√
Network transformer, driver transformer		√	√
Solar Inverter Reactor	√		
Car Audio output inductor	√		
PFC choke, Out filter inductor	√		√

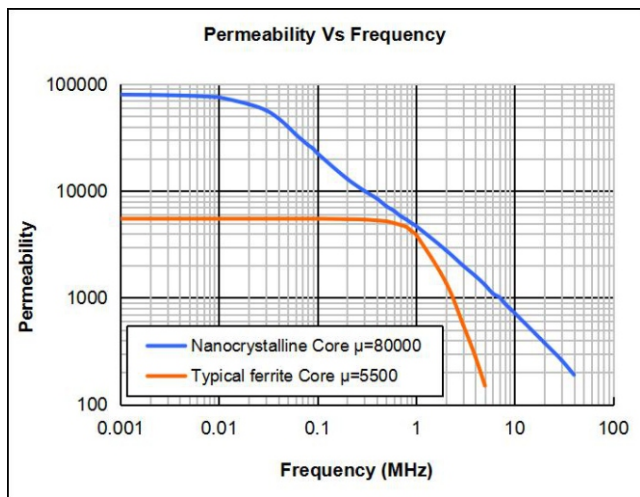
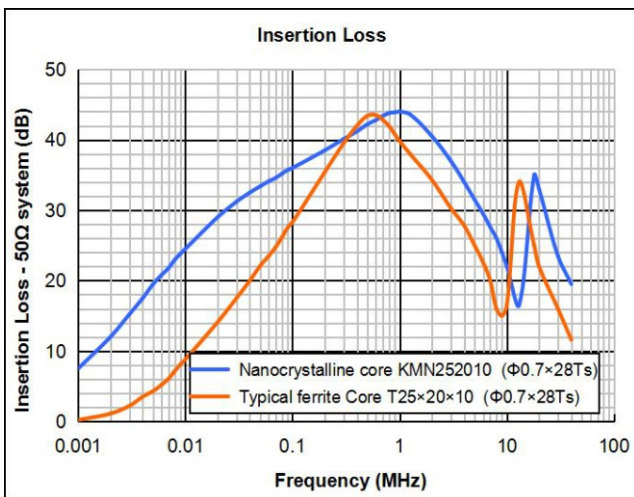
Typical hysteresis loop and core loss characteristics:



Typical temperature characteristics:



Typical frequency characteristics: Nanocrystalline core vs. Ferrite



Nanocrystalline cores



Amorphous and nanocrystalline technologies are very important technology in modern magnetic materials, cores and inductive components. After long term experiment and development, Wildstone Magnetic has developed series of high quality nanocrystalline cores.

Nanocrystalline cores have very high permeability over low frequency to high frequency. Compared to traditional ferrite cores, nanocrystalline cores have a lot of advantages as high inductance, good filter effective, small size and volume, lower turns of copper wire, lower power consumption and high efficiency. Nanocrystalline cores have very high curie temperature about 560°C, much higher than traditional ferrite core about 200°C. High curie temperature make nanocrystalline core excellent thermal stability, and can continuous working at up to 120°C environment.





Bla Etech Pvt. Ltd is a specialized manufacturer of NdFeB and nanocrystalline alloy products. The company has a complete and standardized management system, a comprehensive measurement laboratory with advanced technology, and its quality inspection methods have been modernized and digitalized. At present, the company has passed a series of quality system certifications such as ISO9001, and each product has been strictly inspected from raw materials, production, and delivery. We focus on independent research and development, and in order to enhance product development capabilities, we have established a highly efficient and high-quality product research and development team. In the past 20 years, we have focused on the R&D and production of NdFeB, nanocrystalline alloys, and magnetic cores. We have a 60,000-square-meter modern industrial park, more than 1,000 employees, and more than 30 professional designers. We are the top magnetic material supplier in India . We have a complete service guarantee system and have always adhered to the corporate culture of quality first, service first, and customer satisfaction first. We look forward to developing win-win cooperation with our customers.



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