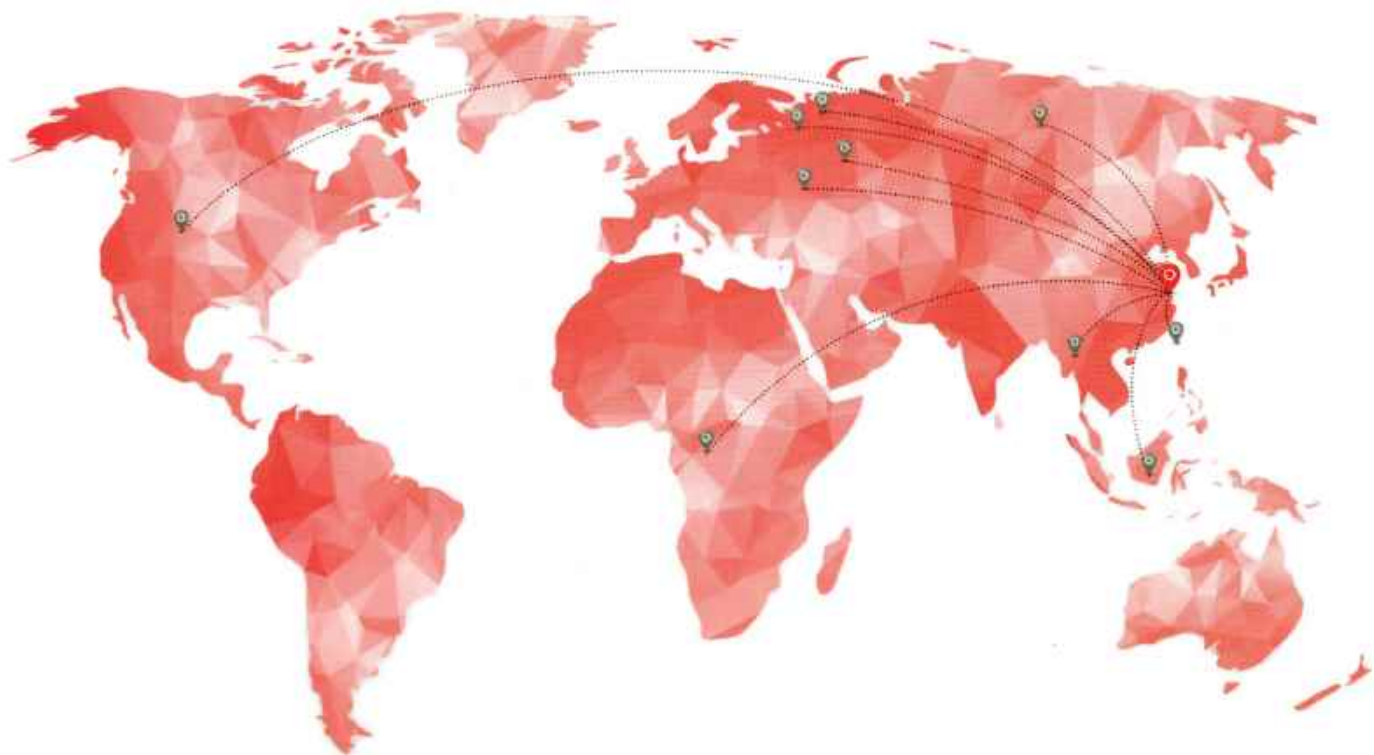


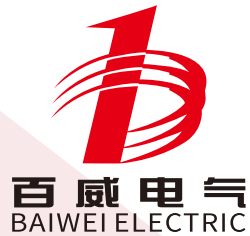
STRATEGIC PARTNERS
战略合作伙伴



南通市百威电气有限公司
Nantong Baiwei Electric Co., Ltd.

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Web:www.ntbwelectric.com

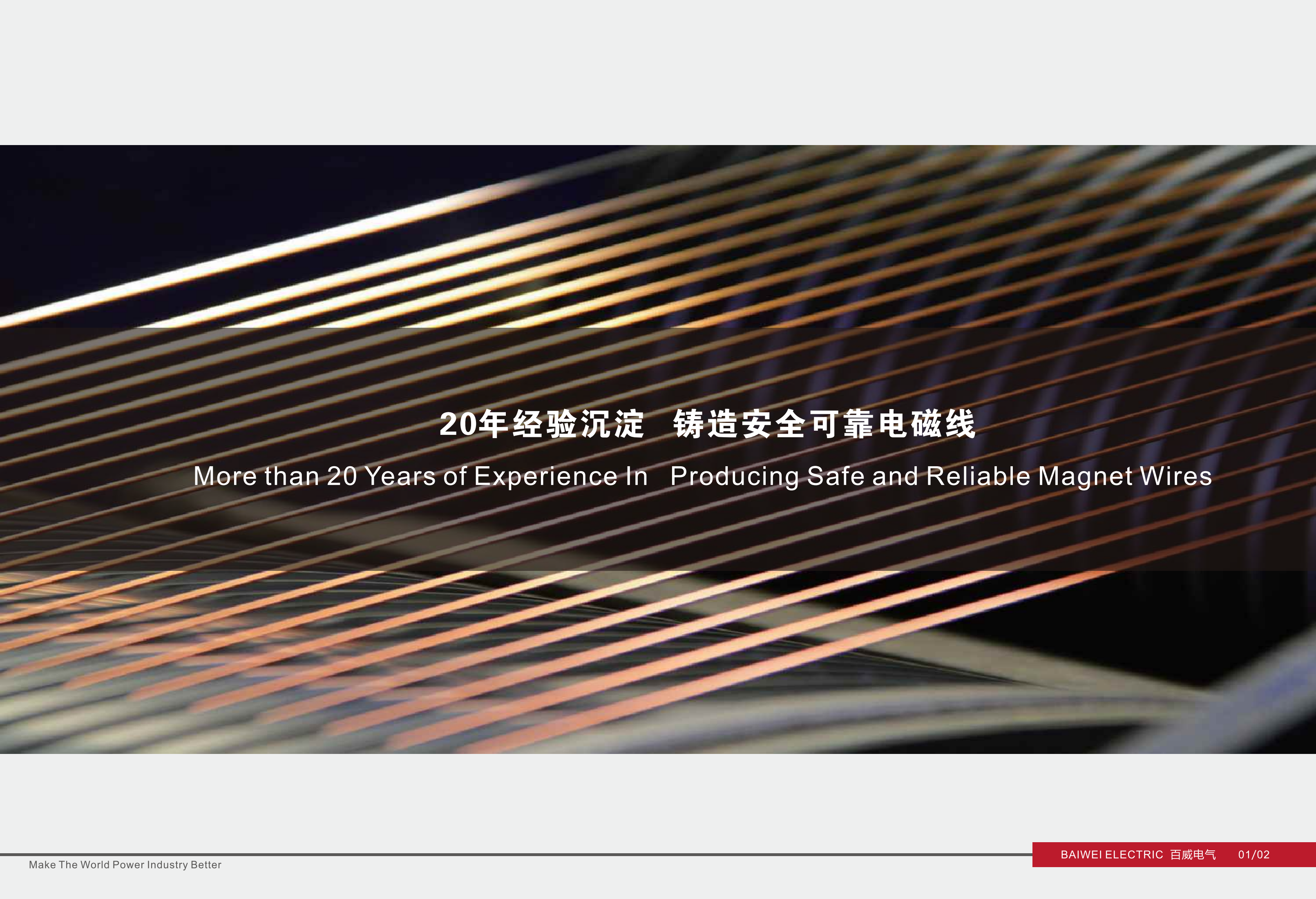


BAIWEI ELECTRIC

make the world power industry better

百威电气 让世界电力更美好

南通市百威电气有限公司
Nantong Baiwei Electric Co., Ltd.



20年经验沉淀 铸造安全可靠电磁线

More than 20 Years of Experience In Producing Safe and Reliable Magnet Wires



250000m²
Factory Area

150000tons
Annual Output

20years
Producing experience

6s
Manage System

COMPANY PROFILE

公司简介

南通市百威电气有限公司位于拥有“北上海”之称的江苏省南通市。南通处长江三角洲，运输到上海港仅需两小时车程，水陆交通便捷。公司成立于2008年，注册资金5800万，总投资额超20亿元人民币。现占地面积约400亩，员工超过700人，年产量超40亿元，150000吨。

公司现有七大类产品线：漆包铜铝扁线、漆包铜铝圆线、换位导线、纸绝缘组合导线、纸包线、膜包线、玻璃丝包线。

南通市百威电气有限公司通过了ISO9001:2015质量管理体系认证，ISO45001:2018健康安全管理体系认证，ISO14001:2015环境管理体系认证和IATF16949:2016质量管理体系标准。工厂产品通过SGS、UL测试并取得了CE认证。

百威致力于打造国际知名品牌，不断推进与国内外知名企业（华为、正泰、特变电工、华鹏、东风汽车、晓星）的合作。在公司的资深的研发团队，一流的生产设备、强大的生产制造能力的支撑下，百威现已成为国内规模最大、质量最好的电气设备原材料生产基地之一。

百威电气，让世界电力更美好！

Nantong Baiwei Electric Co., Ltd is located in Nantong, which is called as “North Shanghai”. Nantong only 2 hours' driving from Shanghai. It is in excellent geographic location for transportation.

