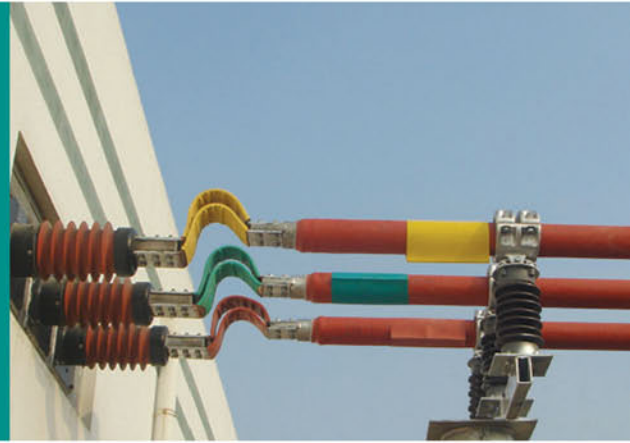


诚信卓越 士林伟业  
GOOD FAITH & GREAT SHILIN



专精特新“小巨人”企业 —— 管母中的爱马仕  
Specialized, refined and innovative "Little Giant" enterprise -- Hermes in the tubular busbar

GGM绝缘管母线  
GGM Insulating Tubular Busbar  
LDRE铝镁硅合金管母线  
LDRE Mg-Al-Si Alloy Tubular Busbar



江苏士林电气集团有限公司  
JIANGSU SHILIN ELECTRIC GROUP CO., LTD.



专精特新“小巨人”企业

Specialized, refined and innovative "Little Giant" enterprise

# —— 管母中的爱马仕

Hermes in the tubular busbar





# 公司简介

在中国第一个生态环境市，长江中下游第二大岛-----江苏省扬中市境内有一家集输配电成套、电力电气、太阳能组件等产品研发、制造、销售、服务于一体的国家级高新技术企业，这就是-----江苏士林电气集团有限公司。

公司通过了ABS体系认证、ISO9001质量管理体系认证、ISO14001环境管理体系认证、ISO45001职业健康安全管理体系认证和“CQC”产品认证，全部产品均通过了国家或行业最新标准检测。公司被评为国家级专精特新“小巨人”企业、“质量信用AAA级”、“重合同守信用企业”及省市“AAA”资信企业。拥有九十余项自主知识产权，多项产品获得省和国家高新技术产品称号，自主研发的管型母线获省、市科技进奖，江苏省专精特新产品。

江苏士林电气集团有限公司与德国赛通电气、ABB电气、施耐德电气（中国）有限公司等企业强强联合，在国内外市场上共同生产和合作经营各类电气产品。长期以来，公司以“科技是第一生产力为指导思想，以不断创新的理念，精益求精的态度，现代化的管理手段，为广大用户专业化制造：高低压配电柜、高压绝缘管母线、风电专用管母线、照明母线、密集型母线槽、IP68防水、浇注、防腐母线槽、耐火电缆桥架、一次滚压成型环形筋节能高强电缆桥架、支架等系列产品。特别是公司生产的绝缘管母线、浇注防水母线是国内生产规模较大，产品系列齐全且专利技术在国内外处于领先地位的高新技术产品，在工控、供配电等领域享有较高的知名度和市场占有率。

公司先进的创新技术和卓越的品质，成就了“士林品牌”，遍布全国各大城市的营销服务网络，确保了“士林产品”和“士林服务”在行业中的排头兵地位；士林的产品被广泛应用于国内举世瞩目的大型项目——南京青奥会、田湾核电站.....士林的用户遍布：高铁、地铁、高速公路、发电系统、造船汽车、工矿、石油化工和政府工程等各项领域，并获得了一致好评！

“士林电气”始终秉承“专业、品质、共赢”的企业理念，汇集国内外精英才俊，走自主创新发展之路，实现士林电气工程技术和专业化服务技术的双提升，达到士林产品从“士林制造”到“士林创造”的新发展，在中国电气产业中，展示自己的综合实力和高端水平。

公司热烈欢迎与各大设计院所、广大用户和关心支持士林发展的社会精英真诚合作，携手致力于我国电气事业的发展 and 繁荣。

## Company Profile

In the first ecological environment city in China, within the boundaries of Yangzhong City, Jiangsu Province, the second largest island in the middle and lower reaches of the Yangtze River, there is a national-level high-tech enterprise known as Jiangsu Shilin Electric Group Co., Ltd. This company specializes in the research and development, manufacturing, sales, and service of a complete set of power transmission and distribution equipment, power electrical products, solar modules, and other products.

