江苏国能合金科技有限公司
Jiangsu Guoneng Alloy Technology Co., Ltd

……以客户为中心，以员工为根本，追求员工、企业、客户和社会的共赢

Customer-Centered

Employee-Based

Pursuing Win-Win Situation

Among Employees,

Enterprises,

Customers And Society

铁基非晶合金带材
IRON-BASED AMORPHOUS RIBBON

非晶合金铁芯
AMORPHOUS LAMINATIONS / CORES

铁基纳米晶带材
IRON-BASED NANOCRYSTALLINE RIBBON

纳米晶合金铁芯
IRON-BASED NANOCRYSTALLINE CORES

非晶变压器
AMORPHOUS TRANSFORMERS

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中国 · 江苏
China · Jiangsu

Company Profile
企业简介

江苏国能合金科技有限公司地处交通便利的沪、宁、杭经济圈中心——江苏省宜兴市徐舍工业园区，是一家集研制、开发、生产于一体的现代多元化企业，ISO9001:2008质量管理体系认证和ISO14001:2004环保认证管理示范企业，与山东理工大学共同成立了“江苏国能新材料研发中心”。公司占地面积100余亩，注册资金10800万元，建有40000平米的国际化标准车间，主要产品有各类非晶合金带材、非晶高频铁心等非晶合金衍生品，油浸式、干式、美式箱式、欧式箱式等变压器，多功能应急用充电方舱等，公司现有员工200多名，各类管理、技术专业人才占60%以上，并拥有多名非晶行业的科研人才及资深专家。

公司组织机构由董事长、总经理、副总经理及财务部、采购部、销售部、行政部、生产部、技术研发部、安保部及后勤部组成，每个部门都有分管的副总经理。

公司现有数控箔绕机、绝缘折板机、数控环氧树脂真空压力浇注设备、变压器专用固化炉、数控全自动绕线机、德国产铜排折弯机等各类先进的生产设备，以及计算机控制全自动测试台、高压无局放工频耐压试验设备、四通道局放测量系统、变压器噪音测试仪、中频发电机组等整套变压器产品生产检测设备共计100多台套。

公司奉行“以客户为中心，以员工为根本，追求员工、企业、客户和社会的共赢”的核心价值观，秉承“以人为本，诚信经营，质量第一，科技领先”的经营宗旨，致力于非晶合金衍生品及变压器的科研开发、生产制造、技术服务，发展循环经济，构筑和谐社会。公司遵循任人唯贤的管理模式，建立起一支素质高、业务精、专业搭配合理的管理队伍，管理团队专业层次高，具有高度的凝聚力、勇于开拓的创新性和丰富的管理经验。公司按照现代企业制度的要求，制定了一整套完备的管理制度，通过战略规划的实施完成公司发展目标，实行定期的绩效考核制，激励员工成长发展。自成立以来，公司积极推进原始创新、自主研发、引进技术消化吸收再创新、产学研合作等领域，持续提升创新能力。

公司以实业报国为己任，顺应绿色发展趋势，助力我国能源行业发展，一举打破国外技术垄断，引领我国非晶合金行业发展先驱。随着我国的电力行业非晶合金材料的大规模应用，公司旨在从电力、电子等应用领域，打造从研发、生产、销售为一体化的大型非晶高端制造产业链，建成为全省乃至全国的先进金属材料研发和生产基地，取得更多的“国内一流、国际先进”的科研成果，为我国电力行业节能减排和绿色能源技术的发展作出积极贡献。江苏国能合金科技期盼着与您交友，与您合作，与您共同迈向美好的明天！

Jiangsu Guoneng Alloy Technology Co., Ltd established in 2014, registered capital $16 million USD, covers an area of 40,000㎡with abt 200 staff, located in Yixing city (Jiangsu Province) with convenient and quick transportation (2 hours away from Shanghai).