Baiwei Electric established in 2008, with registered capital of over USD 10 million and more than USD 300 million total investment. Now Baiwei covers an area of over 250,000 square meters with more than 700 employees and more than 600 million dollars annual production capacity, 150000 tons.

Now we have eleven main product categories: enamelled copper & aluminium flat wire; enamelled copper & aluminium round wire; continuously transposed conductors(CTC); paper covered combined conductors; paper covered copper & aluminium flat wire; film wrapped copper & aluminium flat wire.

Our company has obtained ISO 9001:2015 quality management system certification, ISO 45001:2018 health and safety management system certification, ISO 14001:2015 environment management system certification and IATF16949:2016 quality management system standard. Our products passed SGS, UL test, and obtained CE certificate.

Based on the strategy to be a globally well-known brand, Baiwei keeps cooperations with domestic and international famous corporations like Huawei Group, TBEA, Huapeng, Dongfeng Motor, HYOSUNG etc.

With experienced R&D capability, first-class production equipment, strong manufacturing capacity, Baiwei has been one of the largest scale and high efficiency electrical equipment raw material manufacturing bases in China.

Baiwei Electric, make the world power industry better!

QUALITY CONTROL AND CERTIFICATE

品控和认证

BAIWEI established electrical insulation Scientific and Testing System(E200050)by adopting a series of Precision testing equipment and strict testing procedures to provide. Now BAIWEI has passed CE/SGS/UL/ISO,IEC/IATF16949:2016 Certificates,and can also apply all certificates as customer requirement.

我们拥有完善的质量保障体系，独立的质量检测部门，严格的质量管控标准。我司三十余名质检人员每天奔走在生产线上，在产品生产的每一个环节中严格把控生产质量、执行监管标准，不放过产品上的每一点瑕疵，力求关注到每一处细节。公司产品目前已通过ISO9001:2015质量管理体系认证、ISO45001:2018健康安全管理体系认证、ISO14001:2015环境管理体系认证、IATF16949:2016汽车行业质量管理体系认证、SGS、UL测试、CE认证。



PRODUCT EQUIPMENT

生产设备

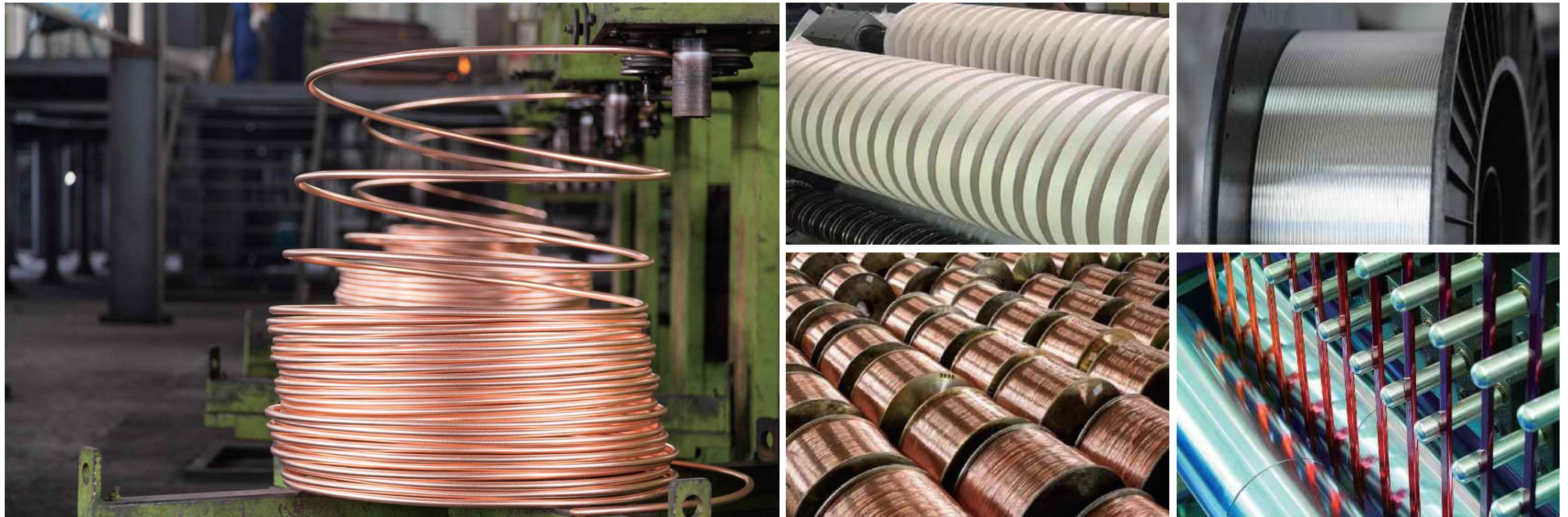


- 15 Continuously Transposed Conductors(CTC) Production Lines
With Italian Imported Transposition Head
- 8 Bunched Paper Covered conductors Production Lines
- 63 Paper&Film wrapped Conductor Production Lines
- 198 Enamle Wire Production Lines
- 15 High speed Extruding Machines
- 12 Wire Drawing Machine
- Keep increasing and updating

- 15条换位导线生产线-带意大利进口换位头
- 8条组合导线生产线
- 63条绕包生产线
- 198条漆包生产线
- 15条高速挤压生产线
- 12条拉丝生产线
- 持续扩建中.....

RAW MATERIAL STANDARD

原材料标准



- The resistivity of copper wire can not be more than 0.0172412mm²/m in 20°C.
铜线20°C时的电阻率不大于0.0172412mm²/m
- The resistivity of aluminum wire can not be more than 0.02802mm²/m in 20°C.
铝线20°C时的电阻率不大于0.028010Ωmm²/m