The company has passed the ABS system certification, ISO9001 quality management system certification, ISO14001 environmental management system certification, ISO45001 occupational health and safety management system certification, and “CQC” product certification. All products have passed the latest national or industrial standard testing. The company has been recognized as a national-level specialized and innovative “Little Giant” enterprise, “Quality Credit AAA Grade” enterprise, “Contract-abiding and Trustworthy” enterprise, as well as a provincial and municipal “AAA” credit enterprise. With more than ninety independent intellectual property rights, multiple products have been awarded the title of provincial and national high-tech products, and the independently developed pipe-type busbar has won provincial and municipal scientific and technological progress awards, making it a specialized and innovative product in Jiangsu Province.

Jiangsu Shilin Electric Group Co., Ltd. has formed a strong alliance with enterprises, such as Germany System Electric, ABB Electric, and Schneider Electric (China) Ltd., engaging in joint production and cooperative operations of various electrical products in domestic and international markets. Upholding the guide thought that “science and technology constitute the primary productive force”, the company keeps making innovations, keeps improving, and uses a modernized management means to provide professional manufacturing for plenty of users. A series of products including high and low voltage distribution cabinets, high voltage insulated busbars, wind power dedicated busbars, lighting busbars, compact busways, IP68 waterproof and cast-in-place corrosion-resistant busways, fire-resistant cable trays, energy-efficient high-strength cable trays with once-rolled circular ribs, and supports. Particularly, insulated busbars and waterproof cast-in-place busbars are high-tech products with the larger production scale in China, complete product series, and cutting-edge patent technology, enjoying the higher popularity and market occupancy in the fields of engineering control, power supply and distribution.

Upholding the advanced innovative technology and excellent quality, the company creates “Shilin Brand”, spreading all over marketing service networks in various cities of China and ensuring the pacesetter position of “Shilin products” and “Shilin services” in the industry. Shilin products have been widely applied in prominent domestic mega-projects, such as the Nanjing Youth Olympic Games and the Tianwan Nuclear Power Plant. Shilin’s users span various sectors, including high-speed rails, subways, highways, power generation systems, shipbuilding, automobiles, industrial and mining sectors, petrochemicals, government projects, etc., earning unanimous praise!

“Shilin Electric” always upholds the professional ideas of “profession, high-quality, and win-win result”. Gathering elites at home and abroad and insisting on the independent and innovative development, the company realizes the double improvement on Shilin electrical engineering technology and professional service technology to realize new development of Shilin products from “Made in Shilin” and “Created in Shilin”. In the Chinese electrical industry, the company fully performs its comprehensive strength and high-end level.

The company warmly welcomes sincere cooperation with major design institutes, extensive users, and socially elite individuals who care about and support Shilin’s development, devoting to realizing the development and prosperity of China’s electrical industry.

## 产品特点 Product Features

### ★ 载流量大

绝缘管型母线为空心导体，集肤效应系数小，导体表面电流密度分布均匀，载流量大。

### ★ 电气绝缘性强，安全可靠

绝缘管型母线采用了具有优良电气性能的三元乙两橡胶材料为绝缘，生产工艺采用导体屏蔽层、绝缘层、绝缘屏蔽层三层共挤的方式。避免了单层或二层挤出工艺造成的绝缘与屏蔽层之间接触不紧密及层与层之间存在气泡等缺陷。