Guoneng is an innovative enterprise engaging in R&D and manufacturing amorphous ribbon, amorphous cores, nanocrystalline ribbon, nanocrystalline cores and transformers with ISO9001:2008 and ISO14001:2004 certification along with more than 20 China patents. Together established jointly ‘Jiangsu Guoneng New Materials Research and Development Center ’ with Shandong University of Science And Technology.

Guoneng Facilities: Amorphous ribbon manufacturing lines (3 Sets), Amorphous ribbon cutting line (9 Sets), Amorphous core annealing furnace (6 Sets), Nanocrystalline ribbon manufacturing lines (1 Set), Nanocrystalline ribbon slitting line, Nanocrystalline Core Forming Line, Testing Lab for amorphous & nanocrystalline ribbon...

Guoneng Capacity: 25,000 T/year for amorphous ribbon and 8,000T/year for amorphous cores (Oil Immersed/Dry)

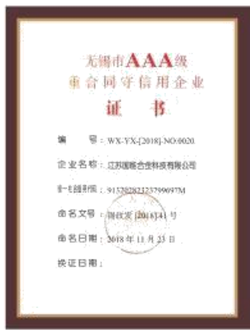
Goneng always believe and follow: Quality First+Integrity Based+Quickest Solution. Guoneng has occupied 30% domestic market, also looking forward to making friends with you, working with you, and moving towards a better tomorrow with you!

Part Of Workshops And Products
公司部分生产车间及产品

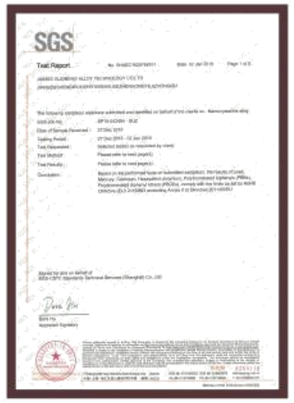
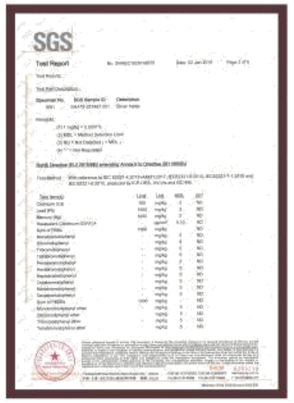
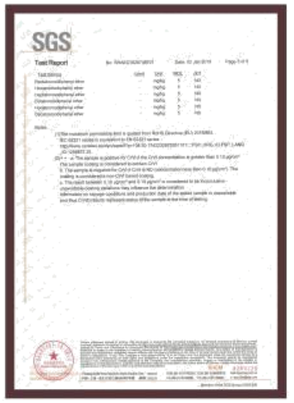
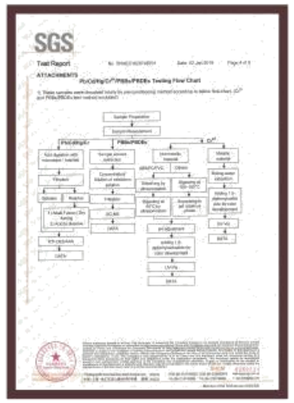