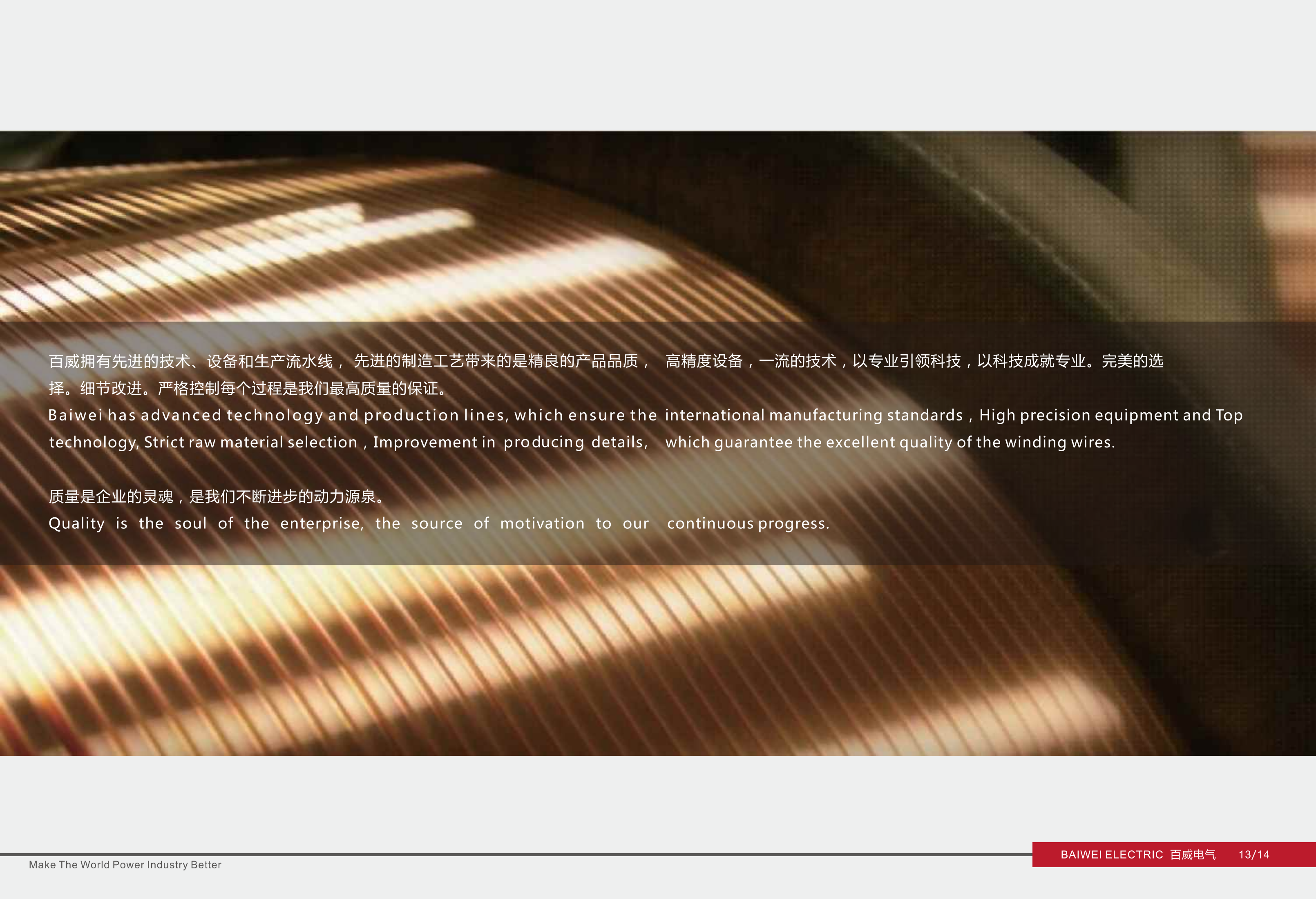
APPLICATION 应用领域



COOPERATIONS 合作伙伴



Cooperate Brands Keep 30% Increasing Each Year...



百威拥有先进的技术、设备和生产流水线，先进的制造工艺带来的是精良的产品品质，高精度设备，一流的技术，以专业引领科技，以科技成就专业。完美的选择。细节改进。严格控制每个过程是我们最高质量的保证。

Baiwei has advanced technology and production lines, which ensure the international manufacturing standards , High precision equipment and Top technology, Strict raw material selection , Improvement in producing details, which guarantee the excellent quality of the winding wires.

质量是企业的灵魂，是我们不断进步的动力源泉。

Quality is the soul of the enterprise, the source of motivation to our continuous progress.

Continuously Transposed Conductors

换位导线系列

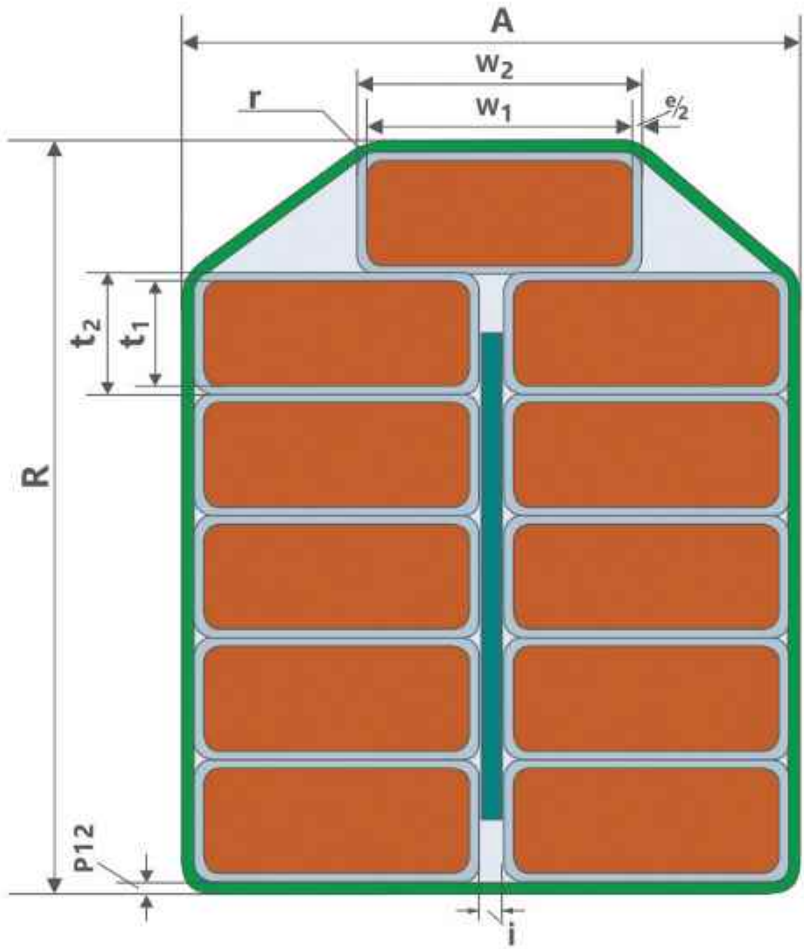
Continuously Transposed Conductors(CTC) 换位导线

Product introduction:
Transposed conductors is a kind of winding wire made of a certain number of enameled rectangular wires arranged in two columns in sequence by special technology,and wrapped by special insulating materials.It is mainly used in the winding of large oil immersed power transformers,reactors and large capacity dry-type transformers.By applying transposed conductors to transformers,the space utilization ratio of winding is improved,the volume and the cost is reduced.What's more,the additional loss of circulation and eddy current loss caused by leakage magnetic field are reduced. At the same time,it has the advantages of improving the mechanical strength of the winding and saving the winding time etc.
Continuously Transposed Conductors (CTC)is the important material for transformer winding.It has the advantage of well using of space,low eddy current loss,high mechanical strength and less time of coil winding.

产品介绍：
换位导线是由一定数目的漆包扁线按两列顺序排列经特殊工艺连续编制，并由特定的绝缘材料绕包而成的绕组线。主要用于制造大型油浸式电力变压器、电抗器和大容量干式变压器的绕组。使用换位导线制造变压器，提高了绕组的空间利用率，减小了体积而降低了成本，更重要的是降低了由漏磁场引起的环流附加损耗和涡流损耗。同时还具有提高绕组的机械强度、节省绕制时间等优越性。
连续换位导线是制造变压器绕组的重要材料。具有空间利用率高、散热性能好、涡流损耗低、机械强度高、线圈绕制时间少工艺性能好等优点。

Product Category 产品种类

- Polyvinyl acetal enameled CTC with paper insulation 纸绝缘缩醛漆包换位导线
- Polyvinyl self-adhesive acetal enameled CTC with paper insulation 纸绝缘自粘缩醛漆包换位导线
- Polyvinyl self-adhesive semi-hard acetal enameled CTC with paper insulation 纸绝缘自粘半硬缩醛漆包换位导线
- Polyvinylacetal enameled CTC with special binded 无纸捆绑型缩醛漆包换位导线
- Composite CTC with step 阶梯换位组合导线
- CTC with Shielding in side 内屏蔽换位导线
- Combination CTC with Shielding in side 组合屏蔽换位导线
- Polyester-imide enameled CTC 聚酯亚胺漆包换位导线
- Polyviny alcohol enameled CTC with PET film insulation 聚乙烯醇与聚酯薄膜绝缘换位导线



- t₁=Thickness of bare single strand
- t₂=Thickness of enamelled single strand
- e = Increase of enamel
- w₁=Width of bare single strand
- w₂=Width of enamelled single strand
- r = Radius
- R = Radial dimension of insulated CTC
- A = Axial dimension of insulated CTC
- P = Increase due to paper insulation
- i = Thickness of interleave

SPECIFICATIONS OF PRODUCT

Continuously Transposed Conductors(CTC)	
CTC Strips换位根数	Odd or Even
Max Overall Dimension 最大外形尺寸	Radial size :120mm(Tolerance±0.05mm)
	Axial size :26mm(Tolerance±0.05mm)
Single Conductor 单根导体尺寸	Thickness t1:0.90-3.15mm(Tolerance±0.01mm)
	Width w1:2.50-10.00mm(Tolerance±0.01mm)
Width/Thickness Ratio of Single Conductor 单根导体的宽度比	2.0<b/a<9.0
Thickness of Acetal Layer 缩醛层厚度	0.08-0.12mm
Thickness of Self-adhesive layer 自粘层厚度	0.03-0.05mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系

Bunched Paper Insulated Conductors series

组合导线系列

Bunched Paper Insulated Conductors(Copper/Aluminum) 组合导线

Product introduction:

Bunched Paper insulated conductors(Copper/Aluminum) is a kind of special winding wire made up of several winding wires(copper/aluminum), arranged according to specified requirements and wrapped with specific insulation materials.