外壳接地电位为零，母线表面电场分布均匀，电气绝缘性能强。可以直接通过电缆沟和电缆夹层。

### ★ 母线终端及中间连接实现了全预制

母线与变压器连接采用预制终端。母线与气体开关柜采用插拔式预制终端绝缘连接。母线中间接头采用预制橡胶件绝缘连接。

### ★ 所用绝缘材料适用温度范围大

采用的绝缘材料为三元乙丙橡胶，导体允许长期工作温度 90°C，短路 250°C。

采用的三元乙丙橡胶绝缘料有优良的电气性能及化学稳定性能，优良的耐热老化性能。

### ★ 抗震性强

由于绝缘管母线可直接固定在钢结构或凝土支架上，取消穿墙套管和支柱绝缘子，具有较强抗震能力。

### ★ 允许应力大，机械强度高

允许应力为矩形母线的 4 倍，可承受的短路电流大机械强度高，使得母线支撑跨距增大。

### ★ 散热条件好，温升低

母线内径风道能自然形成空气对流，散热除湿除尘条件好。

### ★ 不受环境干扰，安全可靠

本产品绝缘屏蔽密封，内部无凝露产生，并消除了外界潮气、灰尘及外物所引起的接地和相间短路故障，运行安全可靠。

★ 构件简明、美观，安装方便，使用寿命长，维护量少。

### ★ Large current-carrying capacity

The conductor of insulating tubular busbar is hollow, low skin effect coefficient. Current density distribution of conductor surface is homogenous and the current-carrying capacity is large.

### ★ Strong electric insulation, safe and reliable

The insulating material of insulating tubular busbar is EPDM with excellent electric performance. The production process introduces the mode of three-layer co-extrusion: conductor shielding layer, insulation layer and insulation shielding layer. The defects caused by single-layer or two-layer extrusion process, e.g. untight contact between insulation layer and shielding layer and bubble have been avoided.

The housing ground potential is 0; the distribution of electric field of busbar surface is homogenous, the electric insulation performance is strong. It can pass the cable trench and cable interlayer directly.

### ★ Realized prefabrication of busbar terminal and middle connection

Prefabricated terminal is used for connecting busbar and transformer. Pluggable prefabricated terminal is used for insulating connection between the busbar and gas switch cabinet. Prefabricated rubber insulating connector is used for connection of busbars.

### ★ Wide applicable temperature range of used insulating material

The adopted insulating material is EPDM. The allowable long time working temperature of conductor is 90°C and 250°C for short circuit.

EPDM has excellent electric performance and stable chemical performance and good thermal aging resistance.

### ★ Strong resistance to shock

Because the insulating tubular busbar can be fixed to the steel structure or concrete support, the wall bushing and supporting insulator are cancelled, having strong resistance to shock.

### ★ High allowable stress and mechanical strength

The allowable stress is 4 times of rectangle busbar and large withstanding short circuit current and strong mechanical strength makes the support span increase.

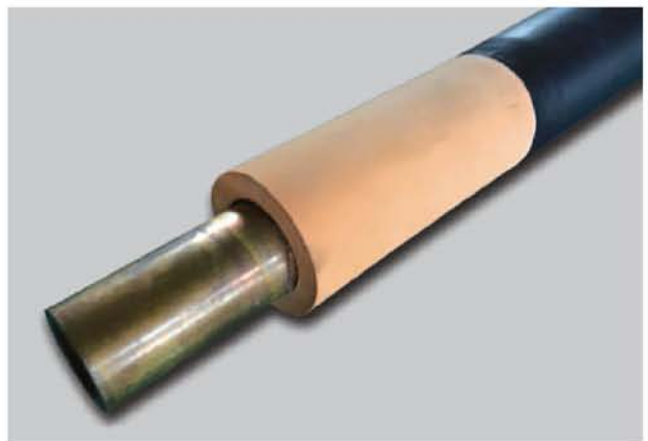
### ★ Good heat dissipation and low temperature rise

The air channel of busbar can form cross-ventilation, good for heat dissipation, dehumidification and de-dusting.

### ★ Free from the environmental disturbance, safe and reliable

The product is enclosed, insulated and shielded. No condensation inside and getting rid of outside humidity, dust, ground and interphase short circuit fault caused by foreign matters, safe and reliable operation.

★ Simple structure, nice appearance and easy installation, long lifetime and little maintenance work.



