LONDERFUL

LONDERFUL NEW MATERIAL PRODUCT
BROCHURE 产品宣传手册

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朗峰新材料科技股份有限公司

LONGERFUL

朗峰致力节能低碳 共建绿色未来

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朗峰新材料科技股份有限公司是一家国家级高新技术企业。公司拥有两个生产基地分别位于菏泽和启东，一个研发中心位于上海，一个技术服务中心位于深圳。两个工厂均通过 ISO9001 质量管理体系、ISO14001 环境管理体系认证，IATF16949 质量体系认证。目前公司主营四大产品线：滤波产品线，功率产品线，传感产品线和屏蔽片产品线。公司产品主要运用于大功率家电，汽车电子，工业控制和消费电子领域。服务的客户覆盖中国、韩国、日本、德国和法国。

公司是国内首批掌握纳米晶压力制带工艺的高新技术企业，从材料起家，向下游延伸至器件端，凭借十年以来的摸索、实践和创新，拥有从材料到器件再到模组的全产业链，全自动化生产线。

公司是国内磁性材料行业少数同时具备纳米晶材料成分制配和生产能力、工艺装备自动化设计能力、产品应用方案定制能力的企业，目前所掌握的多项产品技术成果经鉴定或评价达到国际和国内领先水平。公司非常注重研发团队的培养及技术的积累，目前有专利 83 项，其中发明专利 18 项。

公司是德国材料协会企业会员、中国非晶产业联盟常务理事单位。于 2022 年荣获国家工信部颁发的第四批国家级“专精特新小巨人”企业称号，同年获得江苏省科技进步二等奖；曾获得江苏省科技成果项目转化二等奖，安徽省科学技术三等奖等荣誉。

COMPANY PROFILE

Londerful New Material Technology Co., Ltd. is a national high-tech enterprise. The company has two production bases, respectively located in Heze and Qidong, a R&D center in Shanghai, and a technical service center in Shenzhen. Both factories have passed ISO9001 quality management system certification, ISO14001 environmental management system certification, IATF16949 quality system certification. At present, the company has four main product lines: filter product line, power product line, sensing product line and shield product line. The company's products are mainly used in high-power household appliances, automotive electronics, industrial control and consumer electronics fields. The company serve customers in China, Korea, Japan, Germany and France.

The company is one of the earliest high-tech enterprises to master the nanocrystalline pressure belt process, starting from materials, extending downstream to the device end. With ten years of exploration, practice and innovation, the company possess the whole industry chain from materials to devices to modules and fully automated production lines.

The company is one of the few companies in the domestic magnetic materials industry possessing nanocrystalline material preparation and production capabilities, process equipment automation design capabilities, product application solution customization capabilities. And a number of product technology achievements have been identified or evaluated to reach the international and domestic leading level. The company focuses on the training of research team and the accumulation of technology, and currently possesses 83 patents, including 18 invention patents.

The company is a member of the German Materials Association(Deutsche Gesellschaft für Materialkunde e.V.) and the executive director of China Amorphous Industry Alliance. In 2022, the company won the title of the fourth batch of specialized and sophisticated "Little Giant" enterprise released by the Ministry of Industry and Information Technology of the People’ s Republic of China, and won the second prize of Science and Technology progress award of Jiangsu Province in the same year. The company has won the second prize of project transformation award of scientific and technological achievements of Jiangsu Province, and the third prize of Science and Technology award of Anhui province.

企业证书
ENTERPRISE
CERTIFICATION

发明专利证书

一种高磁感软磁材料非晶超薄带的制备装置
一种纳米晶带材精密剪切机边料自动收集装置
一种文丘里动态循环自调节纳米涂层的喷涂装置
一种用于纳米晶带材生产的打磨抛光装置
一种气转液型纳米晶带材生产用融化装置

实用新型专利证书

一种母合金冶炼炉
一种高性能铁基非晶纳米晶合金热处理退火装置
铁芯自动称重装置

资质证书

IATF 16949:2016 质量管理体系认证证书
环境管理体系认证证书
ISO 9001:2015 质量管理体系认证证书

Invention patent certificate

The invention relates to a device for preparing amorphous ultra-thin strip of a soft magnetic material with high magnetic induction
The utility model relates to an automatic edge material collection device for a nanocrystalline strip precision shearing machine
The invention relates to a Venturi dynamic cycle self-regulating nanocoating spraying device
The invention relates to a grinding and polishing device for the production of nanocrystalline strip
The invention relates to a melting device for producing gas-to-liquid nanocrystalline strip

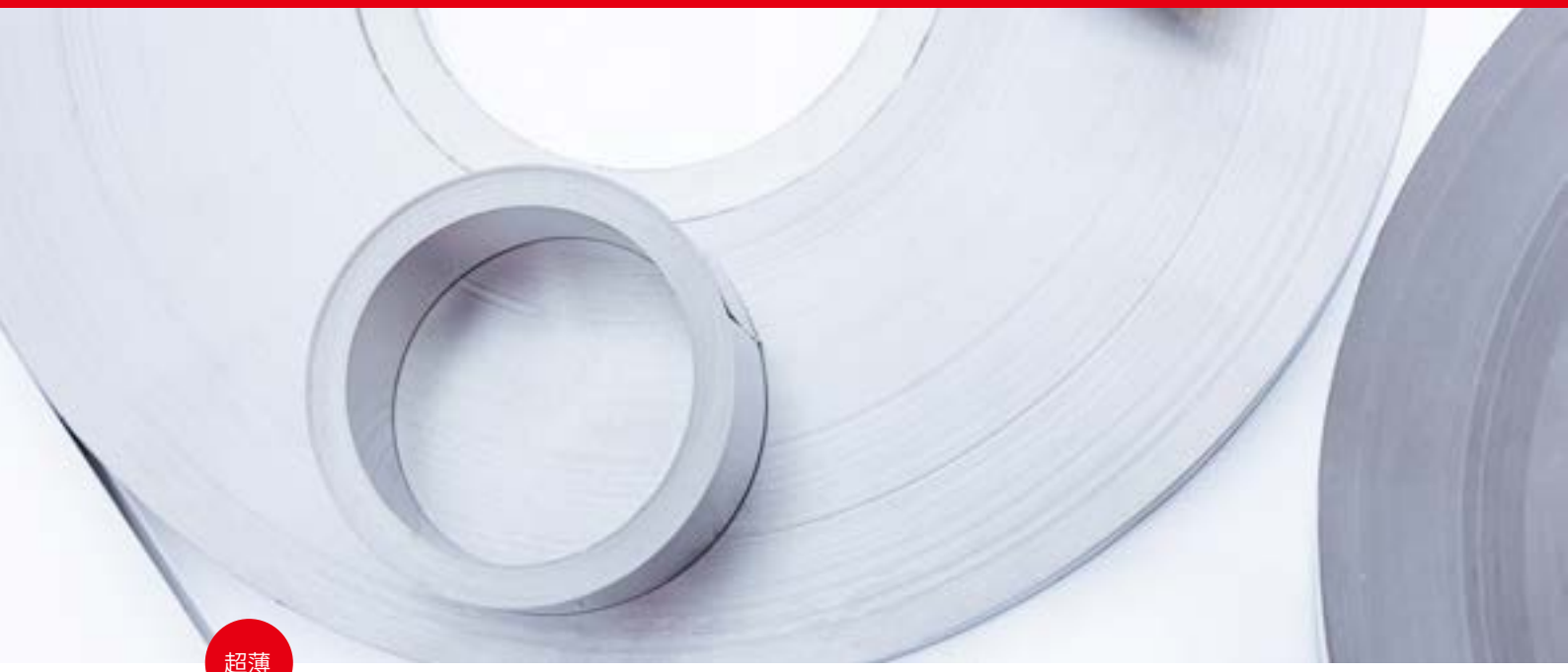
Utility model patent certificate

A master alloy smelting furnace
The utility model relates to a high performance heat treatment and annealing device for an iron based amorphous nanocrystalline alloy
Automatic core weighing device