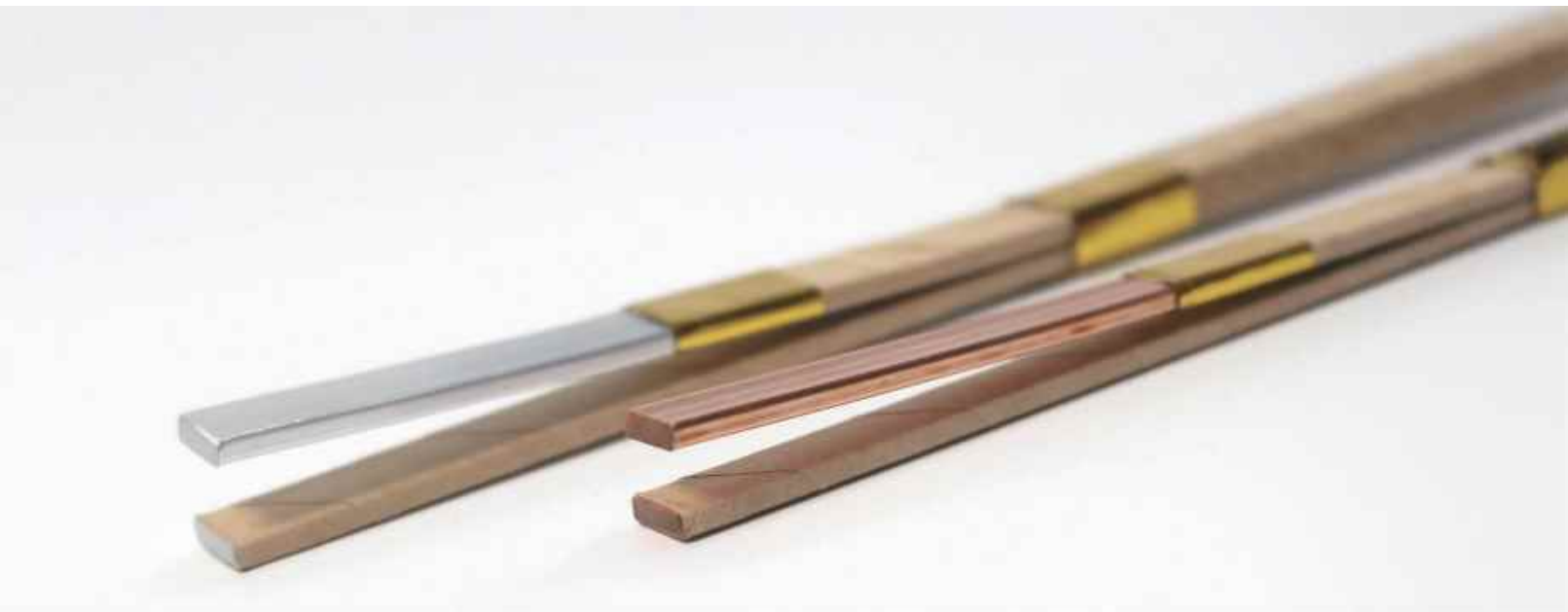
Bunched paper insulated conductors are mainly used in oil immersed transformers, reactors, and other electrical devices winding. Copper and aluminum conductor paper wrapped wires and Bunched Paper Insulated Conductors made by BAIWEI has a precise appearance, moderate wrapping elasticity, and have a continuous length of over 8000 meters without joints.

产品介绍：

组合导线是由若干根铜/铝扁线按照规定要求排列，由特定的绝缘材料绕包而成的绕组线。主要应用于油浸式变压器，电抗器以及其他电气装置的绕组。百威电气专业生产铜、铝导体纸包线、组合导线，产品外形精准，绕包松紧适度，连续无接头长度8000米以上。

Single Strips Choice 单根线材可选范围

- Bare Copper/Aluminum Strips
- Paper Wrapped Copper/Aluminum Strips
- Enamelled Copper/Aluminum Strips
- Film Wrapped Copper/Aluminum Strips



SPECIFICATIONS OF PRODUCT

Product introduction:

Bunched Paper Insulated Conductors(Copper/Aluminum) is a kind of special winding wire made up of several winding wires(copper/aluminum), arranged according to specified requirements and wrapped with specific insulation materials.

Bunched paper insulated conductors are mainly used in oil immersed transformers, reactors, and other electrical devices winding. Copper and aluminum conductor paper wrapped wires and Bunched paper insulated conductors made by BAIWEI has a precise appearance, moderate wrapping elasticity, and have a continuous length of over 8000 meters without joints.

Axially one Above the other轴向一个在另一个上方排列:

No. of single strips 单根导线数量n: ≤ 4

Width 宽度b: 4mm-25mm

Thickness 厚度a(for n=2导线数=2):1mm-3mm

Thickness 厚度a(for n=3导线数=3):1mm-2.2mm

Thickness 厚度a(for n=4导线数=4):1mm-1.7mm

Single Strip Width/Thickness ratio 单根导线的宽厚比:2:1 $\leq$ b/a $\leq$ 10:1

Axially side by side轴向并排(n=2):

Width 宽度b: 4mm-12.5mm

Thickness 厚度a:2.5mm-6mm

Single Strip Width/Thickness ratio 单根导线宽厚比:b/a $\leq$ 4:1

Axially strips one above the other and side by side(n=4)轴向径向排列:

Width 宽度b: 4mm-12.5mm

Thickness 厚度a:1mm-3mm

Single Strip Width/Thickness ratio单根导线宽厚比 :2:1 $\leq$ b/a $\leq$ 10:1

Radially side by side径向并排:

No. of single strips 单根导线数量n: ≤ 4

Width 宽度b:4mm-10mm

Thickness 厚度a:4mm-6mm

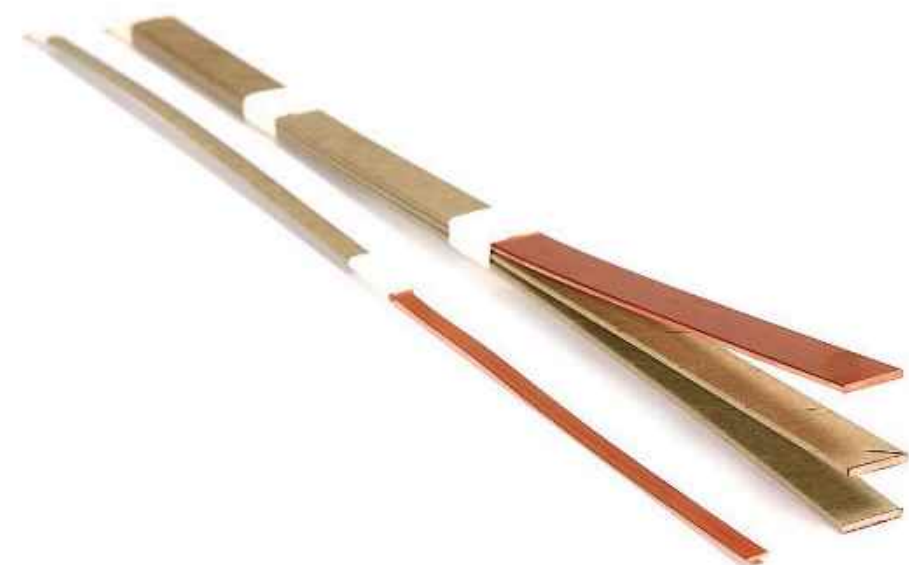
Single Strip Width/Thickness ratio 单根导线宽厚比:1:1 $\leq$ b/a $\leq$ 2.5:1

Bundle dimensions线束尺寸:

Width 宽度B: B $<$ 35mm

Thickness 厚度A: A $<$ 13mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



Enameled Wire Series 漆包绕组线系列

Enameled Flat Wire(Aluminum/Copper)
漆包铜/铝扁线

Product introduction:
Enameled Flat wire is one of main kind of winding wires for transformers ,generators,motors, reactors and large variety of electrical equipments.After being drawn by a rectangular mold, the oxygen-free Copper/Aluminum rod will be covered by many kinds of insulation varnish with different temperature resistance levels ,after baking treatment,the conductor and the insulation will be tightly together.