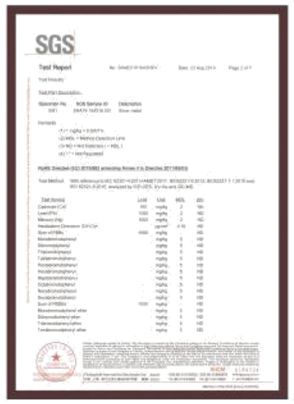
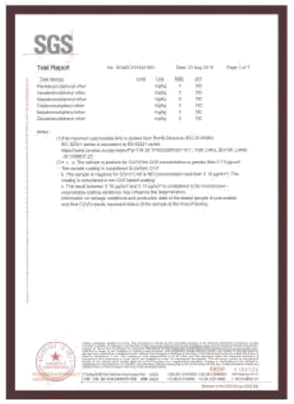
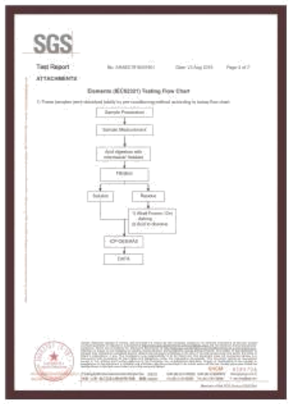
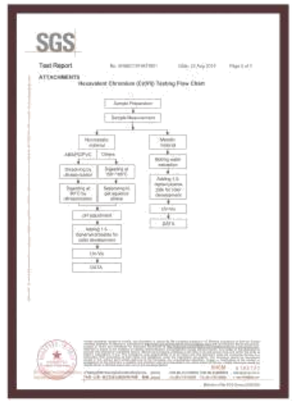
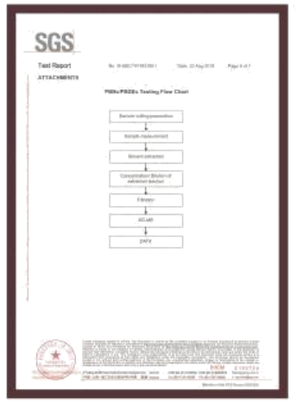


Company Honors
企业荣誉



Part Of The Patents And Test Reports
部分证书与检测报告






Part Of The Patent And Test Report
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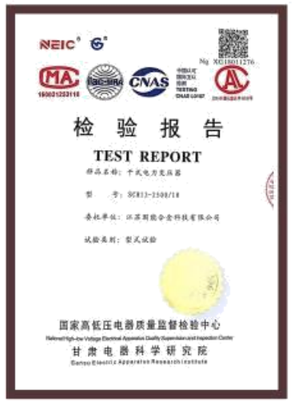


AMORPHOUS RIBBON

◆ Properties Of Products

Saturated Magnetic Induction Intensity(T)	1.61	Saturated Magnetostrictive Coefficient	$27*10^6$
Curie Temperature (℃)	394	Density (g/cm³)	7.25
Crystallization Temperature (℃)	478	Resistivity (μω-cm)	114
Hardness (kg/mm²)	980	Coercive Force (a/m)	<3.8

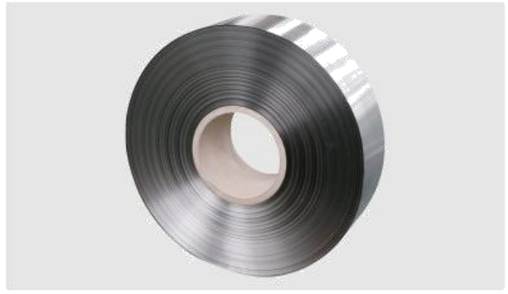
◆ Product Code Description

J	1k101	250	26	2
Shear	Amorphous material	Bandwidth (Including a decimal)	Bandwidth	Thickness deviation

Product Specification	Ribbon Width(mm)	Ribbon Thickness(μm)
J1K101030262	3	26
J1K101035262	3.5	26
J1K101045262	4.5	26
J1K101050262	5	26
J1K101060262	6	26
J1K101065262	6.5	26
J1K101080262	8	26
J1K101100262	10	26
J1K101150262	15	26
J1K101200262	20	26
J1K101250262	25	26
J1K101300262	30	26
J1K101350262	35	26
J1K101400262	40	26
J1K101450262	45	26
J1K101500262	50	26
J1K101550262	55	26
J1K101600262	60	26
J1K101650262	65	26
J1K101700262	70	26
J1K101800262	80	26
J1K1011200262	120	26
J1K1011420262	142	26
J1K1011700262	170	26
J1K1012130262	213	26

