信昇新材
XINSHENG MAGNETICS



江苏信昇新材有限公司

Jiangsu Xinsheng Magnetics Co., Ltd.

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一、企业概况：基础实力与核心资质
1. Company Overview: Basic Strength and Core Qualifications

企业定位：专业研发、生产、销售非晶纳米晶合金材料及衍生产品的高新技术企业
Enterprise Positioning: Professional high-tech enterprise engaged in R&D, production and sales of amorphous and nanocrystalline alloy materials and derived products

公司简介：江苏信昇新材料专注于非晶 / 纳米晶合金材料及衍生磁芯产品研发、生产与销售，产品体系覆盖电力系统、家电领域、逆变焊机、光伏产业四大核心应用场景，核心产品以纳米晶磁芯、非晶带材为主，兼具定制化生产能力，技术特性聚焦“高磁导率、高饱和磁感、低损耗、耐高温”，可满足精密电子、新能源、电力设备等领域对高效软磁材料的需求。
Company Profile: Jiangsu Xinsheng New Materials focuses on the R&D, production and sales of amorphous/nanocrystalline alloy materials and derived magnetic core products. Its product system covers four core application scenarios: power system, home appliance field, inverter welding machine and photovoltaic industry. The core products are mainly nanocrystalline magnetic cores and amorphous strips, with customized production capabilities. The technical characteristics focus on "high magnetic permeability, high saturation magnetic induction, low loss and high temperature resistance", which can meet the demand for high-efficiency soft magnetic materials in precision electronics, new energy, power equipment and other fields.

二、核心生产能力：装备与产能保障
2. Core Production Capacity: Equipment and Production Capacity Guarantee

制带环节:年产800吨，纳米晶生产线2条
Strip production: Annual output of 800 tons, 2 nanocrystalline production lines

铁芯环节:全自动卷芯设备30+台套，全自动封装及测试线3条
Core production: More than 30 sets of automatic core winding equipment, 3 automatic packaging and testing lines

铁芯热处理环节:真空热处理炉生产线6条，磁场热处理炉6条
Core heat treatment: 6 vacuum heat treatment furnace production lines, 6 magnetic field heat treatment furnaces

铁芯加工环节:自动喷涂生产线，切割线
Core processing: Automatic spraying production line and cutting line

磁材开发环节:加工中心，金刚石线切割，火花线切割等多种产品开发配套设施
Magnetic material development: Machining center, diamond wire cutting, spark wire cutting and other supporting facilities for product development

产品规格：可生产宽度 0-45mm、厚度 20μm-38μm 的多规格非晶、纳米晶带材
Product specifications: Capable of producing amorphous and nanocrystalline strips with multiple specifications of width 0-45mm and thickness 20μm-38μm

定制能力：配备国内领先的非晶 / 纳米晶带材实验、检测、试制设备，可根据客户特定需求提供定制化产品
Customization capability: Equipped with domestic leading experimental, testing and trial production equipment for amorphous/nanocrystalline strips, capable of providing customized products according to customers' specific needs

三、技术与研发实力：壁垒与成果
3. Technology & R&D Strength: Barriers and Achievements

3.1 研发团队配置
3.1 R&D Team Configuration

核心团队：3人核心研发成员，均具备非晶/纳米晶制造技术、钢铁冶炼技术领域近 30 年研发经验
Core team: 3 core R&D members, all with nearly 30 years of R&D experience in amorphous/nanocrystalline manufacturing technology and iron and steel smelting technology

团队定位：聚焦新能源汽车非晶电机用， 逆变器，互感器材料研发，推动非晶合金材料在新能源领域的产业化应用
Team positioning: Focus on the R&D of materials for amorphous motors, inverters and transformers of new energy vehicles, and promote the industrial application of amorphous alloy materials in the new energy field

3.2 技术成果与认证
3.2 Technical Achievements and Certifications

专利储备：3 项非晶行业发明专利 + 5 项实用新型专利，构筑技术壁垒
Patent reserve: 3 invention patents in the amorphous industry + 5 utility model patents, building technical barriers

标准参与：近年加入多个国家标准，参与行业技术规范输出
Standard participation: Joined multiple national standards in recent years and participated in the output of industry technical specifications

产学研结合： 与中科院金属研究所，燕山大学材料重点实验室及其他高校，在高温合金及亚稳材料方面达成长期合作开发协议，建立高效的从研到产通道，为企业开辟磁材新空间
Industry-university-research cooperation: Reached long-term cooperative development agreements with Institute of Metal Research, Chinese Academy of Sciences, Key Laboratory of Materials Science of Yanshan University and other universities in the field of superalloys and metastable materials, established an efficient channel from R&D to production, and opened up new space for magnetic materials for the enterprise

四、质量管理：检测与保障
4. Quality Management: Testing and Guarantee

4.1 检测团队与设备
4.1 Testing Team and Equipment

团队配置：经验丰富的质检团队，具备专业检测能力
Team configuration: Experienced quality inspection team with professional testing capabilities

核心设备：1 台进口光谱仪、1 台进口差式热分析扫描仪、1 套环样交流磁性能检测仪、1 套单片磁性检测仪、1 套直流性能检测仪、1 台测试退火炉、x 套带厚测试仪、精密天平，覆盖材料成分、磁性能、物理性能全维度检测

Core equipment: 1 imported spectrometer, 1 imported differential thermal analysis scanner, 1 set of ring sample AC magnetic performance tester, 1 set of single-chip magnetic tester, 1 set of DC performance tester, 1 test annealing furnace, x sets of strip thickness testers, precision balance, covering the full-dimensional detection of material composition, magnetic performance and physical performance

4.2 质量保障体系
4.2 Quality Assurance System

体系认证：通过质量管理体系、环境管理体系、职业健康安全管理体系认证

System certification: Passed quality management system, environmental management system and occupational health and safety management system certification

五、行业前景与政策支持
5. Industry Prospects and Policy Support

5.1 行业发展现状
5.1 Current Status of Industry Development

市场规模：全球纳米晶材料市场呈高速增长态势，2024 年市场规模突破 85 亿元，其中传感器、小型变压器及互感器领域应用占比超 40%（合计约 36 亿元）；受益于下游智能设备、电力配网、新能源领域需求爆发，预计 2029 年市场规模将达 150 亿元，年复合增长率超 12%，核心应用场景占比有望提升至 50% 以上。

Market scale: The global nanocrystalline material market is showing a high-speed growth trend. The market scale exceeded 8.5 billion yuan in 2024, of which the application proportion in sensors, small transformers and mutual inductors exceeded 40% (about 3.6 billion yuan in total). Benefiting from the explosive demand in downstream smart devices, power distribution networks and new energy fields, the market scale is expected to reach 15 billion yuan in 2029, with a compound annual growth rate of over 12%, and the proportion of core application scenarios is expected to rise to more than 50%.