产品介绍：
漆包扁线是指在电工圆铜杆或电工圆铝杆经矩形模具挤压或拉拔后退火处理的导体上，根据客户要求，涂覆所需的温度指数及相容性的绝缘漆，经烘焙处理后，使绝缘漆和导体形成一整体的绕组线。该产品广泛应用于变压器、发电机、电机、电抗器及多种电气设备线圈的绕组。

Standard

GB/T7095-2008/IEC /NAME

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线

Narrow side a 窄边尺寸 a: 0.4mm-6mm
Wide side b 宽边尺寸 b: 2mm-16mm

Aluminum Flat wire 铝扁线

Narrow side a 窄边尺寸 a: 0.8mm-5.6mm
Wide side b 宽边尺寸 b:3mm-16mm



If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系

SPECIFICATIONS OF INSULATION THICKNESS

The insulation thickness of enameled flat wire should meet following sheet.
And if you have special requirements for the insulation thickness ,you can contact us
漆膜厚度应按下表规定生产，或者双方协商。

Insulation Thickness Grade 漆膜等级	Insulation thickness(mm) 漆膜厚度		
	Min. 最小值	NominalValue 标称值	Max. 最大值
1	0.06	0.085	0.11
2	0.12	0.145	0.17

Enamelled flat wire performance parameters table 漆包扁线性能参数表

Product 产品名称	QQB-120 缩醛漆包扁线	QZB-130 聚酯漆包扁线	QZGB-155 改性聚酯漆包扁线	QZYB-180 聚酯亚胺漆包扁线	QZY/XYB-200 聚酯亚胺/聚酰胺酰亚胺复合漆包扁线	QXYB-220 聚酰亚胺漆包扁线	QY(F)B-240 芳族聚酰亚胺漆包扁线
Standard	IEC60317-18	GB/T7095.7-2008	IEC 60317-16 GB/T7095.3-2008	IEC 60317-28 GB/T7095.4-2008	MW-36C IEC 60317-29 GB/T7095.6-2008	IEC60317-30 MW38-C	Mw20 IEC60317-47 GB/T7095.5-2008
Heat-resistant grade 耐热等级	120℃	130℃	155℃	180℃	200℃	220℃	240℃
Top coat 面漆	Polyvinyl Acetal	Polyester	Modified polyester	Polyester imide	Polyester imide	Polyimide	Aromatic-Polyimide
Under coat底漆					Polyamide-Imide		
Production specifications 规格范围	a:0.80-5.60mm b:2.00-16.00mm						
Performance 性能	Good performance of resistance to transformer oil and scratch.Excellent flexibility& adhesion ,and good hydrolysis resistance. 优良的耐变压器油性，耐刮性能。优良的柔韧性，以及很好的耐水解性	Better oil heat resistance, Hydrolysis,scratch resistance, Strong adhesion, Good Flexibility 较好的耐油，耐水解，耐刮性强，附着性强，柔韧性好	Good heat resistance,Oil resistance, hydrolysis resistance,High flexibility scratch resistance 较好的耐热性，耐油，耐水解，柔韧性强耐刮性强	Very good heat resistance, oil resistance, chemical resistance, hydrolysis resistance, Thermal shock resistance 很好的耐热性，耐刮性，耐化学性耐水解性，耐热冲击性	High heat resistance,Strong chemical resistance,good scratch resistance, resistance to cryogen, radiation resistance. 很高的耐热性，极强的耐化学性，很好的耐刮性，耐冷冻剂，耐辐射	Excellent heat resistance, chemical resistance, scratch resistance, high temperature breakdown voltage and thermal shock,low temperature radiation. 极好的耐热性能，极强的耐化学性能，极好的耐刮性能、软化击穿以及热冲击耐低温辐射性能	The highest Heat resistance, the best solvent resistance and mechanical strength, resistance to refrigerants, radiation resistance 最高的耐热性能，最好的耐溶剂性能 and机械强度，耐冷冻剂，耐辐射性
Application 应用	Mainly used in oil immersed transformers 主要用用于油浸式变压器	Dry or oil-immersed transformer, other electrical equipment 干式或油浸式变压器，各类电气设备	Dry or oil-immersed transformer , other electrical equipment 干式或油浸式变压器，各类电气设备	High and low voltage DC/AC motor electromagnetic coil,Dry or oil-immersed transformer 高低压直流交流电机，电磁线圈，干式或油浸式变压器	High and low voltage DC/AC motor electromagnetic coil,Dry or oil-immersed transformers, automotive coils,rail transit coils 高低压直流、交流电机电磁线圈，干式或油浸式变压器，汽车线圈，轨道交通线圈	High temperature motor windings, Dry-type transformers, Sealed relays and electronic components 耐高温绕组组，干式变压器，密封式继电器以及电子元件	Various types of electrical equipemnt which are working above 220℃,such as avaiation, mining and deep sea motors, generators, nuclear industry motors,all kinds of electrical equipment needs super stability 各类220℃工作的电气设备，航空，矿井、深海作业的电机电、发电机、核工业、各类需要超强稳定性的电气设备
Thermal shock 热冲击	140℃	155℃	175℃	200℃	220℃	240℃	300℃

Enameled Wire Series 漆包绕组线系列

Enameled Round Wire(Aluminum/Copper)
漆包铜/圆线

Product introduction:
Enameled round wire is one of main kind of winding wires for transformers ,generators,motors, reactors and large variety of electrical equipments.After being drawn by a round mold, the oxygen-free Copper/Aluminum rod will be covered by many kinds of insulation varnish with different temperature resistance levels ,after baking treatment,the conductor and the insulation will be tightly together.

产品介绍：

漆包圆线是指在电工圆铜杆或电工圆铝杆经圆形模具挤压或拉拔后退火处理的导体上，根据客户要求，涂覆所需的温度指数及相容性的绝缘漆，经烘焙处理后，使绝缘漆和导体形成一整体的绕组线。该产品广泛应用于变压器、发电机、电机、电抗器及多种电气设备线圈的绕组。

Standard

GB/T6109 /IEC 60317-0-1/NAME

SPECIFICATIONS OF PRODUCT

Copper Round Wire 圆铜线：0.1-6.5mm
Aluminum Round Wire圆铝线：0.8-6.5mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系

SPECIFICATIONS OF INSULATION THICKNESS

The Thickness of enameled round wire can be divided by Grade1,2 and 3.
And if you have special requirments for the insulation thickness ,you can contact us

Insulation Thickness Grade 漆膜等级	Insulation thickness(mm) 漆膜厚度		
	Min. 最小值	Nominal Value 标称值	Max. 最大值
1	0.06	0.085	0.11
2	0.12	0.145	0.17



Enamelled flat wire performance parameters table 漆包圆线性能参数表

Product 产品名称	QQ-120 缩醛漆包圆线	QZ-130 聚酯漆包圆线	QZG-155 改性聚酯漆包圆线	QZY-180 聚酯亚胺漆包圆线	QZY/XY-200 聚酯亚胺/聚酰胺酰亚胺复合漆包圆线	QXY-220 聚酰亚胺漆包圆线	QY(F)-240 芳族聚酰亚胺漆包圆线
Standard	MW15C IEC60317-12	GB/T6109.7 GB/T23312.3 IEC60317-34	IEC60317-3 GB/T6109.2 GB/T23312.4	MW30C IEC60317-8 GB/T6109.5 GB/T23312.5	MW35C IEC60317-13 GB/T6109.5 GB/T23312.5	MW81C GB/T6109.6 IEC60317-7	MW16-C IEC60317-46 GB/T6109.22
Heat-resistant grade 耐热等级	120℃	130℃	155℃	180℃	200℃	220℃	240℃
Top coat 面漆	Polyvinyl Acetal	Polyester	Modified polyester	Polyester imide	Polyester imide	Polyimide	Aromatic-Polyimide
Under coat底漆					Polyamide-Imide		
Production specifications 规格范围	Φ0.1mm-6.5mm						
Performance 性能	Good performance of resistance to transformer oil and scratch,Excellent flexibility& adhesion ,and good hydrolysis resistance. 优良的耐变压器油性，耐刮性能。优良的柔韧性，以及很好的耐水解性	Better oil heat resistance, Hydrolysis,scratch resistance, Strong adhesion, Good Flexibility 较好的耐油，耐水解，耐刮性强，附着性强，柔韧性好	Good heat resistance,Oil resistance, hydrolysis resistance,High flexibility scratch resistance 较好的耐热性，耐油，耐水解，柔韧性强耐刮性强	Very good heat resistance, oil resistance, chemical resistance, hydrolysis resistance, thermal shock resistance 很好的耐热性，耐刮性，耐化学性耐水解性，耐热冲击性	High heat resistance,Strong Chemical resistance,good scratch resistance, resistance To cryogen, radiation resistance. 很高的耐热性，极强的耐化学性，很好的耐刮性，耐冷冻剂，耐辐射	Excellent heat resistance, chemical resistance, scratch resistance, high temperature breakdown voltage and thermal shock,low temperature radiation. 极好的耐热性能，极强的耐化学性能，极好的耐刮性能、软化击穿以及热冲击耐低温辐射性能	The highest Heat resistance, the best solvent resistance and mechanical strength, resistance to refrigerants, radiation resistance 最高的耐热性能，最好的耐溶剂性能 and机械强度，耐冷冻剂，耐辐射性
Application 应用	Mainly used in oil immersed transformers 主要用用于油浸式变压器	Dry or oil-immersed transformer, other electrical equipment 干式或油浸式变压器，各类电气设备	Dry or oil-immersed transformer , other electrical equipment 干式或油浸式变压器，各类电气设备	High and low voltage DC/AC motor electromagnetic coil,Dry or oil-immersed transformer 高低压直流交流电机，电磁线圈，干式或油浸式变压器	High and low voltage DC/AC motor electromagnetic coil,Dry or oil-immersed transformers, automotive coils,rail transit coils 高低压直流、交流电机电磁线圈，干式或油浸式变压器，汽车线圈，轨道交通线圈	High temperature motor windings, Dry-type transformers, Sealed relays and electronic components 耐高温绕组，干式变压器，密封式继电器以及电子元件	Various types of electrical equipemnt which are working above 220℃,such as avaiation, mining and deep sea motors, generators, nuclear industry motors,all kinds of electrical equipment needs super stability 各类220℃工作的电气设备，航空，矿井、深海作业的电机电、发电机、核工业、各类需要超强稳定性的电气设备
Thermal shock 热冲击	140℃	155℃	175℃	200℃	220℃	240℃	300℃