Marks:ribbon thickness±2μm

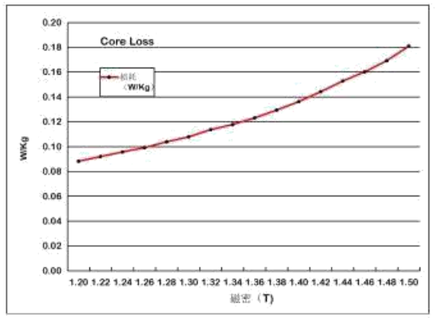
◆ Product Display



Curve Graph For Ribbon (120mm/142mm/170mm/213mm)

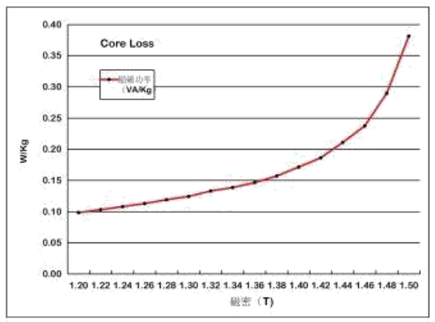
Core Loss (W/Kg)

磁密 (T)	损耗 (W/Kg)
1.20	0.0880
1.22	0.0918
1.24	0.0955
1.26	0.0990
1.28	0.1036
1.30	0.1076
1.32	0.1134
1.34	0.1176
1.36	0.1229
1.38	0.1292
1.40	0.1360
1.42	0.1440
1.44	0.1526
1.46	0.1600
1.48	0.1690
1.50	0.1807



Excitation Power (VA/Kg)

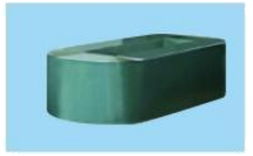
磁密 (T)	励磁功率 (VA/Kg)
1.20	0.0980
1.22	0.1027
1.24	0.1075
1.26	0.1126
1.28	0.1187
1.30	0.1239
1.32	0.1326
1.34	0.1382
1.36	0.1461
1.38	0.1567
1.40	0.171
1.42	0.1858
1.44	0.2105
1.46	0.237
1.48	0.2893
1.50	0.3809



AMORPHOUS CORES/LAMINATIONS

◆ Classification of Amorphous Cores/ Lamination

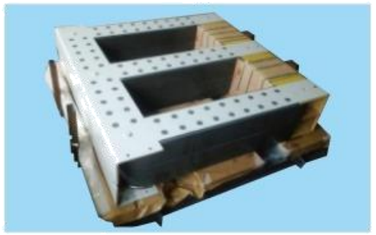
- Three-phase oil-immersed amorphous alloy distribution transformer core
- Single-phase oil-immersed amorphous alloy distribution transformer core
- Three phase dry type amorphous distribution transformer core



Oil-immersed Amorphous Core

Distribution Transformer Core

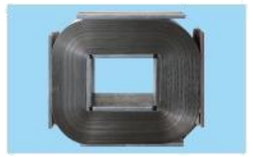
Reactor Amorphous Core



Three-phase Three-column Integral Pouring Amorphous Core

Three-phase Five-column Amorphous Core

Oil-immersed Amorphous Core



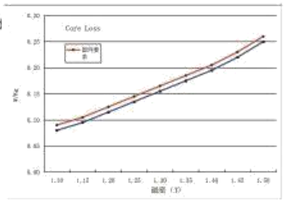
Distribution Transformer Core

Dry Amorphous Core

Curve Graph For Iron Cores (142mm/170m/213mm)

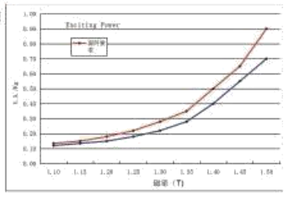
Core Loss (W/Kg)

磁密(T)	State Grid Requirements	Requirements of Southern Power Grid
1.10	0.090	0.080
1.15	0.105	0.095
1.20	0.125	0.115
1.25	0.145	0.135
1.30	0.165	0.155
1.35	0.185	0.175
1.40	0.205	0.195
1.45	0.230	0.220
1.50	0.260	0.250