全球格局：中国已成为全球纳米晶材料核心生产与消费市场，2024 年国内市场规模占全球比重超 55%，本土企业在材料纯度（可达 99.99%）、高频磁芯成型工艺等关键环节实现突破，打破欧美日韩早期技术垄断；在传感器微型化、电力设备能效升级需求驱动下，国内纳米晶材料在细分应用场景（如汽车传感器、配网小型变压器）的市占率已超 60%，出口量年均增长 15%。

Global pattern: China has become the core production and consumption market for nanocrystalline materials in the world. In 2024, the domestic market scale accounted for more than 55% of the global total. Local enterprises have made breakthroughs in key links such as material purity (up to 99.99%) and high-frequency magnetic core forming technology, breaking the early technical monopoly of Europe, America, Japan and South Korea. Driven by the demand for sensor miniaturization and power equipment energy efficiency upgrading, the market share of domestic nanocrystalline materials in segmented application scenarios (such as automotive sensors and distribution network small transformers) has exceeded 60%, and the export volume has increased by 15% annually.

5.2 政策与趋势助力
5.2 Policy and Trend Support

政策支持：国家发改委《战略性新兴产业重点产品和服务指导目录（2024 版）》将“纳米晶软磁材料”列入先进金属材料领域，明确其为“智能传感器、高效电力设备”的核心配套材料；工信部《“十四五”先进材料产业发展规划》提出 “突破纳米晶材料规模化制备技术，推动在汽车电子、智能电网领域的示范应用”；

Policy support: The National Development and Reform Commission's "Catalogue of Key Products and Services for Strategic Emerging Industries (2024 Edition)" lists "nanocrystalline soft magnetic materials" in the field of advanced metal materials, defining them as the core supporting materials for "smart sensors and high-efficiency power equipment"; the Ministry of Industry and Information Technology's "14th Five-Year Plan for the Development of Advanced Materials Industry" proposes to "break through the large-scale preparation technology of nanocrystalline materials and promote their demonstration applications in automotive electronics and smart grid fields";

发展趋势：随着“碳达峰、碳中和”目标推进，电力系统向“智能配网 + 新能源并网”升级，互感器、小型变压器需满足“低损耗、高频化”要求；同时物联网、汽车电子（如自动驾驶传感器）爆发式增长，推动传感器向“微型化、高灵敏度”发展 —— 纳米晶材料因磁导率是传统材料的 3-5 倍、高频损耗降低 40% 以上，恰好契合上述需求，未来 5 年在传感器、电力设备领域的应用渗透率将从当前 25% 提升至 50%，市场空间持续扩容。

Development trend: With the advancement of the "carbon peaking and carbon neutrality" goals, the power system is upgrading to "smart distribution network + new energy grid connection", and mutual inductors and small transformers need to meet the requirements of "low loss and high frequency"; at the same time, the explosive growth of the Internet of Things and automotive electronics (such as autonomous driving sensors) is driving sensors to develop towards "miniaturization and high sensitivity" - nanocrystalline materials, with magnetic permeability 3-5 times that of traditional materials and high-frequency loss reduced by more than 40%, exactly meet the above needs. In the next 5 years, the application penetration rate in sensors and power equipment fields will increase from the current 25% to 50%, and the market space will continue to expand.

六、电力系统用纳米晶磁芯产品
6. Nanocrystalline Core Products for Power Systems

6.1 精密电流小互感器铁芯
6.1 Precision Small Current Transformer Cores

产品优势
Product Advantages

高初始磁导率（$16^{4}\times10^{4}$ -20×10 Gs/Oe）、高最大磁导率（>50×10 Gs/Oe），测量精度高；
High initial magnetic permeability (16×10^{4} -20×10^{4} Gs/Oe) and high maximum magnetic permeability (>50×10 Gs/Oe), with high measurement accuracy;

低矫顽力（<1.5A/m）、低损耗，运行稳定性强；
Low coercivity (<1.5A/m) and low loss, with strong operational stability;

带厚均匀（0.025-0.03mm），填充系数 0.75，适配精密互感器装配需求。
Uniform strip thickness (0.025-0.03mm) and filling factor of 0.75, suitable for the assembly needs of precision mutual inductors.

应用领域
Application Fields

电子电度表、精密功率表；
Electronic watt-hour meters and precision power meters;

机械控制中的电流过载保护
Current overload protection in mechanical control.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs (T) Saturation Magnetic Induction Intensity Bs (T)	1.2
初始磁导率 μi (Gs/Oe) Initial Magnetic Permeability μi (Gs/Oe)	16×10^4 - 20×10^4
最大磁导率 μm (Gs/Oe) Maximum Magnetic Permeability μm (Gs/Oe)	$>50\times10^4$
密度 ρ (g/cm³) Density ρ (g/cm³)	7.3
矫顽力 Hc (A/m) Coercivity Hc (A/m)	<1.5
带厚 (mm) Strip Thickness (mm)	0.025 - 0.03
叠片系数 (Lamination Factor)	0.75

常用规格型号 (Common Specifications and Models) (产品编码：NC-B-XXX, NC = 纳米晶磁芯, B = 精密电流小互感器类型)
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type)

产品编码 (Product Code)	磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm²) (Effective Cross-Sectional Area Ae (mm²))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))
NC-B-0003	9.5/13/5	8.3/14/6.2	8.67	34.77
NC-B-0100	9.6/13.2/10	8/15/11.5	17.85	35.22
NC-B-0103	13.2/21.5/10	11.3/24/12.3	40.69	52.4
NC-B-010H	14/20.2/10	12/22.3/11.4	29.68	52.29
NC-B-0110	20/32/10	18/34/12.3	58.91	78.76

注：支持定制其他带宽、带厚规格。
Note: Other bandwidth and thickness specifications can be customized according to customer needs.

6.2 高中低压电流互感器铁芯
6.2 High/Medium/Low Voltage Current Transformer Cores

产品优势
Product Advantages

高饱和磁感应强度(1.25T)、高磁导率(最大 μ>45×10 Gs/Oe),适配宽电流范围测量;
High saturation magnetic induction (1.25T) and high magnetic permeability (maximum μ>45×10 Gs/Oe), suitable for wide current range measurement;

低角差、低比差,计量精度高;
Low angle error and low ratio error, with high measurement accuracy;

良好抗过载能力与温度稳定性,适应高低压电力环境。
Good overload resistance and temperature stability, adapting to high and low voltage power environments.