Enameled Wire Series 漆包绕组线系列

Edgewise Winding Enameled Flat Wire(Aluminum/Copper)
立绕漆包扁线

Product introduction:

The cross-sectional area of edgewise winding enameled flat wire is $\geq 6\text{mm}^2$.It is made by rectangular copper wire coated with high temperature insulating varnish.This product can meet the customer's different ways of winding, and it is widely used in transformers, motors, photovoltaic inverters and a variety of electrical equipment.

产品介绍：

立绕漆包扁线是指 $\geq 6\text{mm}^2$,在形状为矩形的铜铝扁线上涂覆高附着性绝缘漆制成的绕组线，能满足客户不同的绕线方式。该产品广泛应用于变压器、电机、光伏逆变器及多种电气设备线圈的绕组。

Product Category
产品种类

- 220 Polyamide-imide enameled flat copper wire
▲ 220级聚酰胺酰亚胺漆包扁铜线
- 220 Polyamide-imide enameled flat aluminum wire
▲ 220级聚酰胺酰亚胺漆包扁铝线

Standards 执行标准：

GB/T7095-2008

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线

Narrow side a 窄边尺寸 a:0.4mm-6mm

Wide side b 宽边尺寸 b:2mm-16mm

Aluminum Flat wire 铝扁线

Narrow side a 窄边尺寸 a:0.8mm-5.6mm

Wide side b 宽边尺寸 b:3mm-16mm

If the specifications is out of the above range,please contact us .

如果规格超出以上范围，请与我们联系

SPECIFICATIONS OF INSULATION THICKNESS 漆膜厚度参数

The insulation thickness of enameled flat copper wire should meet the following requirements,if you have special requirements for the insulation thickness,please contact us.

漆包铜扁线的漆膜厚度应符合下表规定，如对漆膜厚度有特殊要求，请联系我们。

Insulation Thickness Grade 漆膜等级	Insulation thickness(mm) 漆膜厚度		
	Min. 最小值	Nominal Value 标称值	Max. 最大值
1	0.06	0.085	0.11
2	0.12	0.145	0.17



Enameled wire characteristics table 漆包线特性表

Flexibility of insulation:The insulation of the edgewise winding enameled flat wire should be flexible at room temperature. Its wide side"a"and narrow side "b"should not cracked or peeled off when it is bending in the round bar by 180 degrees or winding by rectangular coil in table1.

漆膜的柔韧性；漆包线漆膜应有柔韧性，在室温条件下，漆包线以其宽边a、窄边b在表1规定的棒上弯曲180°或制成表1中的矩形线圈后漆膜应不开裂或脱落。

a side size(mm) a边尺寸	Round bar Diameter(mm) 圆棒直径
≤ 1.0	1a
$1.0 < a \leq 2.00$	2a
$2.0 < a \leq 3.00$	2a
$3.0 < a \leq 4.00$	3a

b side size(mm) b边尺寸	Round bar Diameter(mm) 圆棒直径	Rectangular coil size(mm) 矩形尺寸
≤ 6.0	2b	15x40
$6.0 < a \leq 8.00$	2b	18x50
$8.0 < a \leq 10.00$	3b	20x60
$10.0 < a \leq 12.00$	3b	20x60

Thermal shock热冲击

The a(narrow)side and the b(wide)side of edgewise winding enameled flat wire bend according table 2,and put into the heated oven bake for 1 hour,the wire should be without cracking,the minimum thermal shock temperature should be 240℃

漆包扁线在按照表2中规定的尺寸进行导体窄边与宽边弯曲后，放入已经升好温度的烘炉中进行烘烤1小时不开裂，最小热冲击温度应为240℃

a side size(mm) a边尺寸	a side bending size(mm) a边弯曲圆形尺寸	b side size(mm) b边尺寸	b side bending size(mm) b边弯曲圆形尺寸
≤ 1.0	1a	≤ 6.0	2b
$1.0 < a \leq 2.00$	2a	$6.0 < a \leq 8.00$	2b
$2.0 < a \leq 3.00$	2a	$8.0 < a \leq 10.00$	3b
$3.0 < a \leq 4.00$	3a	$10.0 < a \leq 12.00$	3b

Paper wrapped wire series 纸包绕组线系列

Kraft Paper Wrapped Wire(Aluminum/Copper)
电缆纸绕包线

Product introduction:
Kraft Paper wrapped wire is extruded or drawn from oxygen free copper rod or electrician round aluminum rod with certain specifications mould and then wrapped with two or more than two layers Kraft paper.It is widely applied in oil-immersed transformer and other similar electrical instruments.The extruded copper(aluminum) conductors are the best material for Kraft paper wrapped wire.

产品介绍：
电缆纸包线是由电工圆铜杆或电工圆铝杆经一定规格的模具挤压或拉拔后退火处理的导线，再在铜(铝)导体上绕包两层或两层以上绝缘纸(包括电缆纸、高密度绝缘纸、耐热纸、匝间绝缘纸等)的绕组线，适用于油浸式变压器线圈及其它类似电器绕组用线。经济压工艺生产的电工裸铜(铝)导线是生产电缆纸包线是最理想的材料。

Standard

GB/T7673-2008

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线
Narrow side a 窄边尺寸 a:0.4mm-9mm
Wide side b 宽边尺寸 b:2mm-20mm

Aluminum Flat wire 铝扁线
Narrow side a 窄边尺寸 a:0.8mm-10mm
Wide side b 宽边尺寸 b:3mm-22mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



SPECIFICATIONS OF INSULATION THICKNESS

The Thickness of Kraft paper wrapped round (Flat) wire should be complied with the following Sheet or be negotiated 电缆纸包扁线的绝缘厚度分别应符合以下要求或由供需双方协商确定

Insulation thickness of kraft wrapped flat wire
电缆纸包扁线的绝缘厚度

Insulation Thickness标称绝缘厚度(A-a)Or(B-b)mm		Tolerance 偏差%
大于>	小于或等于<=	
-	0.5	+0 -10
0.5	1.25	+0 -7.5
1.25	-	+0 -5
Remark: When there are two specification of the thickness, Take the deviation of the big size 注：介于两种规格之间的厚度，应取大规格对应的偏差		

Bending Standards For Kraft Paper Wrapped Wire
电缆纸包绕组线的弯曲标准

Insulation Thickness(mm)	Experimental Method	Test Rod Diameter	Insulation Thickness(mm)	Experimental Method	Test Rod Diameter
绝缘厚度	实验方法	试棒直径	绝缘厚度	实验方法	试棒直径
0.3≤δ≤0.8	Winding绕包	100	0.3≤δ≤0.8	Wide Side Bend	150
1.2≤δ≤4.25		150	1.2≤δ≤4.25		200

Paper wrapped wire series 纸包绕组线系列

Nomex Paper Wrapped Wires(Aluminum/Copper) 杜邦纸包线

Product introduction:
NOMEX Paper wrapped wire is extruded or drawn from oxygen free copper rod or electrician round aluminum rod with certain specifications mould and then wrapped with T410 NOMEX which is made of DuPont,USA .It is widely applied in oil-immersed transformer, welding machines and other similar electrical instruments.The extruded copper(aluminum)conductors are the best material for NOMEX wrapped wire.