Qualification certificate

IATF 16949:2016 Quality Management System Certification
Environmental Management System Certification
ISO 9001:2015 Quality Management System Certification

纳米晶软磁材料简介
INTRODUCTION OF NANOCRYSTALLINE SOFT MAGNETIC MATERIALS



超薄

纳米晶软磁材料（以下简称“纳米晶”）是将含铁、硅、硼、铌、铜等元素的合金熔液，通过急速、高精度冷却技术，通过对非晶态合金前驱体进行晶化退火，在非晶态基体中析出大量细小的纳米晶而获得的。纳米晶软磁材料具有高饱和磁度、低矫顽力、高初始磁导、高居里温度率等优势，综合磁性较铁氧体、非晶软磁等材料更加优异。纳米晶作为薄且高磁导率的材料，可缩小磁性器件体积、降低磁性器件损耗，是高频电力电子应用中的最佳软磁材料。

纳米晶软磁材料是制造电感、电子变压器、互感器、传感器、无线充电模块等磁性器件的优良材料，主要应用于消费电子、新能源发电、新能源汽车、家电、粒子加速器等领域，满足电力电子技术向大电流、高频化、小型轻量、节能等发展趋势的要求。

高磁导

Nanocrystalline soft magnetic material (hereinafter referred to as "nanocrystalline")is obtained by using the alloy molten liquid containing iron, silicon, boron, niobium, copper and other elements, through rapid and high-precision cooling technology, by crystallization annealing of the amorphous alloy precursor, and precipitate a large number of fine nanocrystalline in the amorphous matrix. Nanocrystalline soft magnetic materials have the advantages of high saturation magnetism, low coercivity, high initial permeability, high Curie temperature rate, etc. The comprehensive magnetic properties are better than ferrite and amorphous soft magnetic materials. As a thin and high permeability material, nanocrystalline can reduce the size of magnetic devices and the loss of magnetic devices. Nanocrystalline is the best soft magnetic materials in high-frequency power electronics applications.

Nanocrystalline soft magnetic materials are excellent materials for manufacturing magnetic devices such as inductors, electronic transformers, mutual inductors, sensors, wireless charging modules, etc., which are mainly used in consumer electronics, new energy power generation, new energy vehicles, home appliances, particle accelerators and other fields to meet the requirements of the development trend of power electronics technology towards high current, high frequency, small weight and energy saving.

产品线介绍
INTRODUCTION OF PRODUCTION LINES

开发阶段
Development phase

量产阶段
Mass production stage

01 母合金 Mother alloy

02 带材 Strip

03 EMC 磁芯 EMC core

04 高频变压器磁芯 High frequency transformer core

05 大功率磁芯 High-power core

06 互感器磁芯 Transformer core

07 传感器磁芯 Sensor core

08 屏蔽片 Shielding plate

滤波产品线 Filter product line

功率产品线 Power product line

电流产品线 Current product line

屏蔽产品线 Shielded product line

09 共模电感 Common-mode inductance

10 PFC 电感 PFC inductance

11 互感器电感 Transformer inductance

12 传感器电感 Sensor inductance

13 屏蔽线圈 Shielded coil

14 滤波总成 Filter assembly

15 变压器 Transformer

16 电抗器 Electric reactor

17 磁通门传感器 Fluxgate sensor

滤波产品线
FILTER PRODUCT LINE

滤波（Wave filtering）是将信号中特定波段频率滤除的操作，是抑制和防止干扰的一项重要措施。在现代电子设备设计中，EMC（电磁兼容）与 EMI（抗电磁干扰）已越来越引起人们重视，解决这些问题的关键元件之一即是电感器件。随着各行业对 EMC 越来越高的要求，具有高频高导磁率的纳米晶合金材料运用快速增长。朗峰以纳米晶为核心材料推出了针对不同运用场景的产品，主要包括线束磁环、共模电感、滤波总成三大类产品。对比铁氧体等传统材料，纳米晶具有更高的居里温度，可以在 180°C的高温状态下稳定的工作。同时纳米晶具有更高的磁导率和更高的饱和磁感应强度，使得最终产品的体积大幅减小。目前已经广泛运用于变频驱动，新能源汽车电控，变频空调等设备中。

Wave filtering is the operation of filtering out a specific band frequency in a signal, which is an important measure to suppress and prevent interference. In the design of modern electronic equipment, EMC(electromagnetic compatibility) and EMI(anti-electromagnetic interference) have attracted more and more attention, and one of the key components to solve these problems is the inductive device. With the increasing requirements of EMC in various industries, the application of nanocrystalline alloy materials with high frequency and high permeability has been growing rapidly. With nanocrystalline as the core material, Londerful has launched products for different application scenarios, mainly including wire harness magnetic ring, CMC, filter assembly three categories of products. Compared with traditional materials such as ferrite, nanocrystalline has a higher Curie temperature and can work stably at a high temperature of 180 ° C. At the same time, nanocrystalline has higher permeability and higher saturation magnetic induction intensity, which greatly reduces the volume of the final product. At present, it has been widely used in frequency conversion drive, electric control of new energy vehicles, frequency conversion air conditioning and other equipment.

线束磁环
WIRING HARNESS MAGNETIC RING

由于纳米晶有高频高磁导率的特性，把磁环直接套在传输线缆的非屏蔽层上，可以有效的降低 EMC 噪声干扰。同时朗峰根据过往的项目经验，考虑到不同运用场景中 EMC 问题的差异性，对于不同的耐饱和需求，以及不同频率的阻抗需求重点推出了针对 1MHz 以下频段的 LFNA 系列，针对 30 ～ 60MHz 频段的 LFMI 系列和针对特殊大电流环境的 LFAS 系列。

Because the nanocrystalline has high frequency and high permeability, the magnetic ring is directly placed on the unshielded layer of the transmission cable, which can effectively reduce the interference of EMC noise. At the same time, according to the past project experience, taking into account the differences in EMC problems in different application scenarios, for different saturation resistance requirements and impedance requirements of different frequencies, Londerful launched LFNA series for frequency bands below 1MHz, LFMI series for 30 ~ 60MHz band and LFAS series for special high-current environments.

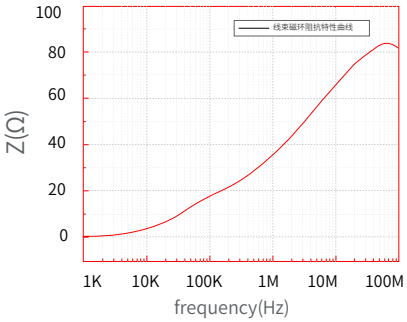
特点

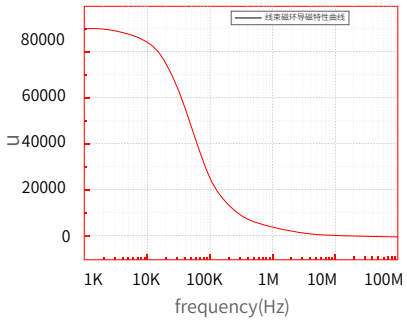
01 优良的阻抗 - 频率特性;
02 突出的降低环路共模电流的能力;
03 优良的温度稳定性。

Feature

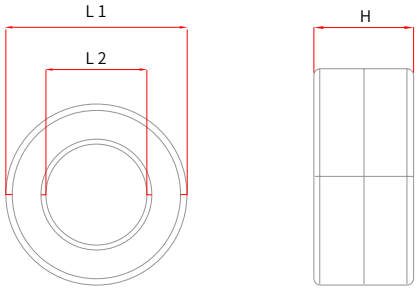
01 Excellent impedance-frequency feature;
02 Outstanding ability to reduce loop common mode current;
03 Excellent temperature stability.