Exciting Power (V.A./Kg)

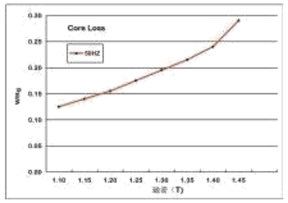
磁密(T)	State Grid Requirements	Requirements of Southern Power Grid
1.10	0.135	0.120
1.15	0.150	0.135
1.20	0.180	0.150
1.25	0.220	0.180
1.30	0.280	0.220
1.35	0.350	0.280
1.40	0.500	0.400
1.45	0.650	0.550
1.50	0.900	0.700



Curve Graph For Dry Type Cores (142mm/170m/213mm)

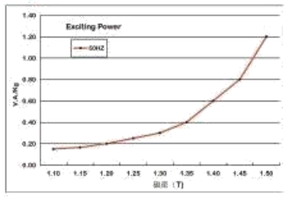
Core Loss (W/Kg)

磁密(T)	50HZ
1.10	0.125
1.15	0.140
1.20	0.155
1.25	0.175
1.30	0.195
1.35	0.215
1.40	0.240
1.45	0.290



Exciting Power (V.A./Kg)

磁密(T)	50HZ
1.10	0.150
1.15	0.165
1.20	0.200
1.25	0.250
1.30	0.300
1.35	0.400
1.40	0.600
1.45	0.800
1.50	1.200



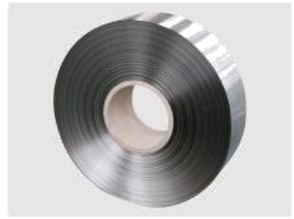
◆Comparison With Other Manufacturers

Performance index	Iron-based amorphous alloy(Guoneng)	Other Domestic Manufacturers
Saturation Flux Density(T)	1.6	1.59
Coercive Force(A/ m)	≤3.8	≤4
Maximun Permeability(μ)	>20×10⁴	>20×10⁴
Iron Loss 50hz 1.35t(W/ kg)	< 0.14	< 0.16
Exciting Power 50hz 1.35t(VA/ kg)	< 0.16	< 0.18
Lamination Factor	≥0.88	≥0.86
Magnetostrictive Coefficient	27 x 10⁻⁶	27 x 10⁻⁶
Resistivity(μΩ·cm)	114	130
Density(g/ cm3)	7.25	7.18
Crystallization Temperature(℃)	478	550
Curie Temperature(℃)	394	415
Strength Of Extension(MPa)	1500~2000	1500~2000
Vickers Hardness(HV)	980	980
Thickness(μm)	24-26	≤30

AMORPHOUS RIBBON

◆Outline

The iron-based amorphous alloy is composed of 80%fe and 20%si and b, the alloy of the metal element is rapidly solidified. An amorphous material formed by the art, having an extremely high quality, superior physical and electrical.