产品介绍：
NOMEX纸包线是由电工圆铜杆或电工圆铝杆经一定规格的模具挤压或拉拔后退火处理的导线，再由美国杜邦公司生产的T410型NOMEX绝缘纸绕包而成的绕组线，主要用于变压器，电焊机，电磁铁及高温条件下的绕组线圈或其它类似电器设备绕组用线。经济压工艺生产的裸铜(铝)导线是生产NOMEX纸包线是最理想的材料。

Standard

GB/T7673.3-2008

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线

Narrow side a 窄边尺寸 a: 0.4mm-9mm

Wide side b 宽边尺寸 b:2mm-20mm

Aluminum Flat wire 铝扁线

Narrow side a 窄边尺寸 a: 0.8mm-10mm

Wide side b 宽边尺寸 b:3mm-22mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



NOMEX covered wire technical standards (enterprise standard)NOMEX纸包线技术指标(企业标准)
NOMEX which our company use is made by DuPont USA T410 NOMEX.The thickness is 2mils.
NOMEX纸采用美国杜邦公司生产的厚度为2mil的T410型的NOMEX纸

Product	Wrapping Process	The number of wraps	Insulation Thickness/mm	Breakdown Voltage≥
品名	绕包方式	绕包层数	绝缘厚度	击穿电压
Nomex	1.5-2mm self locking Lapping 自锁式搭接1.5-2mm	1	0.12± 0.05	600V
	1.5-2mm self locking Lapping 自锁式搭接1.5-2mm	2	0.24±0.05	1500V
	50% lapping 50%叠包	1	0.22±0.05	1200V
	50% lapping 50%叠包	2	0.4 ±0.05	1300V
	1.5mm Reverse lapping 相反方向搭接1.5mm绕包	3	0.33±0.05	2500V

NOMEX Advantage of Nomex wrapped wire NOMEX 纸包线的优势

NOMEX's electrical,chemical and mechanical properties are extremely high,and it's elasticity,flexibility, anti-tearing,moisture resistance and wear resistance are very good.Moreover,it has the acid and alkali corrosion.
And it is not easily destroyed by insects,molds and fungi.It has the compatibility with all kinds of varnish,adhesive,transformer liquid,lubricant and coolant.Meanwhile,Nomex has strong thermal resistance.Even if the temperature reaches 220℃,the insulation property is the same.Transformer with Nomex wrapped wire can bring clients a lot of economic,environmental and security benefits.
由于NOMEX纸其电气、化学和机械完整性极高，且弹性。柔韧性、抗撕裂性。耐潮湿及耐磨性都很好，而且非常耐酸碱腐蚀，不会被昆虫。霉菌和真菌破坏，它可以与所有种类清漆、粘合剂、变压器液体、润滑油、以及冷冻剂相容。另NOMEX纸耐热温度高，即使温度高达220℃,仍然保持原有绝缘性能，使用NOMEX纸包线的变压器能为客户带来很多的经济、环境及安全的效益。

Lower cost,smaller size,lighter weight 降低成本，缩小尺寸，减轻重量

The temperature of transformer with Nomex insulation can rise up to 180℃ because the transformer needs fewer wires and ferrite cores and then it has smaller size and light weight,thus capital construction expense can be reduced.It is easy to install the transformer.Smaller ferrite core means smaller no-load loss.
使用NOMEX产品绝缘的变压器，其温升可设计至180℃,需要比较少的导线和铁芯，可缩小尺寸，减轻重量，从而降低基建费用，便于安装，铁芯较小也意味着空载损耗小；

Reliability improvement 提高可靠性

With Nomex wrapped wire,the electrical specification and the mechanical property are outstanding in the transformers'entire service life.Nomex wrapped magnet wire is not easy to be aging and has strong contraction and elasticity,therefore,it ensures that the transformer winding still maintains close and there is no crack.Nomex insulation paper is not sensitive to temperature,dust and thus improve the reliability of transformers.
变压器绕组使用NOMEX纸包线，在变压器的整个使用寿命期间保持着优异的电气性能和机械性能，NOMEX纸耐收缩抗压缩、弹性好且不宜老化，承受热冲击性能好，因此可以确保变压器线圈结构紧密，不会产生龟裂，另NOMEX绝缘纸对温度、灰尘不敏感，提高变压器可靠性。

Increase of reserve capacity 增加备用能力

Nomex's thermal resistance is high,so even though the temperature reaches 220℃,the insulation property maintainsthe same. Rank C of 220℃ takes the place of Rank of 180℃ during the design of transformer,so it may deal with the urgent load situation and the dilatation unexpectedly and can make backup plan greatly reduced.
NOMEX纸耐热温度高，即使温度高达220℃时，仍然保持原有绝缘性能。变压器的设计时将C级220℃绝缘材料作为H级180℃使用，可以应付紧急过载负荷及出乎意料的扩容，这样能够使备用计划大大缩减。

Good environmental performance 环保性能好

NOMEX is chemical stability ,safety flame retardant,nontoxic,anti-radiation,even in the event of a fire it will not release toxic gases.It does not react with the solvent,and it is acid and alkali corrosion.After the end of its service life,it is convenient recycling,the waste can be degraded,and will not cause environmental pollution.Nomex is an environmentally friendly high-tech products.
NOMEX绝缘材料化学性能稳定，安全阻燃、无毒、抗辐射，即使发生火灾时也不会释放有毒气体；与溶剂不发生反映，耐酸和碱的腐蚀。当其使用寿命结束后，回收方便，资源可再利用，废弃物可降解，不会对环境造成污染，是一种环保型高新技术产品。

Film wrapped wire series 膜包绕组线系列

Non-Woven fabric film/ Polyester Film Wrapped Wires(Aluminum/Copper)
无纺布/聚酯膜绕包线

Product introduction:
Non woven fabric film/Polyester film wrapped wire is extruded or drawn from oxygen-free copper rod or electrician round aluminum rod with certain specifications mould and then wrapped with two or three layers polyester film and electrical non-wovenfabric film as insulation material.The product has good voltage resistance,and the thermal class can be up to Class B130°C.It is widely applied in transformers,hollow reactors and other similar electrical instruments.There is advanced on-lime eddy equipment in BAIWEI to make the winding wire's quality more perfect.

产品介绍：
无纺布/聚酯膜绕包线是由电工圆铜杆或电工圆铝杆经一定规格的模具挤压或拉拔后退火处理的导线，再经过2-3层聚酯薄膜或者电工无纺布作为绝缘层绕包而成的绕组线，该产品耐压较好，耐温等级为B级130℃，主要用于变压器，空心电抗器以及类似的电气设备的绕组。

Standard

GB/T7673-2008 & Enterprise Standard

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线
Narrow side a 窄边尺寸 a: 0.4mm-9mm
Wide side b 宽边尺寸 b:2mm-20mm

Aluminum Flat wire 铝扁线
Narrow side a 窄边尺寸 a: 0.8mm-10mm
Wide side b 宽边尺寸 b:3mm-22mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



Insulation thickness and Technical Standards
绝缘厚度和技术指标

Wrapped Process 绕包方式	Insulation Thickness(mm) 绝缘厚度		Min Breakdown Voltage/V ≥ 击穿电压
	Norminal Value	Tolerance	
	标称值	公差	
2-layers polyester film 2层聚酯薄膜	0.22	±0.05	5000
2-layers polyester film+ 1 layer nonwoven fabric 2层聚酯薄膜+1层无纺布	0.33	±0.05	5000
3 layers of polyester film 3层聚酯薄膜	0.3	±0.05	7500
3 layers of polyester film+ 1nonwoven fabric 3层聚酯薄膜+1层无纺布	0.42	±0.05	7500

Film wrapped wire series 膜包绕组线系列

Polyimide Film Wrapped Wires(Aluminum/Copper)
聚酰亚胺薄膜绕包线

Product introduction:
Polyimide film wrapped wire is extruded or drawn from oxygen-free copper rod or electrician round aluminum rod with certain specifications mould and then wrapped with two or three layers polyimide film as insulation material .The product has excellent voltage resistance and the insulation thickness is thin,heat resistance up to 220 °C.It is widely used in motors, reactors,welding machines or other similar electrical products.