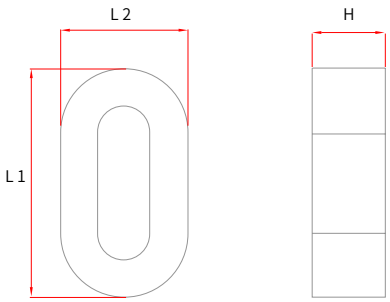
线束磁环特性曲线
Characteristic curve of wiring harness magnetic ring





线束磁环护盒样式图示
Wiring harness magnetic ring box type illustration

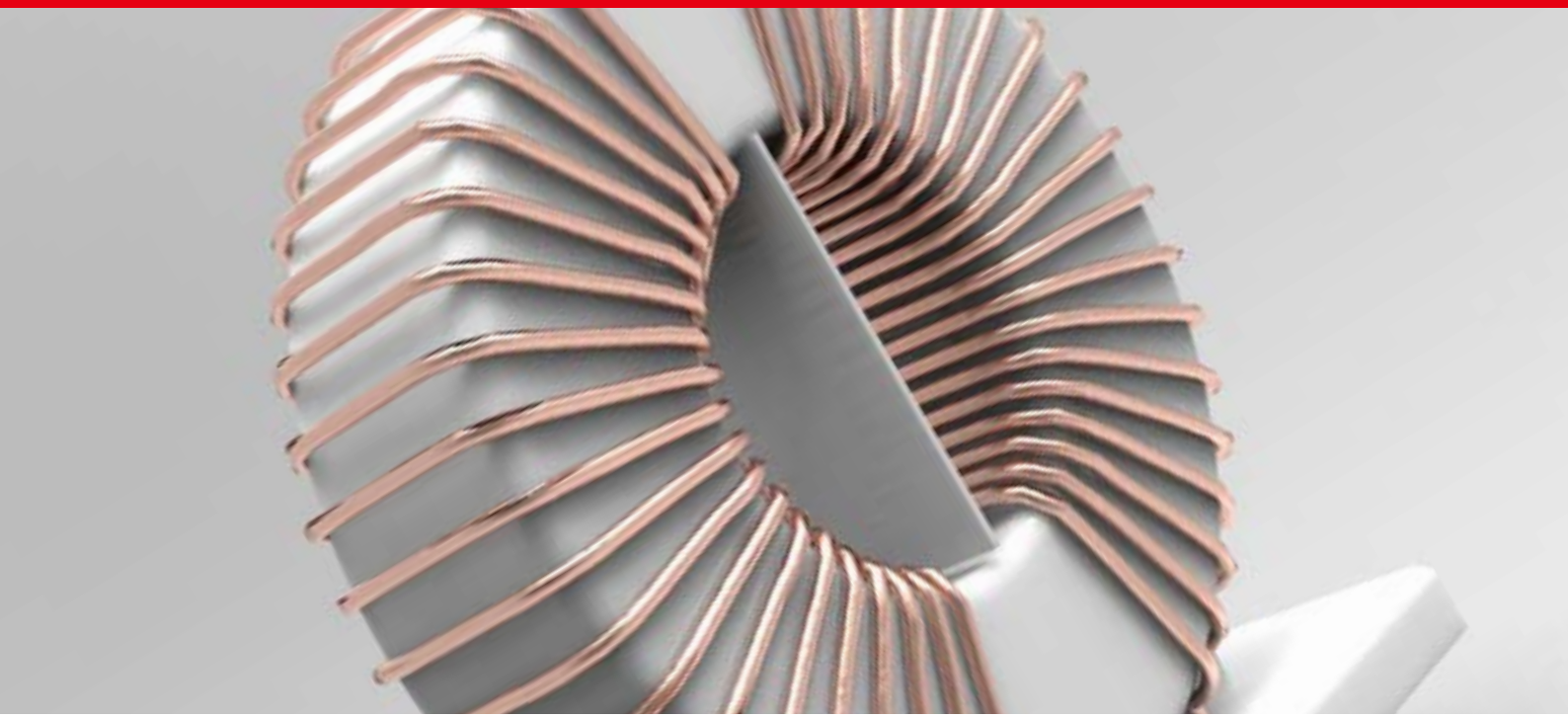




线束磁环标准品清单
List of wire harness magnetic ring standards

物料编码	裸芯标称尺寸	形状	L1 (mm)	L2 (mm)	H (mm)	AL-10kHz(uH)	AL-100kHz(uH)	类型
A0801000001	20*12*8	圆形	22	10.7	10.1	38.4-71.3	12.2-22.7	LFNA
A0801000002	22*18*10	圆形	25	15.8	12.6	20MIN	5MIN	LFNA
A0801000003	24*15*6.5	圆形	26.7	12.9	9	23-42	6.5-12.1	LFNA
A0801000004	24*17*8	圆形	26.4	15.2	9.9	26.2-48.7	8.3-15.5	LFNA
A0801000005	25*15*4	圆形	26.5	13.5	5.5	15.3-28.4	4.3-8.1	LFNA
A0801000006	25*16*10	圆形	27.5	13.8	12.2	38.3-71.2	11.9-22.2	LFNA
A0801000007	30.5*20*15	圆形	33.5	17.8	17.8	45.8-85.2	13.1-24.3	LFNA
A0801000008	32*20*10	圆形	34.4	17.4	13	25.2-57.6	9.4-17.6	LFNA
A0801000009						10.1-28	8.4MIN	LFNA
A0801000010	33*23*15	圆形	36.5	20.9	19.5	52.6-97.8	14.6-27.1	LFNA
A0801000011	40*25*15	圆形	43.7	21.6	18.5	53-98	15-28	LFNA
A0801000012	50*32*15	圆形	53.7	28.8	18.4	65-130	20MIN	LFNA
A0801000013	50*32*20	圆形	53.8	28.3	24	47.9-109.6	17.8-34.3	LFNA
A0801000014						24.9-53	16.9MIN	LFNA
A0801000015	59*40*20	圆形	63	36	25	59-109	20MIN	LFNA
A0801000016	60*40*25	圆形	65.5	36.5	28.9	76-142	22-41	LFNA
A0801000017	63*50*25	圆形	68.3	46.5	28.8	46-85	14-26	LFNA
A0801000018	100*80*20	圆形	104.3	76	23.5	15-30	7.5MIN	LFNA
A0801000019						40-75.6	9MIN	LFNA
A0801000020	130*100*30	圆形	134.5	94.8	36.2	59-111	17-32	LFNA
A0801000021	72*39*20	跑道型	75.5	42.2	25	37.7-73	11.3-22.7	LFNA
A0801000022						13.9-30	9.3MIN	LFNA
A0801000023	52*28*15	跑道型	56	32	18	36-90	9-30	LFNA
A0801000024	76*41*20	跑道型	79	44	25	20.5-36.5	5.5-10	LFNA

共模电感
CMC



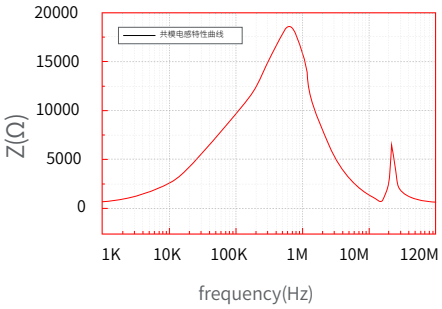
共模电感是一种常用开关电源中过滤共模电磁干扰信号的器件。纳米晶共模电感在大的频率范围都有良好的抑制干扰能力，同时可以通过对绕线方式对调整可以针对性进行漏感设计，从而辅助降低差模干扰。对比传统材料，纳米晶高磁导率的特性可以采用更小的体积，更少的绕线圈数来实现客户需求，降低产品的综合成本。