应用领域
Application Fields

精密功率表;
Precision power meters;

机械控制、工业自动化中的电流监测与过载保护。
Current monitoring and overload protection in mechanical control and industrial automation.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs(T) Saturation Magnetic Induction Intensity Bs (T)	1.25
初始磁导率 μi(Gs/Oe) Initial Magnetic Permeability μi (Gs/Oe)	12×10^4 - 16×10^4
最大磁导率 μm(Gs/Oe) Maximum Magnetic Permeability μm (Gs/Oe)	$>45\times10^4$
密度 ρ(g/cm³) Density ρ (g/cm³)	7.25
矫顽力 Hc(A/m) Coercivity Hc (A/m)	<1.6
带厚(mm) Strip Thickness (mm)	0.025 - 0.035
叠片系数 (Lamination Factor)	0.75

常用规格型号(Common Specifications and Models)(产品编码:NC-B-XXX,NC = 纳米晶磁芯,B = 精密电流小互感器类型)
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type)

产品编码 (Product Code)	磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm^2) (Effective Cross-Sectional Area Ae (mm^2))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))
NC-A-0221	125/215/200	120/220/288	1376	508
NC-A-0222	125/220/100	120/225/250	925	514
NC-A-0231	260/340/201	255/345/258	795	931
NC-A-0320	125/215/35	120/220/40	1537	508
NC-A-0210	90/120/200	85/125/255	297	325

注：支持定制其他带宽、带厚规格。

Note: Other bandwidth and thickness specifications can be customized according to customer needs.

6.3 零序电流互感器铁芯
6.3 Zero-Sequence Current Transformer Cores

产品优势
Product Advantages

高磁导率、低矫顽力，对漏电电流灵敏度高；
High magnetic permeability and low coercivity, with high sensitivity to leakage current;

采用铁芯表面防护技术，防止铁芯碎屑脱落，提升使用寿命；
Adopting core surface protection technology to prevent core debris from falling off and improve service life;

低损耗，适配开合式电流互感器装配
Low loss, suitable for the assembly of split-type current transformers.

应用领域
Application Fields

开合式电流互感器；
Split-type current transformers;

LJM-1/2/3 系列零序电流互感器（漏电监测场景）。
LJM-1/2/3 series zero-sequence current transformers (leakage monitoring scenarios).

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs (T) Saturation Magnetic Induction Intensity Bs (T)	1.25
初始磁导率 μi (Gs/Oe) Initial Magnetic Permeability μi (Gs/Oe)	12×10^4 - 16×10^4
最大磁导率 μm (Gs/Oe) Maximum Magnetic Permeability μm (Gs/Oe)	$>45\times10^4$
密度 ρ (g/cm³) Density ρ (g/cm³)	7.25
矫顽力 Hc (A/m) Coercivity Hc (A/m)	<1.6
带厚 (mm) Strip Thickness (mm)	0.025 - 0.035
叠片系数 (Lamination Factor)	0.75

常用规格型号 (Common Specifications and Models) (产品编码:NC-B-XXX, NC = 纳米晶磁芯, B = 精密电流小互感器类型)
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type)

产品编码 (Product Code)	磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm²) (Effective Cross-Sectional Area Ae (mm²))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))
NC-D-0210	10/15/20	8.3/17.3/23	149.32	38.21
NC-D-0215	13/20/18	11.5/24/21	62.03	50.27
NC-D-0230	12.2/23/30	11.4/27.2/32.6	156.7	51.75
NC-D-0240	55/65/10	51.4/68.7/13.45	49.88	187.6
NC-D-0235	102/110/10	99/114.6/14.5	39.98	332.7

注:支持定制其他带宽、带厚规格。
Note: Other bandwidth and thickness specifications can be customized according to customer needs.

七、家电领域用纳米晶磁芯产品
7. Nanocrystalline Core Products for Home Appliance Field

7.1 滤波电感铁芯
7.1 Filter Inductor Cores

产品优势
Product Advantages

高磁导率（μi=30-80kGs/Oe）、高阻抗，插入损耗低，利于设备小型化；
High magnetic permeability (μi=30-80kGs/Oe) and high impedance, low insertion loss, facilitating equipment miniaturization;

高饱和磁感应强度（1.2T）、优良抗饱和能力，适配大电流滤波；
High saturation magnetic induction (1.2T) and excellent anti-saturation capability, suitable for high-current filtering;

高居里温度（580°C），宽温稳定性强（-50-130°C）。
High Curie temperature (580°C) and strong wide-temperature stability (-50-130°C).

应用领域
Application Fields

大型共模滤波器；
Large common-mode filters;

家电设备电源滤波模块
Power filter modules of home appliance equipment.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs（T）(Saturation Magnetic Induction Intensity Bs (T))	1.25
剩余磁感 (Residual induction)	<0.20
磁导率 μi（Gs/Oe）(Initial Magnetic Permeability μi (Gs/Oe))	＞20,000
居里温度 Tc（°C）(Curie Temperature Tc (°C))	570
饱和磁致伸缩系数 (saturation magnetostriction coefficient)	<2
电阻率 (Resistivity)	80
矫顽力 Hc（A/m）(Coercivity Hc (A/m))	<1.6
叠片系数 (Lamination Factor)	0.75

常用规格型号（Common Specifications and Models）（产品编码：NC-B-XXX，NC = 纳米晶磁芯，B = 精密电流小互感器类型）
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type）

产品编码 (Product Code)	磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	磁路长度 (cm) (Magnetic Path Length (cm))	输入电流 (mA) (Input Current (mA))	输出电压 (mV) (Output Voltage (mV))
NL-I-0027	32/40×15	28.7/43×18.5	0.45	10	-
NL-I-0034	40/50×20	36/53×23	0.78	10	-
NL-I-0221	125/215×20	120/220×25	8.78	500	>90
NL-I-0222	125/220×20	120/225×25	9.25	500	>90

注：支持定制其他带宽、带厚规格。

Note: Other bandwidth and thickness specifications can be customized according to customer needs.

7.2 差模电感环形铁芯
7.2 Differential-Mode Inductor Toroidal Cores

产品优势
Product Advantages

宽频率范围高磁导率（μi=50-80kGs/Oe）、高阻抗，适配多频段差模滤波；
High magnetic permeability (μi=50-80kGs/Oe) and high impedance in a wide frequency range, suitable for multi-band differential-mode filtering;

高饱和磁感（1.27T）、高居里温度（580°C），温度稳定性与抗饱和能力优异
High saturation magnetic induction (1.27T) and high Curie temperature (580°C), with excellent temperature stability and anti-saturation capability.