## 运行环境条件 Running Environment and Conditions

### ★ 适应安装环境和场所：

- 架空、电缆层和电缆沟
- 户外、户内安装

### ★ 使用条件

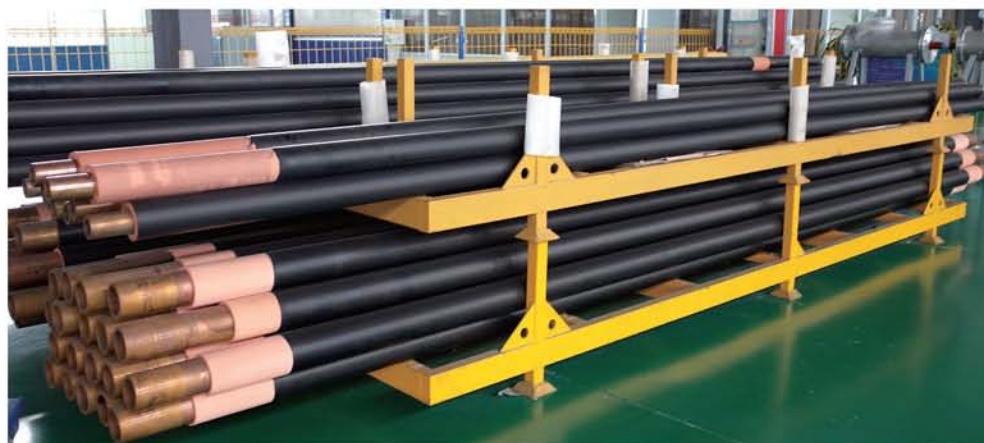
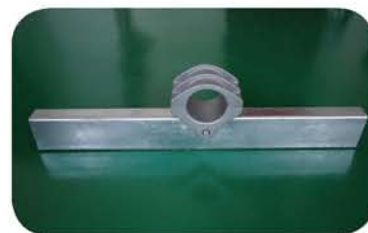
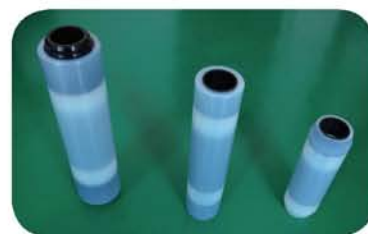
- 海拔高度：≤ 1000m (海拔高于 1000m 时，需由生产厂家做特殊生产)
- 最大风速：35m/s
- 环境相对湿度 (在 25°C 时)：日平均值：95%，月平均值：90%
- 最大日温差：30°C
- 地震烈度：VII 级
- 水平加速度：0.25g
- 垂直加速度：0.125g
- 频率：震动频率 20Hz
- 耐受时间：为正弦波 3 周波
- 污秽等级：IV 级 (31mm/kV，按最高电压计算)

### ★ Applicable installation environment and places

- Overhead, cable layer and cable trench
- Outdoor, indoor installation

### ★ Service conditons

- Altitude: ≤1000m (if the altitude is higher than 1000m, the maker has to produce specially)
- Max wind velocity: 35m/s
- Relative humidity (25°C): daily average value: 95%; monthly average value: 90%
- Max daily temperature difference: 30°C
- Seismic intensity: VII
- Horizontal acceleration: 0.25g
- Vertical acceleration: 0.125g
- Frequency: vibration frequency 20Hz
- Duration: 3 cycles of sine wave
- Pollution grade: IV (31mm/kV, calculated as highest voltage)