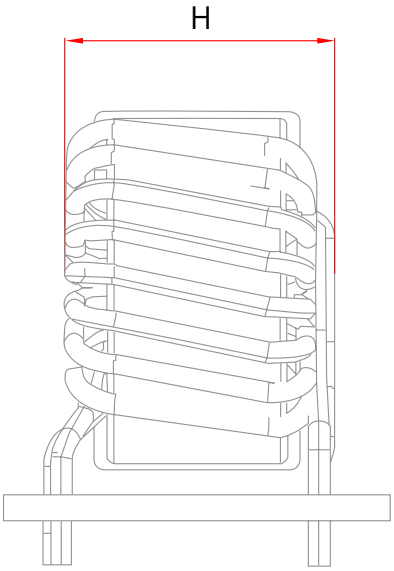
CMC is a kind of device that filters common mode electromagnetic interference signal in switching power supply. The nanocrystalline CMC have good interference suppression ability in a large frequency range, and the leakage sensing can be designed by adjusting the winding mode to help reduce the differential mode interference. Compared with traditional materials, the characteristics of high permeability of nanocrystalline can use smaller volumes and fewer coils to meet customer needs and reduce the comprehensive cost of products.

特点：
01 在大的频率范围内有良好的衰减；
02 漏感低，更好的性能稳定性；
03 电感量偏差小；
04 体积小，较少匝数可获得较大阻抗、电感；
05 良好的温度稳定性，可以应用在宽的温度范围。

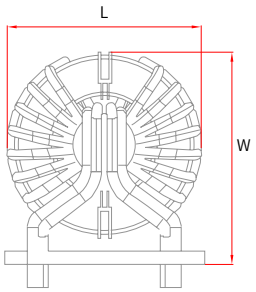
Feature:
01 Good attenuation over a wide frequency range;
02 Low leakage, better performance stability;
03 Small inductance deviation;
04 Small volume, fewer turns can obtain larger impedance and inductance;
05 Good temperature stability, can be used in a wide

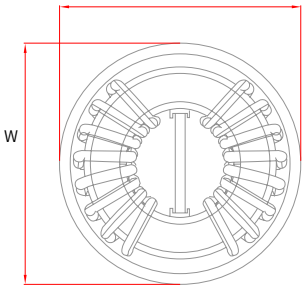
共模电感特性曲线
CMC characteristic curve

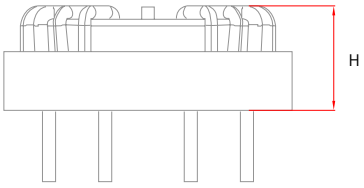




共模电感样式图示
CMC type illustration







共模电感标准品清单
List of CMC standards:

物料编码	规格	外形尺寸			圈数	线径	感 值		电流 (A)	外观样式	绕组
		L	W	H			10kHz AL(mH)	10kHz AL(mH)			
A0106000001	LF003-251610-30mH7A	34	35.5	19.2	22	1.0	19.3-43.1	6.1-NA	7	立式	两相
A0106000002	LF003-281810-20mH12A	37	37	20	23	1.3	25min（1k）	6.2min	12	立式	两相
A0106000003	LF003-302015-10mH15A	45	45	30	23	1.5	≥ 18（1k）	≥ 9.5	15	立式	两相
A0106000004	LF003-322010-2mH30A	40	40	22	5	2.0	≥ 1.7	≥ 0.54	30	卧式	两相两线
A0106000005	LF003-322010-2.6mH20A	46	50	24	13	1.8	/	2.6min	20	立式	两相
A0106000006	LF003-372315-10mH20A	50	50	30	23	1.8	≥ 30（1k）	≥ 9.5	20	立式	两相
A0106000007	LF003-402515-10mH20A	44	51	32	12	2.0	≥ 10	/	20	立式	两相
A0106000008	LF003-402515-13mH20A	56	56	31	13	2.2	≥ 13	/	20	卧式	两相
A0106000009	LF003-402515-8mH10A	55	52	25	11	1.8	8min（1k）	/	10	立式	三相
A0106000010	LF003-402520-8mH30A	53	55	35	13	2.3	8min（1k）	1.5min	30	立式	两相
A0106000011	LF003-503215-1.3mH30A	65	68	50	5	2.0	1.3min（1k）	0.35min	30	立式	四相双线
A0106000012	LF003-503215-2.5mH45A	65	65	35	11	2.1	≥ 2.5（1k）	≥ 1.3	45	立式	两相双线
A0106000013	LF003-503220-5mH30A	67	66	49	8	2.2	≥ 6（1k）	≥ 0.6	30	立式	四相
A0106000014	LF003-655025-0.8mH50A	80	80	45	5	2.8	≥ 1.4	≥ 0.3	50	立式	四相双线
A0106000015	LF003-655025-0.8mH100A	80	80	45	4	3.0	≥ 0.8	≥ 0.2	100	卧式	三相双线

滤波总成
FILTER PRODUCT

随着新能源汽车对于 EMC 的要求逐步提高，结合车规特殊的电气要求，以及极高的产品空间利用率要求，朗峰针对该运用场景有能力进行定制化的设计 2 级滤波器，通过搭配使用 LFNA 和 LFMI 系列产品，可以做到全频道的高插入损耗。

备注：如对滤波总成相关的产品有特殊的需求，可联系我司销售经理进行咨询定制。

With the gradually increasing requirements of EMC for new energy vehicles, combined with special electrical requirements of vehicle regulations and extremely high product space utilization requirements, Londerful has the ability to customize the design of 2-level filters for the application scenario, and can achieve high insertion loss of the whole channel through the combination of LFNA and LFMI series products.

Note: If you have special requirements for filter assembly products, you can contact our sales manager for consultation and customization.

功率产品线
POWER PRODUCT LINE

我司通过对磁性材料本身特性的理解，加上强大的磁性能测试平台，我司可以为客户提供变压器和 PFC 电感的产品的设计以及生产交付。针对不同的运用场景，功率器件的设计需要考虑到磁芯真实的工作频点，在此基础上才能更好平衡产品体积，成本与性能的需求。

Through our understanding of the nature characteristics of magnetic materials, combined with a powerful magnetic performance test platform, we can provide customers with the design and production of transformers and PFC inductors product . For different application scenarios, the design of power devices needs to take into account the real working frequency of the magnetic core to better balance the requirements of product volume, cost and performance.

纳米晶变压器磁芯
NANOCRYSTALLINE TRANSFORMER CORE

纳米晶材料同时具备硅钢.坡莫合金和铁氧体的优点.高频逆变电源的工作频率在 20kHz~50kHz 作为电源的主变压器，传统的铁氧体磁芯虽然在高频下损耗较低，但其在 100KHz 以下频段的磁导率降低，且其饱和磁感应值（Bs）较低，这导致磁芯的体积和重量较大，此外，铁氧体的居里温度较低，热稳定性差，温度稍高即会导致 Bs 值降低，从而进入饱和状态，工作状态不稳定，不适合高频大功率下使用。

Nanocrystalline materials have the advantages of silicon steel, permalloy and ferrite. The operating frequency of the high frequency inverter power supply is 20kHz~50kHz, as the main transformer of the power supply, although the loss of the traditional ferrite core is low at high frequency, but its permeability is reduced in the frequency band below 100KHz, and its saturation magnetic induction value (Bs) is low, which leads to the larger volume and weight of the magnetic core. In addition, the Curie temperature of ferrite is low, thermal stability is poor, slightly higher temperature will lead to a reduction in Bs value and entry into the saturated state, at which the working state is unstable and is not suitable to be used in high-frequency and high-power.