应用领域
Application Fields

电视、录像机等影像设备；
Image equipment such as televisions and video recorders;

办公自动化设备、音响装置、通讯设备电源模块
Power modules of office automation equipment, audio devices and communication equipment.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs (T) (Saturation Magnetic Induction Intensity Bs (T))	1.25
电阻率 (Resistivity)	130
居里温度 Tc (°C) (Curie Temperature Tc (°C))	570
铁损 P (W/kg) (Iron Loss P (W/kg))	<30
矫顽力 Hc (A/m) (Coercivity Hc (A/m))	<1.6
叠片系数 (Lamination Factor)	0.7

常用规格型号 (Common Specifications and Models) (产品编码：NC-B-XXX, NC = 纳米晶磁芯, B = 精密电流小互感器类型)
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type)

产品编码 (Product Code)	磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm^2) (Effective Cross-Sectional Area Ae (mm^2))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))
NL-H-0014	13/20×10	12/22×13	0.25	5.18
NL-H-0016	20/25×10	18/28×13	0.18	7.06
NL-H-0023	18/28×15	15/31×18	0.53	7.22
NL-H-0045	40/70×25	37/73×29	2.63	17.27

注：支持定制其他带宽、带厚规格。
Note: Other bandwidth and thickness specifications can be customized according to customer needs.

八、逆变焊机用大功率开关电源变压器磁芯
8. High-Power Switching Power Transformer Cores for Inverter Welding Machines

产品优势
Product Advantages

高饱和磁感应强度（1.2-1.25T），有效减小变压器体积，适配焊机小型化需求；
High saturation magnetic induction (1.2-1.25T), effectively reducing the transformer volume and meeting the miniaturization needs of welding machines;

低铁损（<30W/kg）、低铜损，降低变压器温升，提升运行效率；
Low iron loss (<30W/kg) and low copper loss, reducing transformer temperature rise and improving operational efficiency;

高导磁率（μi>12×10 Gs/Oe），激磁功率小，能耗低；
High magnetic permeability (μi>12×10 Gs/Oe), small excitation power and low energy consumption;

低剩磁、高居里温度（570°C），可长期在 - 50-130°C环境工作，集硅钢、坡莫合金、铁氧体优势于一体；
Low residual magnetism and high Curie temperature (570°C), capable of long-term operation in -50-130°C environment, integrating the advantages of silicon steel, permalloy and ferrite;

抗过载能力强，适配焊机高频大电流工况
Strong overload resistance, suitable for the high-frequency and high-current working conditions of welding machines.

应用领域
Application Fields

逆变焊机电源、高频逆变电焊机；
Inverter welding machine power supplies and high-frequency inverter arc welding machines;

通讯设备电源、UPS 不间断电源；
Communication equipment power supplies and UPS uninterruptible power supplies;

充电电源、电镀电源、激光电源、X - 光机电源
Charging power supplies, electroplating power supplies, laser power supplies and X-ray machine power supplies.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs（T） Saturation Magnetic Induction Intensity Bs (T)	1.2 - 1.25
初始磁导率 μi（Gs/Oe） Initial Magnetic Permeability μi (Gs/Oe)	>12×10
居里温度 Tc（°C） (Curie Temperature Tc (°C))	570
工作温度范围（°C） (Operating Temperature Range (°C))	-50 - 130
密度 ρ（g/cm^3） (Density ρ (g/cm^3))	7.25
电阻率（μΩ·cm） (Resistivity (μΩ·cm))	130

常用规格型号（Common Specifications and Models）（产品编码：NC-B-XXX，NC = 纳米晶磁芯，B = 精密电流小互感器类型）
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type）

磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	护盒尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Protective Box Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm^2) (Effective Cross-Sectional Area Ae (mm^2))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))	适配电流 (A) (Adaptive Current (A))
50/80×26	45/85×29	194.9	245	120/180
60/100×20	55/105×24	240.7	391.4	100/200
70/130×30	67/135×35	284.5	438.1	315/430

注：支持定制其他带宽、带厚规格。

Note: Other bandwidth and thickness specifications can be customized according to customer needs.

九、光伏产业用非晶 / 纳米晶产品
9. Amorphous/Nanocrystalline Products for Photovoltaic Industry

9.1 隔离变压器 (非晶带材绕制)
9.1 Isolation Transformer (Wound with Amorphous Strips

产品优势
Product Advantages

节能低噪：采用非晶带材绕制 + 耐高温绝缘材料 + 浸漆工艺，降低震动与噪声，能耗比传统硅钢变压器低 30%-50%；

Energy-saving and low-noise: Adopting amorphous strip winding + high-temperature resistant insulation material + dipping process, reducing vibration and noise, and energy consumption is 30%-50% lower than traditional silicon steel transformers;

高可靠性：结构合理，效率 > 95%，波形不失真，符合 GB/T6450 干式电力变压器标准；

High reliability: Reasonable structure, efficiency > 95%, no waveform distortion, complying with GB/T6450 Dry-Type Power Transformer Standard;

环保特性：耐热、耐候、化学兼容性强，无有毒有害物质；

Environmental protection characteristics: Heat-resistant, weather-resistant, strong chemical compatibility, no toxic or harmful substances;

多功能性：可集成风冷、保护外壳、互感器，适配光伏电站多场景需求。

Multifunctionality: Can integrate air cooling, protective shell and mutual inductor, adapting to the multi-scenario needs of photovoltaic power stations.

应用领域
Application Fields

光伏电站并网系统；
Photovoltaic power station grid-connection systems;

光伏逆变器隔离模块。
Photovoltaic inverter isolation modules.

核心技术参数
Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
容量范围 (VA) (Capacity Range (VA))	30 - 100000 (30VA-100KVA)
额定电压 (kV) (Rated Voltage (kV))	⩽0.5
阻抗电压 (%) (Impedance Voltage (%))	10
初始磁导率 μi (Gs/Oe) (Initial Magnetic Permeability μi (Gs/Oe)) (Density ρ (g/cm³))	5×10 - 10×10
最大磁导率 μm (Gs/Oe) (Maximum Magnetic Permeability μm (Gs/Oe))	>25×10
铁损 (W/kg, 50Hz) (Iron Loss (W/kg, 50Hz))	<25
工作温度范围 (°C) (Operating Temperature Range (°C))	-40 - 125

常用规格型号 (Common Specifications and Models) (产品编码：NC-B-XXX，NC = 纳米晶磁芯，B = 精密电流小互感器类型)
Product Code: NC-B-XXX, NC = Nanocrystalline Core, B = Precision Small Current Transformer Type)

磁芯尺寸 (mm) (ID 内径 / OD 外径 / HT 高度) Core Size (mm) (ID Inner Diameter / OD Outer Diameter / HT Height)	有效截面积 Ae (mm²) (Effective Cross-Sectional Area Ae (mm²))	磁路长度 Le (mm) (Magnetic Path Length Le (mm))	变比 (N1:N2) (Turn Ratio (N1:N2)	输入电流 (mA) (Input Current (mA))	输出电压 (mV) (Output Voltage (mV))
5/10×5	0.06	2.6	1:1	100	0.18
10/20×8	0.25	5.0	1:1	500	0.35
16/26×10	0.39	7.2	1:1	1000	0.15

注：支持定制其他带宽、带厚规格。

Note: Other bandwidth and thickness specifications can be customized according to customer needs.