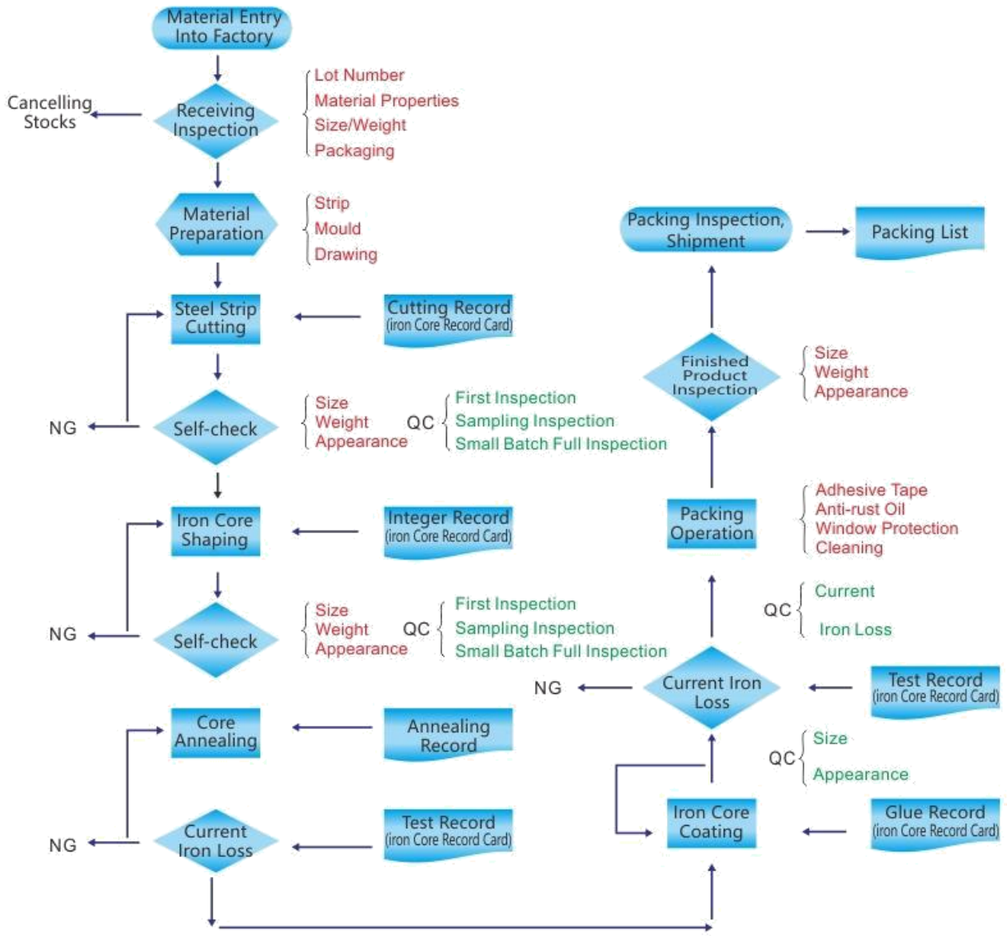
◆Technical Characteristics

- High saturation magnetic induction intensity--reduce the number of winding turns,reduce the volume of the product
- High resistivity, low coercivity--improve product efficiency
- Low loss (equivalent to 1/3-1/5 of silicon steel sheet)--reduce the temperature rise of the product and improve the efficiency
- Low excitation power--reduce the no-load current of the product,reduce the copper loss of the primary winding
- Variable magnetic conductivity--different heat treatment processes of iron core can be used to meet different application requirements.
- Good temperature stability--can work at 130℃ for a long time

◆Comparison Of Properties Between Amorphous Ribbon And Crgo Sheet

Performance Index	Guoneng Iron-based Amorphous Alloy	Cold Rolled Silicon Steel Sheet
Saturated Magnetic Inductance(T)	1.61	2.03
Coercive Force(A/ m)	≤3.8	≤30
μmaximum Permeability	>20×10⁴	4×10⁴
Iron Loss 50Hz 1.35T(W/ kg)	< 0.14	1.2
Excitation Power 50Hz 1.35T(VA/ kg)	< 0.16	< 0.83
Lamination Coefficient	≥0.88	0.96
Magnetostrictive Coefficient	27 x 10⁻⁶	---
Cmresistivity(μΩ)	114	0.45
Density(g/ cm3)	7.25	7.65
Crystallization Temperature(℃)	478	---
Curie Temperature(℃)	394	746
Tensile Strength(Mpa)	1500~2000	343
Vickers Hardness(HV)	980	181
Thickness(μm)	24-26	300

Process And Control Chart Of Iron Core Production Operation



IRON-BASED NANOCRYSTAL RIBBON

◆ Application Area

Precision mutual inductor iron core,high frequency common mode inductor core,leakage protection switch transformer core,ring iron core for small switching power supply transformer