产品介绍：
聚酰亚胺薄膜绕包线是由无氧铜杆或电工圆铝杆经一定规格的模具挤压或拉拔后退火处理的导线，再在铜铝导体上匀整绕包2-3层聚酰亚胺薄膜作绝缘层的绕组线，该产品具有优良的耐电压性能且绝缘厚度较薄，耐热性能达220℃,主要用于电机、电抗器、电焊机或其它类似电器产品绕组。经挤压工艺生产的电工裸铜(铝)导线是生产聚酰亚胺薄膜包线最理想的材料。

Standard

GB/T7673-2008 & Enterprise Standard

SPECIFICATIONS OF PRODUCT

Aluminum Flat Wire 铝扁线
Narrow side a 窄边尺寸：1mm-8mm
Wide side b 宽边尺寸：3mm-25mm

Copper Flat Wire铜扁线
Narrow side a 窄边尺寸：0.90mm-60mm
Wide side b 宽边尺寸：2.00mm-16.00mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



Breakdown Voltage of polyimide film wrapped wire should conform to table as below:
(Business Standards)

聚酰亚胺薄膜包铜（铝）线的击穿电压（企业标准）

Wrapped Process 绕包方式	Insulation Thickness(mm) 绝缘厚度		Min Breakdown Voltage/V ≥ 击穿电压
	Norminal Value	Tolerance	
	标称值	公差	
2-layers polyimide film self-locking wrapped 2层聚酰亚胺自锁式绕包	0.15	±0.03	6000
2-layers polyimide film wrap in the oppsite direction 2层聚酰亚胺相反方向搭接绕包	0.15	±0.03	6000
3 layers of polyimide film wrap in the opposite direction 3层聚酰亚胺相反方向搭接绕包	0.23	±0.03	7000

Fibre glass wrapped conductor series

玻璃丝包绕组线系列

Fibre Glass Wrapped Conductors(Aluminum/Copper)
杜邦纸包线

Product introduction:
According to customer's requirements,copper or aluminum conductor is evenly wrapped with one or two layers of non-alkali fibreglass.Then it is impregnated in compatible insulating coating of required thermal class,baked to make a whole between fibreglass and conductor.There are three thermal classes of 130,155,180,four insulation thickness classes of 20,30,40,50.The product is widely applied in transformers,electromagnets,welding machines or similar electrical instrument.The electrical bare copper or aluminum wire with extrusion process is the ideal material for polyimide film wrapped copper or aluminum wire.Accept Insulation customize with fiberglass and film ,or fiberglass with enamel.

产品介绍：
玻璃丝包线是按客户要求，在铜(铝)导体上匀整绕包1-2层无碱玻璃纤维，配所需耐温指数及相容性的绝缘漆进行浸渍、烘焙处理，使玻璃纤维之间，玻璃纤维与导体之间粘结成一整体的绕组线，目前该类产品的耐温指数有130、155、180三个等级，绝缘厚度一般有20,30,40,50四个等级。该产品广泛用于变压器、电磁铁、电焊机或其它类似电器设备产品绕组。经济压工艺生产的电工裸铜(铝)导线是生产玻璃丝包铜(铝)线是最理想的材料。也可以定制玻璃丝加膜包，或者玻璃丝加漆包的绝缘组合。

Standard

GB/T7672-2008

SPECIFICATIONS OF PRODUCT

Copper Flat Wire 铜扁线

Narrow side a 窄边尺寸 a: 0.4mm-9mm
Wide side b 宽边尺寸 b:2mm-20mm

Aluminum Flat wire 铝扁线

Narrow side a 窄边尺寸 a: 0.8mm-10mm
Wide side b 宽边尺寸 b:3mm-22mm

If the specifications is out of the above range,please contact us .
如果规格超出以上范围，请与我们联系



Conductor should be wrapped closely and evenly with fibreglass.The winding of two-layer fibreglass should be wrapped in counter direction.Meanwhile,Insulation thickness of double fibreglass wrapped copper or aluminum wire should be conformed to the table as follow.Thickness of narrow side (B-b)is not considered.

玻璃丝应紧密均匀地绕在导体上，双玻璃丝包铜(铝)线的两层玻璃丝绕包方向应相反，并且，双玻璃丝包铜(铝)扁线的绝缘厚度应符合下表规定，窄边上的绝缘厚度(B-b)不作考核。

Product 品名	Insulation Thickness(mm) 绝缘厚度	Tolerance 偏差%
Double Fibreglass Wrapped Copper/Aluminum wire 双玻璃丝包铜（铝）扁线	0.2	-20%
	0.3	
	0.4	
	0.5	

Breakdown voltage of fibreglass wrapped wire should conform to table as below
玻璃丝包线的击穿电压应符合下表规定

Insulation Type 绝缘类型		Min Breakdown Voltage/V
		最小击穿电压
Bare copper/ aluminum conductor 裸铜铝导体	Single layer of fibreglass wrapped 单玻璃丝包GL1	350
	Double layer of fibreglass wrapped 双玻璃丝包GL2	560

Characteristic

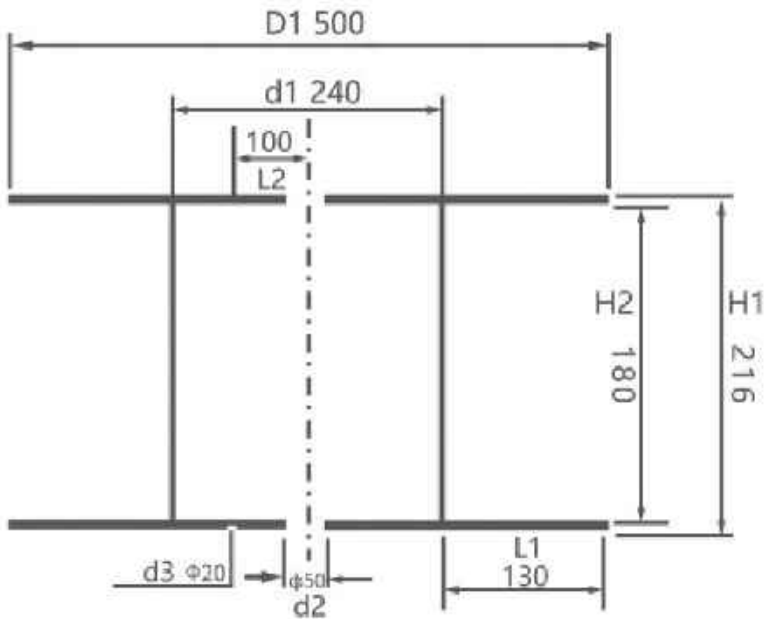
Insulation of fibreglass wrapped wire has the advantage of wear resistance,adhesion,flexibility,good resistance to heat and good overload performance.
玻璃丝包线的特性
玻璃丝包线绝缘层具有一定的耐磨性、附着性和柔软性，具备良好的抗热冲和过载性能

Parameter of Wooden spool type
木盘包装参数

Product introduction:

According to customer's requirements,copper or aluminum conductor is evenly wrapped with one or two layers of non-alkali fibreglass.Then it is impregnated with compatible insulating coating of required thermal class,baked to make a whole between fibreglass and conductor.There are three thermal classes of 130,155,180,four insulation thickness classes of 20,30,40,50.The product is widely applied in transformers,electromagnets,welding machines or similar electrical instrument.The electrical bare copper or aluminum wire with extrusion process is the ideal material for polyimide film wrapped copper or aluminum wire.Accept Insulation customize with fiberglass and film ,or fiberglass with enamel.

Type	Size(mm)								Estimated Net weight(kg)	
	d1	D1	d2	H1	d3	H2	L2	L1	Aluminum	Copper
Dia 500mm	250	500	50	290	25	250	95	125	50	150
Dia 500mm	300	500	50	290	25	250	95	100	35	100
Dia 500mm	250	500	50	230	25	200	95	125	40	120
Dia 400mm	200	400	50	210	25	170	95	100	20	60
Dia 600mm	250	600	50	310	25	275	95	175	95	230
Dia 600mm	250	600	50	290	25	250	95	175	85	200



Parameter of plastic spool type
塑料盘包装参数

Product introduction:

According to customer's requirements,copper or aluminum conductor is evenly wrapped with one or two layers of non-alkali fibreglass.Then it is impregnated with compatible insulating coating of required thermal class,baked to make a whole between fibreglass and conductor.There are three thermal classes of 130,155,180,four insulation thickness classes of 20,30,40,50.The product is widely applied in transformers,electromagnets,welding machines or similar electrical instrument.The electrical bare copper or aluminum wire with extrusion process is the ideal material for polyimide film wrapped copper or aluminum wire.Accept Insulation customize with fiberglass and film ,or fiberglass with enamel.

SpoolModel 盘具	Size(mm)							Estimated Weight (kg)	
	d1	D1	d2	D2	H1	H2	d3	Aluminum	Copper
PT-2	105	115	68.4	75	150	170	20-20.5	1	2
PT-4	124	140	74	86	170	200	26-26.5	1	4
PT-10	160	180	96	110	200	230	30-30.5	4	12
PT-15	180	200	96	110	200	230	30-30.5	5	15
PT-20	200	220	100	110	200	230	30-30.5	8	25
PT-25	215	230	110	130	250	280	30-30.5	10	30
PT-45	236	250	140	160	335	400	100	18	55
PT-60	270	300	150	175	350	400	45-45.5	25	75
PT-90	300	315	180	200	425	500	100	36	108
PT-200	375	400	224	250	530	630	100	67	200
PT-270	435	460	255	280	530	630	100	90	270