特点

01 体积小，低频磁导率高；

02 热稳定性好，有很好的耐饱和特性；

03 工作状态稳定.适合在高频大功率下进行使用。

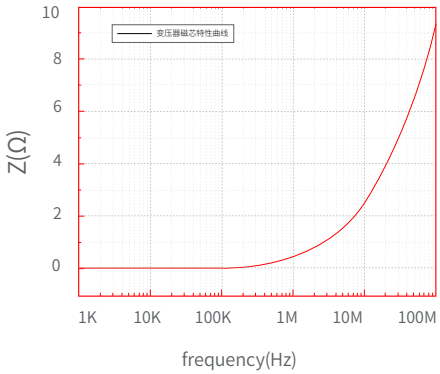
Feature

01 Small size, high low-frequency permeability;

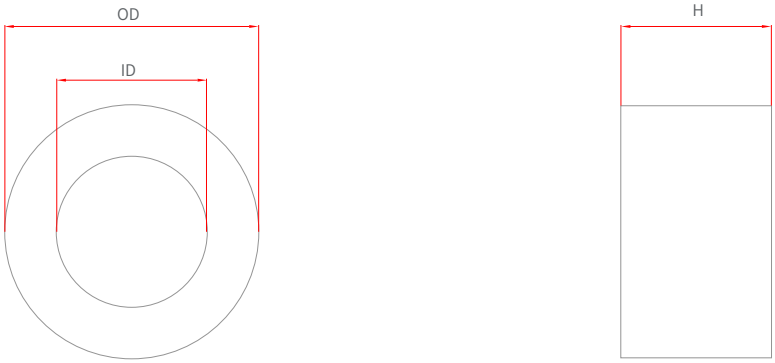
02 Good thermal stability, good saturation resistance;

03 Stable working condition, suitable for use in high frequency and high power.

变压器磁芯特性曲线
Transformer core characteristic curve



变压器磁芯标准品样式图示
Transformer core standard type illustration



变压器磁芯标准品清单
List of transformer core standards

物料编码	裸芯标称尺寸	OD(mm)	ID(mm)	H(mm)	AL(uH)@10kHz	AL(uH)@100kHz	PFe(W/kg) @100kHz 0.3T	类型	封装方式
A0902000001	16*10*6	17.6	8.3	8	10.11-15.16	4.24-6.16	0-0.52	圆形	喷涂
A0902000002	20*12.5*8	22	10.5	10	11.10-22.34	6.81-13.92	0-1.08	圆形	喷涂
A0902000003	25*16*10	27	14	12	13.38-26.71	5.9-12.78	0-2.04	圆形	喷涂
A0902000004	30*20*15	32.3	17.8	17.8	20.07-30.11	12.39-18.58	0-3.95	圆形	喷涂
A0902000005	40*25*15	42.3	22.5	17.3	24.68-49.12	14.04-28.46	0-7.1	圆形	喷涂
A0902000006	50*40*20	52.3	37.1	22.8	19.65-29.47	8.58-12.88	0-8.7	圆形	喷涂
A0902000007	52*40*25	54.3	37.1	27.8	29.76-44.64	15.06-22.59	0-13.3	圆形	喷涂
A0902000008	55*40*25	57.5	37.1	27.8	36.8-55.2	18.6-27.9	0-17.2	圆形	喷涂

PFC 电抗器
PFC REACTOR

PFC 电感也叫电抗器,其基本功能是对线路电源进行功率因数校正,可分为交流电抗器(ACL)和直流电抗器(DCL)两种。ACL 又分交流输入电抗器和交流输出电抗器两种应用: 交流输入电抗器能够限制电网电压突变或操作过压引起的电流冲击, 有效保护变频器和改善功率因数; 交流输出电抗器接在变频器的输出端与负载 (电机) 之间, 可以钝化变频器输出电压 (开关频率) 的陡度, 提高电机的使用寿命, 并有效抑制变频器的噪声。DCL 用于整流回路中 (串联在桥式整流器的直流输出端) 可减少电流的脉动, 抑制整流后的纹波脉动分量, 提高设备的可靠性。

With the gradually increasing requirements of EMC for new energy vehicles, combined with special electrical requirements of vehicle regulations and extremely high product space utilization requirements, Londerful has the ability to customize the design of 2-level filters for the application scenario, and can achieve high insertion loss of the whole channel through the combination of LFNA and LFMI series products.

Note: If you have special requirements for filter assembly products, you can contact our sales manager for consultation and customization.

产品应用

01 变频器前后, 特别是几个变频器并联的场合

02 同一线路上安装有大量的扁平器

03 线路电源有来自其它设备的干扰

04 线路电源各相之间电压不平衡

05 变频器由阻抗非常低的线路供电

Product Application

01 Before and after the frequency converter, especially when several frequency converters are in parallel

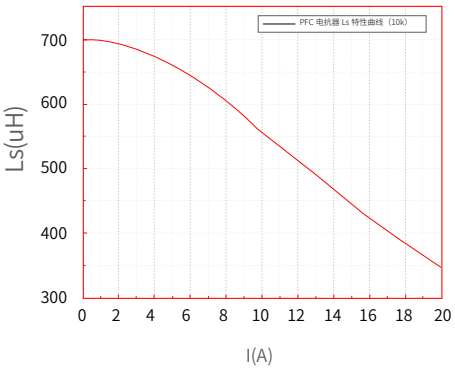
02 A large number of flatteners are installed on the same line

03 The line power supply has interference from other equipment

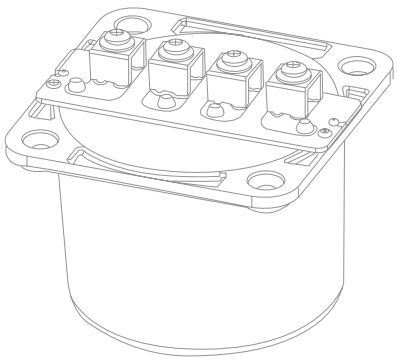
04 The voltage imbalance between the phases of the line power supply