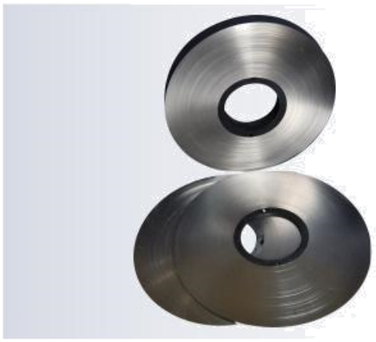
◆ Physical Properties Of The Iron-based Amorphous Alloy

Saturated Magnetic Induction Intensity BS (T)	1.25	Density (g/cm³)	7.8
Curie Temperature (℃)	570	Crystallization Temperature (℃)	510
Hvhardness	880	Saturation Magnetostriction Coefficient	$2*10^{-6}$

◆ Product Specifications

Specifications	Strip Width(mm)	Strip Thickness(mm)
5mm and below	±0.1	±0.0026
5~15mm	±0.1	±0.002
15~25mm	±0.1	±0.002
25mm~60mm	±0.1	±0.002

◆ Product Display



NANOCRYSTALLINE CORES & MAGNETIC CORES

◆ Application Area

Current transformer for power system, precision measuring instrument

◆ Performance Characteristics

For power systems: The saturated magnetic inductance BS of nanocrystal alloy is between light and Bomo alloy, and the lower the BS value is, the lower the security coefficient of the instrument is. When the system fails and produces a large current passing through the current transformer, the more easily the iron core is saturated and the secondary current no longer rises proportionately, thus protecting the secondary instrument from damage. The permeability of the nanocrystal alloy is close to that of Pomo alloy, which is one order of magnitude higher than that of silicon steel.

For precision instruments: The iron-based nanocrystalline alloy material has a high initial magnetic permeability and is stable in performance, and is particularly suitable for use as a magnetic device in high-sensitivity occasions so as to ensure that the iron-based nanocrystalline alloy material is rapid, accurate and good in stability. The cold-rolled silicon steel sheet can not reach the precision requirement according to the measurement accuracy grade requirement (0.5-0.01 level, the rated voltage of 0.5 -500kv), the price requirement, the small change ratio, the low turn-to-turn number, or the size of the iron core is limited due to the volume requirement. Although the high-permeability glass-Mo alloy can meet the precision requirement, the price is high. The adoption of the nanocrystalline iron core not only can achieve the precision requirement, but also the price is lower than that of the glass-glass alloy.

◆ Performance Indicators:

Magnetic properties of iron-based nanocrystalline iron core and glass-mo-alloy core and silicon steel sheet iron core.

Basic Magnetic Parameters	Nanocrystal Iron Core	Glass-glass Core	Silicon Steel Sheet Iron Core
Saturation Induction Density(T)	1.25	0.76	2.03
Oinitial Permeability(Gs/Oe)	80000	70000	1000
Maximum Permeability(Gs/Oe)	600000	600000	40000
Density(g/cm³)	7.8	8.75	7.65
Curie Temperature(℃)	570	400	740

◆ Main Characteristics

A: high permeability--Greatly improve the accuracy of transformer and reduce the specific difference.
B: light weight and low cost--The price is significantly lower than that of Beomo alloy.
C: Excellent stability--It can work at-55 ~130℃ for a long time.
D: Higher saturated flux density----Extended current measurement range.