9.2 直流漏电流传感器
9.2 DC Leakage Current Sensor

产品优势
Product Advantages

原理先进：采用磁通门（Flux gate）技术，小电流（10mA-1A）测量稳定性好，误差 < 1% FS；
Advanced principle: Adopting Flux gate technology, with good measurement stability for small currents (10mA-1A) and error < 1% FS;

绝缘性强：初级与次级高度绝缘（50Hz、1min、3000V 耐压）；
Strong insulation: High insulation between primary and secondary (50Hz, 1min, 3000V voltage resistance);

安装便捷：一体式设计，体积小，无插入损耗，抗干扰能力强
Easy installation: Integrated design, small size, no insertion loss and strong anti-interference ability.

应用领域
Application Fields

光伏逆变器、直流输电系统；
Photovoltaic inverters and DC transmission systems;

蓄电检测、直流屏、大型医疗设备、漏电监测系统。
Power storage detection, DC screens, large medical equipment and leakage monitoring systems.

核心技术参数
Core Technical Parameters

型号 (Model)	额定测量电流 (Rated Measuring Current)	最大测量电流 (Maximum Measuring Current)	输出电压 (Output Voltage)	工作电源 (Working Power Supply)	工作温度 (°C) (Operating Temperature (°C))	绝缘电阻 (Insulation Resistance)
HYGF-10mA	±10mA	±15mA	±5V±1%	DC12-15V±5%	-40 - 85	>100MΩ
HYGF-20mA	±20mA	±30mA	±5V±1%	DC12-15V±5%	-40 - 85	>100MΩ
HYGF-50mA	±50mA	±75mA	±5V±1%	DC12-15V±5%	-40 - 85	>100MΩ
HYGF-100mA	±100mA	±150mA	±5V±1%	DC12-15V±5%	-40 - 85	>100MΩ
HYGF-1A	±1A	±1.2A	±5V±1%	DC12-15V±5%	-40 - 85	>100MΩ

使用说明（Usage Instructions）
待测电流穿过传感器即可输出对应电压，错误接线可能导致损坏；
The measured current passes through the sensor to output the corresponding voltage; incorrect wiring may cause damage;

输出幅度可按需调节，支持定制额定输入电流与输出电压。
The output amplitude can be adjusted as needed, and customized rated input current and output voltage are supported.

十、核心原材料：1K101 系列非晶带材
10. Core Raw Material: 1K101 Series Amorphous Strips

10.1 非晶带材产品核心性能指标
10.1 Core Performance Indicators of Amorphous Strip Products

非晶铁芯是非晶合金薄带经过剪切、成型、热处理等工艺而制作的产品，是非晶变压器的核心部件，非晶合金变压器与传统的硅钢变压器相比，具有损耗低、高导磁性，其空载损耗比普通硅钢变压器可下降 60%-80%。

Amorphous cores are products made of amorphous alloy thin strips through cutting, forming, heat treatment and other processes, and are the core components of amorphous transformers. Compared with traditional silicon steel transformers, amorphous alloy transformers have low loss and high magnetic permeability, and their no-load loss can be reduced by 60%-80% compared with ordinary silicon steel transformers.

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感 (T) (Saturation Magnetic Induction (T))	1.62
磁致伸缩系数 (Magnetostriction Coefficient)	27×10^{-6}
晶化温度 (°C) (Crystallization Temperature (°C))	510
居里温度 (°C) (Curie Temperature (°C))	409
电阻率 (μΩ·cm) (Resistivity (μΩ·cm))	116
最佳退火温度 (°C) (Optimal Annealing Temperature (°C))	345-355
密度 (g/cm^3) (Density (g/cm^3))	7.25
抗拉强度 (Mpa) (Tensile Strength (Mpa))	1400-2000
维氏硬度 (kg/mm^2) (Vickers Hardness (kg/mm^2))	835

性能指标 (Performance Index)	参考值 (Reference Value)
厚度(μm) (Thickness (μm))	24±1
叠片系数 (Lamination Factor)	⩾0.9
矫顽力(A/m) (Coercivity (A/m))	<3.0
最大磁导率(μ) (Maximum Magnetic Permeability (μ))	>2000
铁损(W/kg,1.35T/50Hz - 磁环法) (Iron Loss (W/kg, 1.35T/50Hz - Toroid Method))	<0.135
铁损(W/kg,1.35T/50Hz - 单片法) (Iron Loss (W/kg, 1.35T/50Hz - Single Sheet Method))	<0.072
铁损(W/kg,1.0T/400Hz - 磁环法) (Iron Loss (W/kg, 1.0T/400Hz - Toroid Method))	<1.40

10.2 产品应用领域
10.2 Product Application Fields

非晶制作的平面铁芯主要适用于各种中频变压器,特种变压器,电抗器,设备电源等产品,同时也适用于出口到国外所有单相变压器要求。

Planar cores made of amorphous materials are mainly suitable for various medium-frequency transformers, special transformers, reactors, equipment power supplies and other products, and also meet the requirements of all single-phase transformers exported abroad.