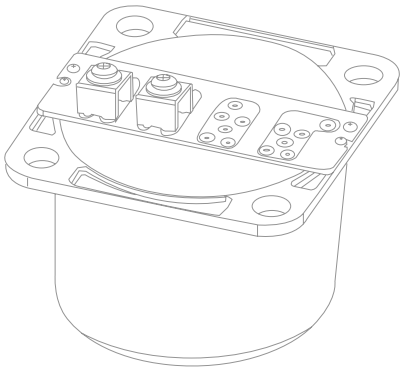
05 The inverter is powered by a very

PFC 电抗器特性曲线
PFC reactor characteristic curve



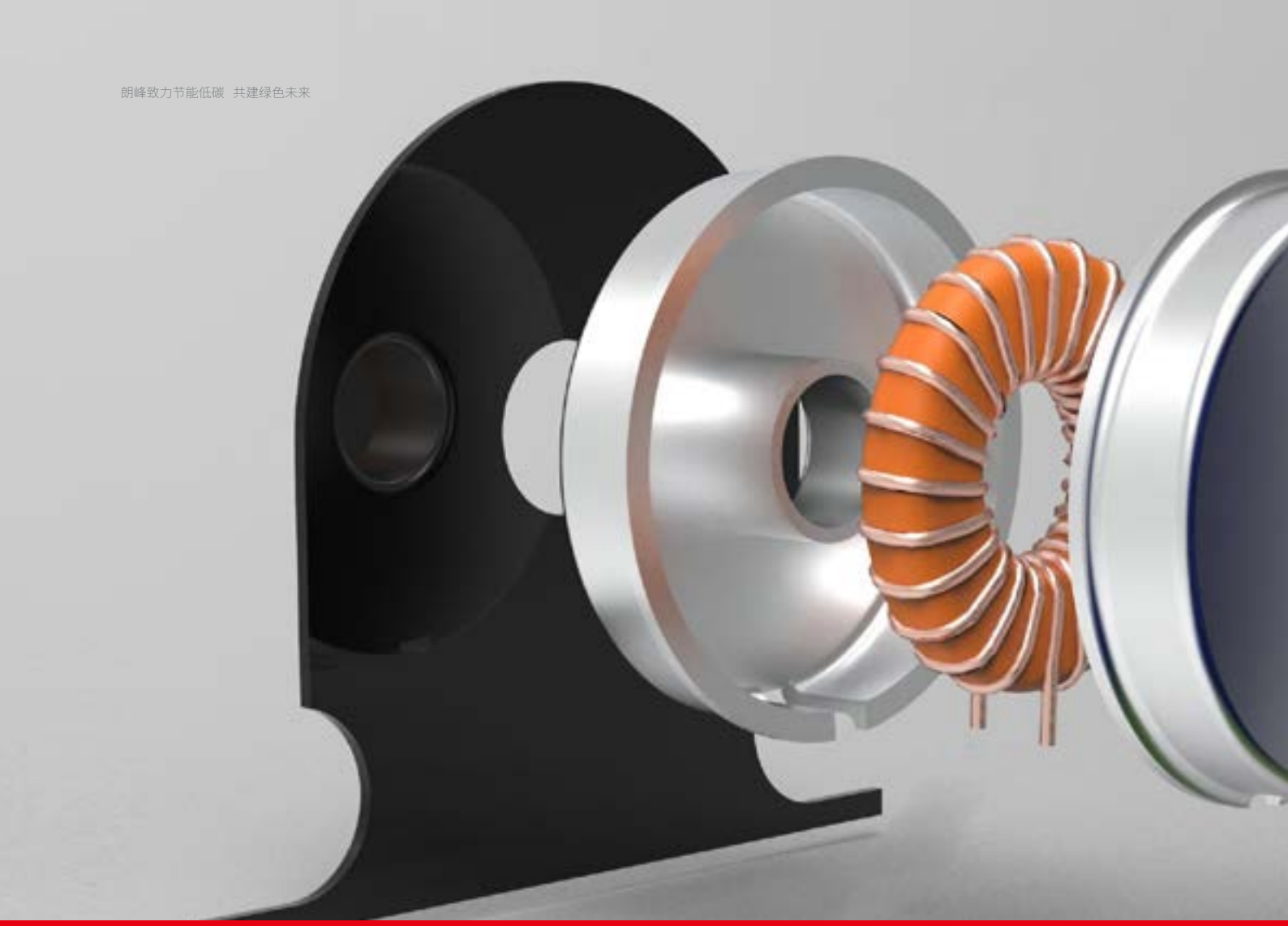
PFC 电抗器标准品样式图示
PFC reactor standard type illustration





PFC 电抗器标准品清单
List of PFC reactor standards

物料编码	规格型号	类型	适配功率	额定电流	空载电感量≥	加载电感量≥	铁芯材质	绝缘等级	外形尺寸		
									A	B	C
A0205000001	LF004-S3R5K-680uH16A	ACL	3.5kW	16A	612uH@10k，1V	394uHIdc=16A	铁粉芯	B	89	89	71.8
A0205000002	LF004-S3R5K-800uH18A	DCL	3.5kW	18A	720uH@10k，1V	530uHIdc=18A	铁粉芯	B	89	89	71.8

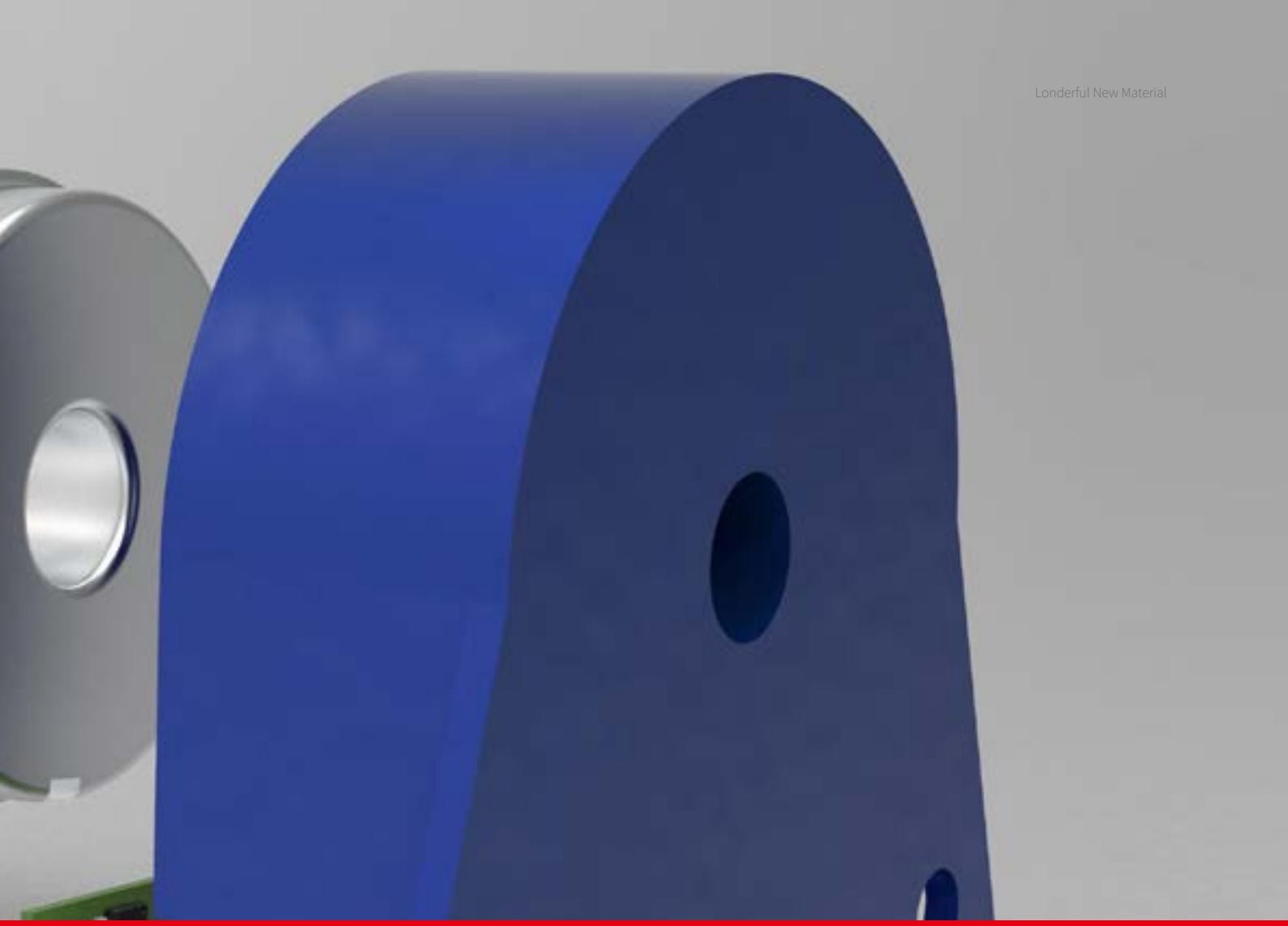


电流产品线
CURRENT PRODUCT LINE

对于电路中电流的监测是各类电器产品中十分重要的环节。朗峰通过对磁性材料的理解，针对不同的运用场景、产品类型及行业的可靠性要求，结合对纳米晶材料的不同工艺调整。朗峰推出磁通门传感器专用磁芯，互感器专用磁芯以及抗直流磁芯三类子产品。