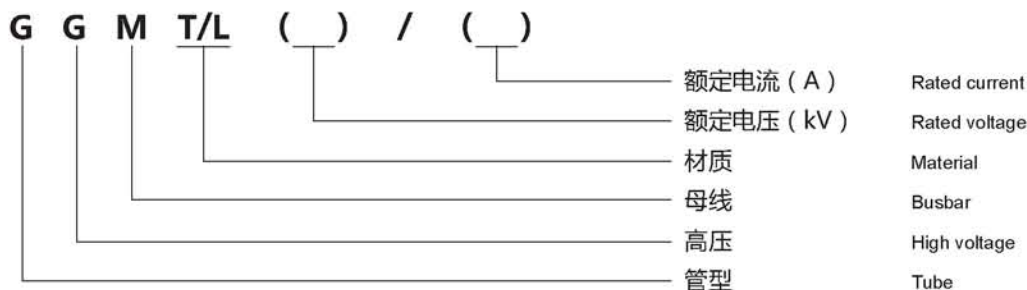
## 执行规范、标准 Regulations and Standards

- GB/T156-2007 标准电压  
Standard voltage
- GB 311.1-2012 高压输变电设备的绝缘配合  
Insulation coordination of high voltage power transmission and transformation equipment
- GB/T762-2002 标准电流等级  
Standard current level
- GB 4208-2008 外壳防护等级 (IP 代码)  
Housing protection class (IP code)
- GB/T 5231-2012 加工铜及铜合金牌号和化学成分  
Designation and chemical component for processed copper and copper alloy
- GB/T 5585.1-2005 电工用铜、铝及其合金母线第 1 部分：铜和铜合金母线  
Copper, aluminum and alloy busbar used in electric industry Part 1: copper and copper alloy busbar
- GB/T 5585.2-2005 电工用铜、铝及其合金母线第 2 部分：铝和铝合金母线  
Copper, aluminum and alloy busbar used in electric industry Part 2: aluminum and aluminum alloy busbar
- GB/T 7354-2003 局部放电测量  
Partial discharge measurement
- GB/T 11021-2007 电气绝缘耐热性分级  
Classification of electric insulation and heat resistance
- GB/T 11022-2009 高压开关设备和控制设备标准的共用技术要求  
Requirement for shared technology of high-voltage switchgear and control equipment standard
- GB 50150-2006 电气装置安装工程电气设备交接试验标准  
handover testing standard on electric equipment for electric equipment installation project
- GB/T 16927.1-2011 高电压试验技术第 1 部分：一般定义及试验要求  
High voltage test technique part 1 general definition and test requirement
- GB/T 16927.2-2013 高电压试验技术第 2 部分：测量系统  
High voltage test techniques - Part 2 Measurement system
- DL/T 1658-2016 35kV 及以下固体绝缘管型绝缘母线  
Solid insulated tubular insulated busbar for 35kV and below

## 母线选型 Selection of Busbar Type

- 根据母线的额定电压和电流
- 查看选型表，确定母线的规格型号
- 我们根据您的要求为您量身定做，设计好母线的布置图
- 复核无异后确认
- According to the rated voltage and current
- Check the type table and determine the type
- We customize as your requirement and design the layout of busbar
- Check and confirm

## 产品型号及含义 Type of Product and Meaning



注：其中 T/L 中 T 表示材料为铜管，L 表示材料为铝管。  
Note: T means copper and L means aluminum.

## 新产品新技术鉴定验收证书

Acceptance Certificate for Appraisal of New Product and New Technology

### 新产品新技术鉴定验收证书

苏经信鉴字[2016] 078 号

产品（技术）名称： 10kV 6300A 三层共挤乙丙橡胶绝缘  
复合屏蔽封闭管型母线系统

完成单位：江苏士林电气设备有限公司

鉴定类别：新产品

鉴定形式：会议鉴定

鉴定主持单位：镇江市经济和信息化委员会

鉴定组织单位：江苏省经济和信息化委员会

鉴定日期：2016 年 5 月 7 日

## 新产品新技术鉴定验收证书

### Acceptance Certificate for Appraisal of New Product and New Technology

#### 鉴 定 意 见

受江苏省经信委委托，镇江市经信委于2016年5月7日在扬中市主持召开了江苏士林电气设备有限公司“10kV/6300A 三层共挤乙丙橡胶绝缘复合屏蔽封闭管型母线”新产品鉴定会。鉴定委员会听取了产品研制、技术总结及用户使用等报告，考察了产品生产现场，审查了技术文件。经质询和讨论，形成鉴定意见如下：

1、提供鉴定的技术文件资料齐全、正确、规范，符合鉴定要求。

2、产品采用乙丙橡胶绝缘和三层共挤生产工艺，有效提高了母线绝缘性能和复杂结构的适应性；采用预制式母线终端，有效减弱了电场畸变，减少了接触电阻，降低了温升；采用预制绝缘母线接头，使母线内部场强均匀，提高了母线接头的绝缘性能。产品无污染，安全可靠，安装使用方便。产品已申请发明专利9件，实用新型专利10件。