Iron Core Size(mm)			Net Sectional Area(mm²)	Average Magnetic Circuit Length(mm)	Volume(cm³)	Quality(g)
40	50	35	140	141.3	19.8	143.5
45	66	30	252	174.3	43.9	318.6
45	75	25	300	188.4	56.5	410
48	68	30	240	182.1	43.7	317
48	72	35	336	188.4	63.3	459.2
50	85	25	350	211.9	74.2	538.1
50	85	30	420	211.9	89.1	645.7
57	74	30	204	205.7	42	304.3
60	85	30	300	227.7	68.3	495.4
70	85	28	168	243.4	40.9	296.6
70	120	30	600	298.3	179.1	1298.3
75	115	30	480	298.3	143.3	1038.6
85	115	30	360	314	113.1	820
85	125	25	400	329.7	131.9	956.6
87	112	25	250	312.4	78.1	566.6
90	120	25	300	329.7	99	717.5
90	120	30	360	329.7	118.8	861
90	130	30	480	345.4	165.9	1202.6
95	140	20	360	369	132.9	963.5
100	140	30	480	376.8	181	1311.9
105	135	30	360	376.8	135.7	983.9
120	155	40	560	431.8	241.9	1753.9
125	170	45	810	463.15	375.3	2721.2
130	190	20	480	502.4	241.3	1749.2

LEAKAGE PROTECTION SWITCH MUTUAL INDUCTOR MAGNETIC CORE

◆ Product Display

◆ Application Area

1、It is applied to the core of electronic or electromagnetic leakage protection switch transformer.
2、Intelligent electric meter.

◆ Performance Characteristics

A: High magnetic conductivity and low coercive force are beneficial to reduce the operating current of leakage switch, improve accuracy and sensitivity, and are sensitive to weak leakage current and have good resistance to high current shock.
B: The magnetic field has high saturation magnetic induction intensity and high permeability, which can meet the requirements of AC / DC hybrid detection and instrument accuracy. It is especially suitable for high sensitivity magnetic devices to ensure its rapid reaction, accuracy and stability.

◆ Common Specifications

Iron Core Size(mm)			Direct Current
14	20	10	40
15	21	10	60
16	21	10	60
16	23	10	60
17	28	8	80
18	24	10	80
19	27	8	80
19	26	10	80
20	30	8	100

Note:The core of other specifications can be customized according to the requirements of the customer

COMPARISON BETWEEN AMORPHOUS TRANSFORMER AND SILICON STEEL TRANSFORMER

◆ Product Display

Amorphous Transformer
Sbh-400(15)

Dry Type Transformescb11-500

Oil-immersed Transformer
S11-m-500(2)

◆ Advantages Of Amorphous Alloy Transformers

- Small lightweight transformer to reduce direct material cost
- The equipment is simple and fast, and the production capacity is greatly improved.
- Low noise effect
- Compared with the silicon steel sheet transformer of the same capacity voltage grade, the no-load loss is reduced by 70% and the no-load current is reduced by about 75%. The energy saving effect is obvious.

◆ S11 And Sh15 Performance Standard

Transformer Capacity (kVA)	S11 Silicon Steel Series		Sh15- Amorphous Series		Remarks
	No-load Loss(kW)	Load Losses(kW)	No-load Loss(kW)	Load Losses(kW)	
30	0.10	0.63/0.60	0.033	0.63/0.60	
50	0.13	0.91/0.87	0.043	0.91/0.87	
63	0.15	1.09/1.04	0.05	1.09/1.04	
80	0.18	1.31/1.25	0.06	1.31/1.25	
100	0.20	1.58/1.50	0.075	1.58/1.50	
125	0.24	1.89/1.8	0.085	1.89/1.8	
160	0.28	2.31/2.2	0.1	2.31/2.2	
200	0.34	2.73/2.6	0.12	2.73/2.6	
250	0.4	3.2/3.05	0.14	3.2/3.05	
315	0.48	3.83/3.65	0.17	3.83/3.65	
400	0.57	4.52/4.30	0.2	4.52/4.30	
500	0.68	5.41/5.15	0.24	5.41/5.15	
630	0.81	6.2	0.32	6.2	
800	0.98	7.5	0.38	7.5	
1000	1.15	10.3	0.45	10.3	
1250	1.36	12.0	0.53	12.0	
1600	1.64	14.0	0.63	14.0	
2000	1.94	18.3	0.75	18.3	
2500	2.29	21.2	0.9	21.2	