依托“生产节能 + 应用节能”的双绿色特性,广泛应用于:

Relying on the dual green characteristics of "production energy saving + application energy saving", it is widely used in:

电力电子工业:油浸式变压器,干式变压器,电感器、传感器等磁芯器件

Power electronics industry: Oil-immersed transformers, dry-type transformers, inductors, sensors and other magnetic core devices

新能源汽车:非晶电机核心材料

New energy vehicles: Core materials for amorphous motors

10.3 常规尺寸
10.3 Conventional Sizes

目前常规带材宽度为(mm):120、125、130、142、150、170、180、190、200、213、240

Current conventional strip widths (mm): 120, 125, 130, 142, 150, 170, 180, 190, 200, 213, 240

常规厚度:24-25μm

Conventional thickness: 24-25μm

叠片系数:90% 以上

Lamination factor: Over 90%

极差:小于 2.5μm

Tolerance Range: Less than 2.5μm

十一、核心原材料：1K107 系列纳米晶带材
11. Core Raw Material: 1K107 Series Nanocrystalline Strips

11.1 产品介绍
11.1 Product Introduction

成分：铁基合金（Fe 为主），添加 Nb、Cu、Si、B 等元素；
Composition: Iron-based alloy (Fe as the main component), added wit

工艺：快速凝固工艺（冷却速度 > 10 ℃/s），经热处理后形成 10-20nm 微晶，弥散分布于非晶基体；
Process: Rapid solidification process (cooling rate > 10 ℃/s), forming 10-20nm microcrystals after heat treatment, which are dispersedly distributed in the amorphous matrix;

冶金优势：冶金工艺流程比硅钢短，节能 80%，被誉为 “冶金流程革命性进展”。
Metallurgical advantage: The metallurgical process flow is shorter than that of silicon steel, saving 80% energy, and is known as a "revolutionary progress in metallurgical processes".

11.2 产品优势
11.2 Product Advantages

磁性能优异：高饱和磁感应强度（1.1-1.2T）、高初始磁导率（>12×10 Gs/Oe）、低矫顽力（<1.6A/m）；
Excellent magnetic properties: High saturation magnetic induction (1.1-1.2T), high initial magnetic permeability (>12×10 Gs/Oe), low coercivity (<1.6A/m);

高频特性好：高频损耗低（P0.5T/20kHz<30W/kg），电阻率高（130μΩ·cm）；
Good high-frequency characteristics: Low high-frequency loss (P0.5T/20kHz<30W/kg), high resistivity (130μΩ·cm);

物理性能稳定：硬度高（Hv=880kg/mm^2）、高居里温度（570°C）、密度 7.25g/cm^3。
Stable physical properties: High hardness (Hv=880kg/mm^2), high Curie temperature (570°C), density 7.25g/cm^3.

11.3 应用领域
11.3 Application Fields

EMC 共模 / 差模滤波电感铁芯；
EMC common-mode/differential-mode filter inductor cores;

开关电源（大中小功率）变压器铁芯；
Transformer cores for switching power supplies (large, medium and small power);

精密电流互感器（零序、漏保）铁芯；
Precision current transformer (zero-sequence, leakage protection) cores;

磁放大器、尖峰抑制器、饱和电感铁芯。
Magnetic amplifier, spike suppressor and saturated inductor cores.

11.4 核心技术参数
11.4 Core Technical Parameters

性能指标 (Performance Index)	参考值 (Reference Value)
饱和磁感应强度 Bs (T) Saturation Magnetic Induction Intensity Bs (T)	1.1 - 1.2
初始磁导率 μi (Gs/Oe) Initial Magnetic Permeability μi (Gs/Oe)	>12×10
居里温度 Tc (°C) (Curie Temperature Tc (°C))	570
晶化温度 Tx (°C) (Crystallization Temperature Tx (°C))	510
硬度 Hv (kg/mm^2) (Hardness Hv (kg/mm^2))	880
密度 ρ (g/cm^3) (Density ρ (g/cm^3))	7.25
电阻率 (μΩ·cm) (Resistivity (μΩ·cm))	130
饱和磁致伸缩系数 (Saturation Magnetostriction Coefficient)	2×10

11.5 常用规格型号
11.5 Common Specifications and Models

产品牌号 (Product Grade)	带材宽度 (mm) (Strip Width (mm))	带材厚度 (μm) (Strip Thickness (μm))	生产方式 (Production Method)	厚度偏差 (Thickness Deviation)	宽度偏差 (Width Deviation)
NR107A015032P	15	32	自重 (Self-weight)	±2μm	±0.2mm
NR107A020032P	20	32	自重 (Self-weight)	±2μm	±0.2mm
NR107B025035P	25	35	自重 (Self-weight)	±2μm	±0.2mm
NR107D030035P	30	35	自重 (Self-weight)	±2μm	±0.2mm
NR107A040023B	40	23	压力 (Pressure)	±2μm	±0.2mm

注：支持定制其他带宽、带厚规格。
Note: Other bandwidth and thickness specifications can be customized according to customer needs.

十二、非晶 / 纳米晶基础技术知识
12. Basic Technical Knowledge of Amorphous/Nanocrystalline Materials

12.1 非晶材料定义与结构特性
12.1 Definition and Structural Characteristics of Amorphous Materials

定义：非晶态金属（又称金属玻璃）是原子呈无规排列的亚稳态固体，与晶体（原子长程有序排列）相比，自由能更高，需通过快速冷却（抑制晶化）制备；

Definition: Amorphous metal (also known as metallic glass) is a metastable solid with randomly arranged atoms. Compared with crystals (with long-range ordered atomic arrangement), it has higher free energy and needs to be prepared by rapid cooling (inhibiting crystallization);

核心特点：亚稳态（需避免高温晶化）、优异软磁性能（低损耗、高磁导率）、高硬度、高耐蚀性。

Core characteristics: Metastable state (needing to avoid high-temperature crystallization), excellent soft magnetic properties (low loss, high magnetic permeability), high hardness and high corrosion resistance.

12.2 制备工艺（主流：液相急冷法）
12.2 Preparation Process (Mainstream: Liquid Quenching Method

将熔融金属（1400°C左右）以 10^{5} - 10^{8} °C/s 的超高速冷却，使原子来不及有序排列，保留液态无序结构，形成非晶带材（厚度 20-35μm，宽度 15-40mm）。

The molten metal (around 1400°C) is cooled at an ultra-high speed of 10^{5} - 10^{8} °C/s, so that atoms have no time to arrange orderly, retaining the liquid disordered structure and forming amorphous strips (thickness 20-35μm, width 15-40mm).

主流设备（Mainstream Equipment）

单辊急冷：熔融金属喷射到高速旋转（2000-10000 转 / 分钟）的冷却圆筒表面，形成连续带材；

Single-roll quenching: Molten metal is sprayed onto the surface of a high-speed rotating (2000-10000 revolutions per minute) cooling cylinder to form continuous strips;

双辊急冷：熔融金属夹在两对高速旋转轧辊间，适用于更宽带材制备。

Twin-roll quenching: Molten metal is clamped between two pairs of high-speed rotating rolls, suitable for wider strip preparation.