互感器又称为仪用变压器，是电流互感器和电压互感器的统称。能将高电压变成低电压、大电流变成小电流，用于量测或保护系统。电流互感器是一种用于测量交流电流的器件。朗峰推出的纳米晶磁芯在电流互感器中可以实现更高的精度和更小的体积。与传统铁氧体材料相比，纳米晶材料在高频率下具有更好的磁性能，因此在高频测量下可以提供更高的精度。此外，纳米晶材料具有更小的剩磁和更高的饱和磁感应强度，从而使得电流互感器可以实现更小的体积和更高的灵敏度。朗峰的纳米晶磁芯产品针对不同的应用场景推出了不同的系列，包括低损耗系列和高灵敏度系列。这些系列可以根据不同的电流测量需求和电路设计要求进行选择。

注：由于各家生产的传感器 / 互感器磁芯工艺有所差异，如有需求可联系我司销售经理进行咨询定制。



CURRENT PRODUCT LINE

The monitoring of the current in the circuit is a very important part in all kinds of electrical products. Through the understanding of magnetic materials, Londerful combines different process adjustments of nanocrystalline materials for different application scenarios, product types and industry reliability requirements. Londerful launched three sub-products: special magnetic core for fluxgate sensor, special magnetic core for transformer and anti-DC magnetic core.
Transformer, also known as instrument transformer, is a general term for current transformer and voltage transformer. It can turn high voltage into low voltage and turn high current into small current for system measurement or protection. A current transformer is a device used to measure alternating current. The nanocrystalline magnetic core introduced by Londerful can achieve higher accuracy and smaller volume in current transformers. Compared to traditional ferrite materials, nanocrystalline materials have better magnetic properties at high frequencies, so they can provide higher accuracy at high frequency measurements. In addition, nanocrystalline materials have smaller remanent magnetic field and higher saturation magnetic induction intensity, so that current transformers can achieve smaller volumes and higher sensitivity. Londerful's nanocrystalline core products are available in different series for different application scenarios, including low loss series and high sensitivity series.

These series can be selected according to different current measurement requirements and circuit design requirements.

屏蔽产品线
SHIELDING PRODUCT LINE

根据磁屏蔽的原理，材料的磁导率越高，屏蔽效果越明显。因此，磁屏蔽材料一般采用高磁导率的材料。常用的高磁导率材料包括纯铁（电工软铁）、电磁钢板（硅钢板）、坡莫合金板、非晶体合金带和微晶体合金带。此外，材料的饱和磁通量密度 BS 和顽固性与屏蔽性能有关。材料的饱和磁通量密度 BS 越大，吸收外部磁场的能力越大，屏蔽效果越好，屏蔽强磁场尤为重要。材料的顽固性越低，屏蔽后的剩余磁性就越容易降低，这在屏蔽弱磁场时尤为重要。在设计磁屏蔽装置时，应满足具体的环境磁场和屏蔽要求。朗峰通过对纳米晶材料的理解和技术积累，在综合考虑上述三个参数和整个磁屏蔽装置的结构后，可以定制化的为客户提供相应产品的设计方案与生产交付。

According to the principle of magnetic shielding, the higher the permeability of the material, the more obvious the shielding effect. Therefore, high permeability materials are generally used in magnetic shielding materials. Commonly used high permeability materials include pure iron (electrical soft iron), electromagnetic steel plate (silicon steel plate), Permalloy plate, amorphous alloy strip and microcrystalline alloy strip. In addition, the saturation magnetic flux density BS and the stubbornness of the material are related to the shielding properties. The larger the saturated magnetic flux density BS of the material, the greater the ability to absorb the external magnetic field, the better the shielding effect, and the shielding of strong magnetic field is particularly important. The lower the stubbornness of the material, the easier it is to reduce the residual magnetism after shielding, which is particularly important when shielding weak magnetic fields. When designing the magnetic shield device, the specific environmental magnetic field and shielding requirements should be met. Through the understanding and technical accumulation of nanocrystalline materials, Londerful can provide customers with customized product design and production after considering the above three parameters and the structure of the entire magnetic shield device.

屏蔽片
SHIELDING SHEET

在许多应用场景中，电子设备中的元器件会受到周围磁场的影响。解决磁场干扰的有效办法之一是屏蔽。低频磁场的屏蔽方法是使用铁磁性材料将敏感器件包起来。屏蔽的作用是为磁场提供一条低磁阻的通路，使敏感器件周围的磁力线集中在屏蔽材料中，从而起到屏蔽的作用。为了提供高的屏蔽效果，屏蔽材料应具有尽量高的磁导率 μ。材料的磁导率不是一个不变的量，它随着外加磁场、频率等变化。故这类低频率的磁场屏蔽需要提供低磁阻表面来完成。

In many application scenarios, components in electronic devices are affected by the surrounding magnetic field. One of the effective ways to solve the magnetic field interference is shielding. The shielding method of low frequency magnetic field is to use ferromagnetic material to wrap the sensitive device. The role of shielding is to provide a low magnetoresistive path for the magnetic field, so that the magnetic field lines around the sensitive device are concentrated in the shielding material, thus playing the shielding role. In order to provide a high shielding effect, the shielding material should have the as high as possible permeability μ. The permeability of a material is not a constant quantity, it changes with the applied magnetic field, frequency, etc. Therefore, this kind of low frequency magnetic field shielding needs to provide a low reluctance surface to complete.

特点

01 高磁导率；

02 低损耗、高效率；

03 高饱和磁感应强度；

04 柔性、超薄。

Feature

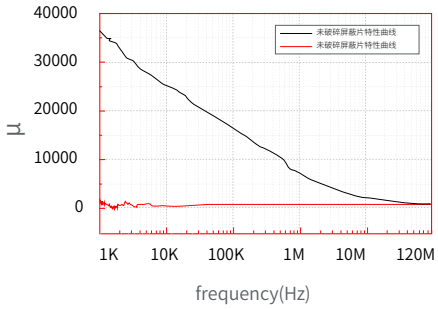
01 High permeability;

02 Low loss, high efficiency;

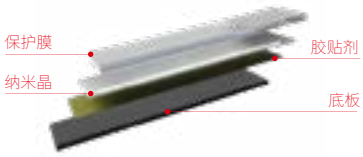
03 High saturation magnetic induction;

04 Flexible, ultra-thin.

屏蔽片特性曲线
Shielding sheet characteristic curve



屏蔽片标准品样式图示
Shielding sheet standard type illustration



屏蔽片标准品清单
List of shielding sheet standards

物料编码	W(mm)	L(m)	μ(100kHz)	层数	带材厚度 (μm)	成品厚度 (μm)
A1303000001	50	15/30	660	1	14	68±1
A1303000002	50	15/30	3w	1	14	68±1
A1303000003	50	15/30	660	1	18	72±1
A1303000004	50	15/30	3w	1	18	72±1
A1303000005	50	15/30	660	2	14	86±1
A1303000006	50	15/30	3w	2	14	86±1
A1303000007	50	15/30	660	2	18	94±1
A1303000008	50	15/30	3w	2	18	94±1
A1303000009	62	15/30	660	1	14	68±1
A1303000010	62	15/30	3w	1	14	68±1
A1303000011	62	15/30	660	1	18	72±1
A1303000012	62	15/30	3w	1	18	72±1
A1303000013	62	15/30	660	2	14	86±1
A1303000014	62	15/30	3w	2	14	86±1
A1303000015	62	15/30	660	2	18	94±1
A1303000016	62	15/30	3w	2	18	94±1

应用领域 / 新能源汽车
NEW ENERGY VECHICLES

随着新能源汽车的普及，汽车的电动化程度已经越来越高，朗峰自 2016 年起进入汽车行业，以电驱 EMC 滤波方案为切入点，逐步把产品线扩展到车载 OBC，DCDC，充电桩，电机轴承电腐蚀等多个运用场景。产品涉及到车载母线滤波磁环，滤波总成，PFC 电感，车载传感器磁芯等多个车规级产品。同时朗峰针对车规级产品有独立的项目管理流程，通过产品全自动化的生产，提高产品批次一致性，以及带来完善的追溯系统。

主要产品：
线束磁环、共模电感、滤波总成、PFC 电抗器、互感器磁芯、屏蔽片

With the popularity of new energy vehicles, the vehicle electrification has become increasingly higher. Since 2016, Londerful has entered the automotive industry, and gradually expanded its product line to vehicle OBC, DCDC, charging pile, electric corrosion of motor bearings and other application scenarios with the electric drive EMC filtering solution. The products are related to vehicle bus filter magnetic ring, filter assembly, PFC inductor, vehicle sensor magnetic core and many other vehicle regulation products. At the same time, Londerful has the independent project management process for vehicle regulation products, through the fully automated production of products, improve product batch consistency, and bring a perfect traceability system.