十三、非晶/纳米晶铁芯生产工艺流程图
13.Amorphous and Nanocrystalline Core Production Process Flow Chart

熔融 Melting

↓

喷铸 Spray Casting

↓

测量 Measurement

↓

卷绕 Winding

↓

自动称重 Automatic Weighing

↓

退火热处理 Annealing Heat Treatment

↓

磁场热处理 Magnetic Field Heat Treatment

↓

自动点胶装壳 Automatic Dispensing and Casing

↓

磁芯喷涂 Magnetic Core Spraying

↓

性能检测 Performance Testing

↓

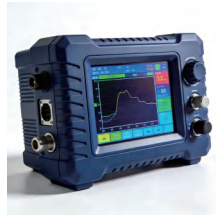
组装 Assembly

十四、核心应用领域
14. (Core Application Fields)

1. 电力计量领域
Power Metering Field

核心应用：电子电度表、精密功率表

Core Applications: Electronic Watt-hour Meters, Precision Power Meters



对应产品：精密电流小互感器铁芯（例：单相电子电度表电流采样部件）、高中低压电流互感器铁芯（例：三相精密功率表计量模块）

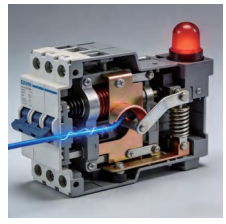
Corresponding Products: Precision Small Current Transformer Cores (Example: Current Sampling Component of Single-phase Electronic Watt-hour Meter), High/Medium/Low Voltage Current Transformer Cores (Example: Metering Module of Three-phase Precision Power Meter)



2. 工业控制领域
Industrial Control Field

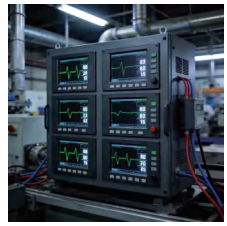
核心应用：机械控制电流过载保护、工业自动化电流监测

Core Applications: Current Overload Protection for Mechanical Control, Current Monitoring in Industrial Automation



对应产品：高中低压电流互感器铁芯（例：机床配电箱过载保护装置、生产线 PLC 电流监测模块）

Corresponding Products: High/Medium/Low Voltage Current Transformer Cores (Example: Overload Protection Device for Machine Tool Distribution Box, PLC Current Monitoring Module for Production Line)



3. 漏电监测领域
Leakage Monitoring Field

核心应用：设备漏电监测、直流系统漏电防护（光伏 / 医疗 / 直流屏）

Core Applications: Equipment Leakage Monitoring, Leakage Protection for DC Systems (PV/Medical/DC Panel)



对应产品：零序电流互感器铁芯（例：家用漏电保护器）、开合式 LJM-1/2/3 系列零序互感器（例：楼宇配电系统漏电监测装置）、直流漏电流传感器（例：光伏逆变器漏电检测单元、医院 ICU 直流屏防护模块）

Corresponding Products: Zero-sequence Current Transformer Cores (Example: Household Leakage Protector), Split-type LJM-1/2/3 Series Zero-sequence Current Transformers (Example: Leakage Monitoring Device for Building Power Distribution System), DC Leakage Current Sensors (Example: Leakage Detection Unit of PV Inverter, Protection Module for DC Panel in Hospital ICU)



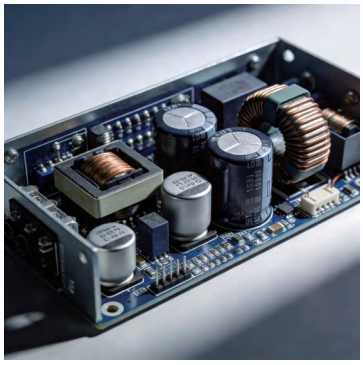
4.家电与消费电子领域
Home Appliance & Consumer Electronics Field

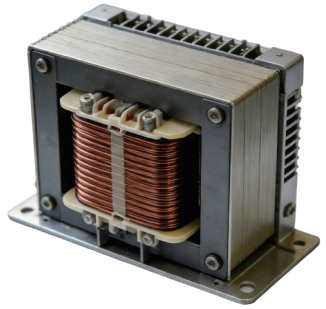
核心应用：家电电源滤波、影像设备（电视 / 录像机）、办公自动化设备、音响 / 通讯电源模块

Core Applications: Power Filtering for Home Appliances, Imaging Equipment (TV/VCR), Office Automation Equipment, Audio/Communication Power Modules

对应产品：滤波电感铁芯（例：空调电源滤波部件）、大型共模滤波器（例：冰箱抗干扰滤波模块）、差模电感环形铁芯（例：音响电源降噪部件）、家电电源滤波模块（例：电视电源适配器、打印机电源模块）

Corresponding Products: Filter Inductor Cores (Example: Power Filter Component of Air Conditioner), Large Common-mode Filters (Example: Anti-interference Filter Module of Refrigerator), Differential-mode Inductor Toroidal Cores (Example: Power Noise Reduction Component of Audio), Home Appliance Power Filter Modules (Example: TV Power Adapter, Printer Power Module)





5. 特种电源领域
Special Power Supply Field

核心应用：逆变焊机电源、UPS 不间断电源、充电电源、电镀 / 激光 / X - 光机电源

Core Applications: Inverter Welder Power Supply, UPS Uninterruptible Power Supply, Charging Power Supply, Electroplating/Laser/X-ray Machine Power Supply

对应产品：逆变焊机用大功率开关电源变压器磁芯（例：高频逆变焊机主变压器）、通讯设备电源磁芯（例：基站 UPS 电源变压部件、电镀电源转换模块、激光切割机电源磁芯、医用 X - 光机高压电源模块）

Corresponding Products: High-power Switching Power Transformer Cores for Inverter Welders (Example: Main Transformer of High-frequency Inverter Welder), Power Cores for Communication Equipment (Example: Transformer Component of Base Station UPS Power Supply, Electroplating Power Conversion Module, Power Core of Laser Cutting Machine, High-voltage Power Module of Medical X-ray Machine)





6. 光伏产业领域
PV Industry Field

核心应用：光伏电站并网、光伏逆变器隔离、直流输电系统

Core Applications: PV Power Plant Grid-connection, PV Inverter Isolation, DC Power Transmission System

对应产品：非晶 / 纳米晶隔离变压器（逆变器隔离模块）（例：10MW 光伏电站并网逆变器隔离部件）、直流漏电流传感器（例：光伏阵列直流汇流箱漏电监测单元、直流输电线路防护模块）

Corresponding Products: Amorphous/Nanocrystalline Isolation Transformers (Inverter Isolation Module) (Example: Isolation Component of Grid-connected Inverter in 10MW PV Power Plant), DC Leakage Current Sensors (Example: Leakage Monitoring Unit of PV Array DC Combiner Box, Protection Module of DC Power Transmission Line)





7. 汽车电子领域
Automotive Electronics Field

核心应用：储能变流器（PCS）、核磁共振（MRI）设备电源滤波

Core Applications: Energy Storage Converter (PCS), Power Filtering for Magnetic Resonance Imaging (MRI) Equipment

对应产品：储能用隔离变压器磁芯（例：50kWh 储能电站 PCS 变压部件）、医疗级共模滤波磁芯（例：核磁共振设备电源抗干扰滤波模块、透析机电源防护部件）

Corresponding Products: Isolation Transformer Cores for Energy Storage (Example: Transformer Component of PCS in 50kWh Energy Storage Power Station), Medical-grade Common-mode Filter Cores (Example: Anti-interference Filter Module of MRI Equipment Power Supply, Protection Component of Dialysis Machine Power Supply)





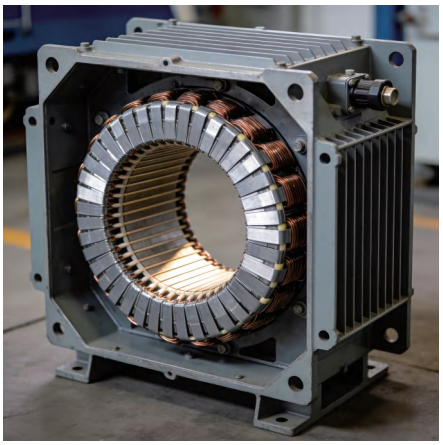
8. 轨道交通领域
Rail Transit Field

核心应用：列车牵引变流器、辅助电源系统电流监测

Core Applications: Train Traction Converter, Current Monitoring of Auxiliary Power System

对应产品：耐高温纳米晶电流互感器铁芯（例：地铁牵引变流器电流监测部件、高铁辅助电源系统过载保护模块）

Corresponding Products: High-temperature Resistant Nanocrystalline Current Transformer Cores (Example: Current Monitoring Component of Metro Traction Converter, Overload Protection Module of High-speed Railway Auxiliary Power System)





9. 储能与医疗领域
Energy Storage & Medical Field

核心应用：新能源汽车车载充电机（OBC）、直流变换器（DC-DC）

Core Applications: On-board Charger (OBC) for New Energy Vehicles, DC-DC Converter

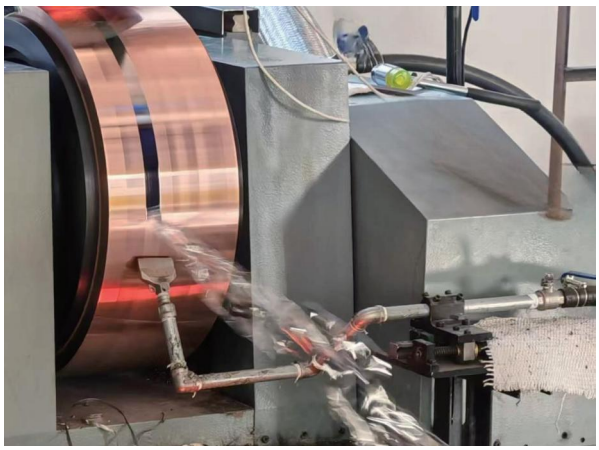
对应产品：车规级纳米晶滤波电感铁芯（例：新能源汽车 OBC 电源滤波部件）、高频变压器磁芯（例：车载 DC-DC 变换器变压模块）

Corresponding Products: Automotive-grade Nanocrystalline Filter Inductor Cores (Example: Power Filter Component of New Energy Vehicle OBC), High-frequency Transformer Cores (Example: Transformer Module of On-board DC-DC Converter)





生产设备
Production Equipment













专利证书
Patent Certificates


实用新型专利证书
实用新型名称：卷收非晶带材成盘控制装置以及收带机
发 明 人：张宝石;杨德睿
专 利 号：ZL 2021 2 3421065.8
专利申请日：2021 年 12 月 30 日
专利权人：江苏信昇新材有限公司
地址：江苏省淮安市金湖县智能制造产业园23号楼
授权公告日：2022 年 11 月 01 日　　授权公告号：CN 217708327 U
局长 申长雨


实用新型专利证书
实用新型名称：可调节角度的抛光轮系统
发 明 人：张宝石;杨德睿
专 利 号：ZL 2022 2 3584136.X
专利申请日：2022年12月31日
专利权人：江苏信昇新材有限公司
地址：江苏省淮安市金湖县智能制造产业园23号楼
授权公告日：2023年06月13日　　授权公告号：CN 219170524 U
局长 申长雨


实用新型专利证书
实用新型名称：喷带在线外观检测装置
发 明 人：张宝石;杨德睿
专 利 号：ZL 2021 2 3420736.9
专利申请日：2021 年 12 月 30 日
专利权人：江苏信昇新材有限公司
地址：江苏省淮安市金湖县智能制造产业园23号楼
授权公告日：2022 年 07 月 15 日　　授权公告号：CN 216977802 U
局长 申长雨


实用新型专利证书
实用新型名称：卷收非晶带材成盘控制装置以及收带机
发 明 人：张宝石;杨德睿
专 利 号：ZL 2021 2 3421065.8
专利申请日：2021 年 12 月 30 日
专利权人：江苏信昇新材有限公司
地址：江苏省淮安市金湖县智能制造产业园23号楼
授权公告日：2022 年 11 月 01 日　　授权公告号：CN 217708327 U
局长 申长雨


发明专利证书
发 明 名 称：一种非晶制带和中的喷嘴调整方法
发 明 人：杨德睿
专 利 号：ZL 2023 1 0904300.1
专利申请日：2023年07月21日
专利权人：江苏信昇新材有限公司
地　　址：江苏省淮安市金湖县智能制造产业园23号楼
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发明专利证书
发 明 名 称：一种非晶制带和中的输料方法
发 明 人：张宝石
专 利 号：ZL 2023 1 1072577.9
专利申请日：2023年08月24日
专利权人：江苏信昇新材有限公司
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实用新型专利证书
实用新型名称：钢板过滤装置
发 明 人：张宝石;杨德睿
专 利 号：ZL 2022 2 3580439.5
专利申请日：2022年12月31日
专利权人：江苏信昇新材有限公司
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实用新型专利证书
实用新型名称：卷收非晶带材成盘控制装置以及收带机
发 明 人：张宝石;杨德睿;李宝山
专 利 号：ZL 2021 2 3421065.8
专利申请日：2021 年 12 月 30 日
专利权人：江苏信昇新材有限公司
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