Main products: wire harness magnetic ring, CMC, filter assembly, PFC reactor, transformer core, shielding sheet.

应用领域 / 工业控制
INDUSTRIAL CONTROL

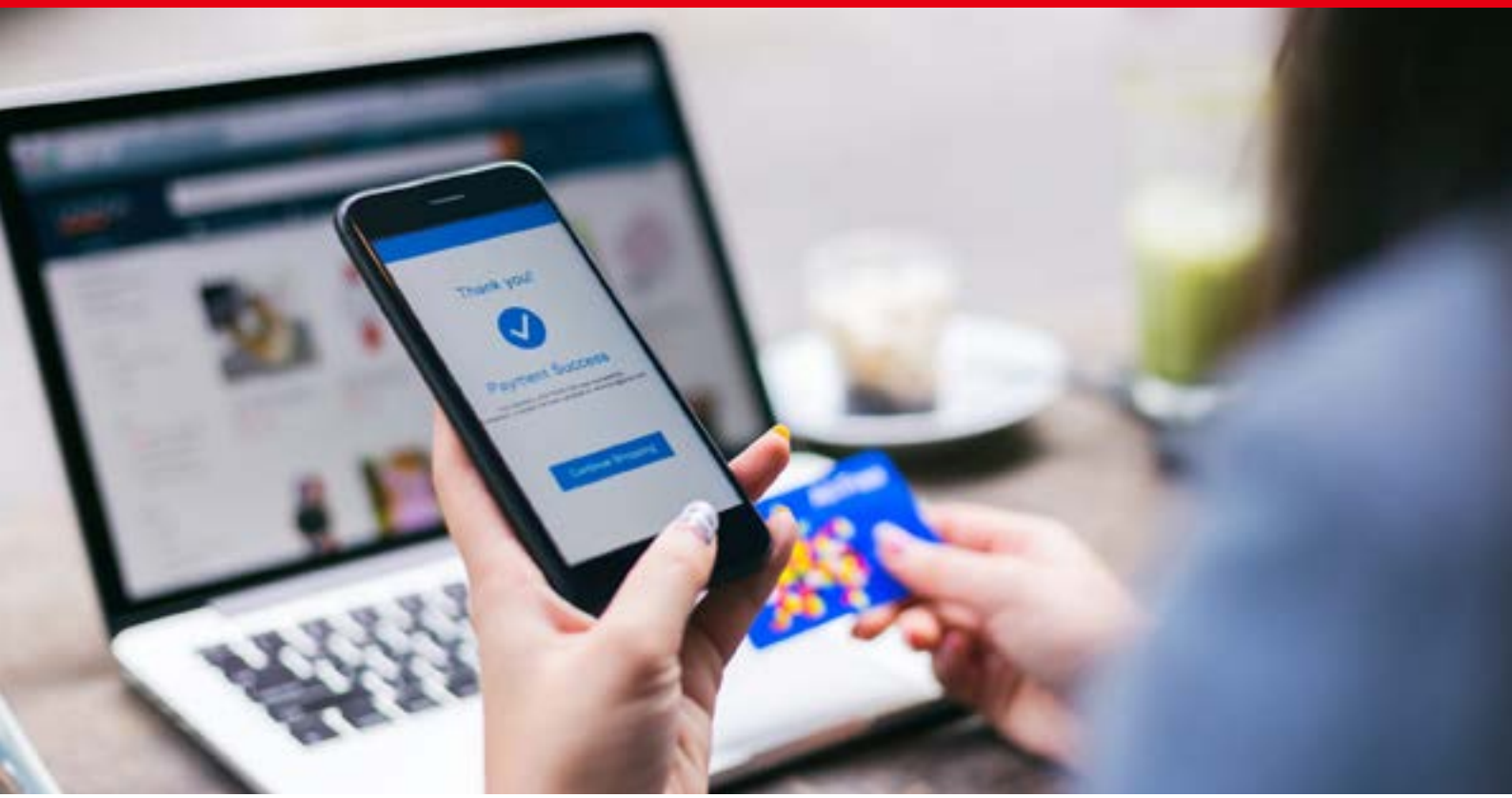
随着科技的发展,各运用场景对工控电源的要求越来越高。朗峰以光伏逆变器用滤波磁芯为切入点,逐步渗透到风能,电梯,医疗,军工等各个运用场景。产品涵盖滤波磁芯,滤波器,谐振电感,电抗器,互感器等。拥有完整的可靠性试验测试设备,为工控行业复杂多变的恶劣环境保驾护航。

主要产品:
线束磁环、共模电感、滤波总成、PFC 电抗器、互感器磁芯、变压器磁芯、传感器磁芯、抗直流磁芯

With the development of science and technology, the application scenarios have higher and higher requirements for industrial power supplies. With the filter magnetic core for photovoltaic inverters as the entry point, Londerful has gradually penetrated into various application scenarios such as wind energy, elevators, medical treatment, and military industry. Products cover filter core, filter, resonant inductor, reactor, transformer and so on. It has complete reliability test equipment to protect the complex and changeable harsh environment of the industrial control industry.

Main products: wire harness magnetic ring, CMC, filter assembly, PFC reactor, transformer core, transformer core, sensor core, anti-DC core.

应用领域 / 消费电子
CONSUMER ELECTRONICS



随着手机无线充电的大幅度推广，朗峰通过无线充电屏蔽片为切入点，布局消费电子行业。公司通过全产业链的优势，快速的响应速度，为消费电子行业的大功率无线快充提供解决方案。产品线覆盖高 Bs 纳米晶带材，无线充电导磁片等。

主要产品：屏蔽片

With the extensive promotion of mobile phone wireless charging, Londerful uses wireless charging shielding sheet as the entry point to lay out the consumer electronics industry. Through the advantages of the whole industry chain and fast response speed, the company provides solutions for high-power wireless fast charge in the consumer electronics industry. The product line covers high Bs nanocrystalline strip, wireless charging magnetic conductive sheet, etc.

Main products: shielding sheet

应用领域 / 大功率家电
HIGH POWER HOUSEHOLD APPLIANCE

随着民用家电的大功率化,朗峰通过对磁性材料的理解,致力于为家电行业从设计的源头提供最具性价比的磁件方案。产品覆盖 共模电感，差模电感，PFC 电感，互感器，电抗器等。运用场景涵盖空调，电磁炉，洗衣机，微波炉等。

主要产品：线束磁环、共模电感、PFC 电抗器、互感器磁芯

With the high power of household appliances, through the understanding of magnetic materials, Londerful is committed to providing the most cost-effective magnetic parts solutions for the home appliance industry from the source of design. Products cover CMC, differential mode inductors, PFC inductors, transformers, reactors and so on. Application scenarios cover air conditioning, induction cooker, washing machine, microwave oven and so on.

Main products: wire harness magnetic ring, CMC, PFC reactor, transformer core

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