3、产品经国家电线电缆质量监督检验中心型式试验检测，各项性能指标符合 Q/321182APW004-2016 标准要求，产品经用户使用，反映良好。

4、公司通过了 ISO9001、ISO14001 质量、环境管理体系认证，生产工装设备和检测设备齐全，具备批量生产的条件。

鉴定委员会一致认为，该产品综合性能指标处于国内同类产品领先水平，一致同意通过新产品鉴定。

主任委员： 

副主任委员： 

2016年5月7日



## 新产品新技术鉴定验收证书

### Acceptance Certificate for Appraisal of New Product and New Technology

鉴定（或验收）主持单位意见：

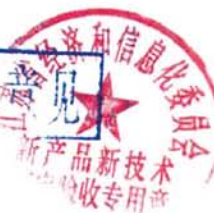
**同意鉴定委员会意见**



2016年5月13日

鉴定（或验收）组织单位意见：

**同意鉴定验收意见**



盖 章

年 月 日

## 新产品新技术鉴定验收证书

### Acceptance Certificate for Appraisal of New Product and New Technology

鉴定委员会名单

序号	鉴定会职务	姓名	工作单位	所学专业	现从事专业	职务职称	签名
1	主任/委员	胡敏强	南京师范大学	电机	电气工程	教授/校长	胡敏强
2	副主任/委员	景旭文	江苏科技大学	机械工程	机械工程	教授/副校长	景旭文
3	委员	朱焜秋	江苏大学	电气工程	电气工程	教授/书记	朱焜秋
4	委员	林鹤云	东南大学	电气	电气工程	教授	林鹤云
5	委员	杨晓明	江苏省机械研究设计院	机械	机械工程	高工/副院长	杨晓明
6	委员	陈少波	江苏省电力科学研究院	高电压	高压电气	高工	陈少波
7	委员	周鹏	镇江供电公司	电力系统及自动化	电力系统及自动化	高工/副主任	周鹏

产品选型表 (绝缘铜管母线) Table for selecting product type (insulating copper tubular busbar)

规格型号 Specification	额定电流 (A) Rated current	额定热稳定电流 kA,4s Rated thermal stability current	额定动稳定电流 kA (峰值) Rated dynamic current (peak value)	铜管规格 (T2Y) Size of copper pipe	备注 Remark
GGMT-12(40.5)/2000	2000	25	63	Ø60*6	额定电流 温升≤50K Temperature rise of rated current ≤50K
GGMT-12(40.5)/2500	2500	31.5	80	Ø60*8	
GGMT-12(40.5)/3150	3150	40	100	Ø100*5	
GGMT-12(40.5)/4000	4000	50	125	Ø100*10	
GGMT-12(40.5)/5000	5000	63	160	Ø100*12	
GGMT-12(40.5)/6300	6300	80	200	2* Ø100*5	

产品选型表 (绝缘铝管母线) Table for selecting product type (insulating aluminum tubular busbar)

规格型号 Specification	额定电流 (A) Rated current	额定热稳定电流 kA,4s Rated thermal stability current	额定动稳定电流 kA (峰值) Rated dynamic current (peak value)	铜管规格 (T2Y) Size of copper pipe	备注 Remark
GGML-12(40.5)/1000	1000	25	63	Ø60*6	额定电流 温升≤50K Temperature rise of rated current ≤50K
GGML-12(40.5)/1250	1250	40	100	Ø60*6	
GGML-12(40.5)/1600	1600	50	125	Ø60*11	
GGML-12(40.5)/2000	2000	63	160	Ø80*10	
GGML-12(40.5)/2500	2500	80	200	Ø100*10	
GGML-12(40.5)/3150	3150	80	200	Ø100*12	
GGML-12(40.5)/4000	4000	125	315	Ø120*13	
GGML-12(40.5)/5000	5000	160	400	Ø120*17	
GGML-12(40.5)/6300	6300	200	500	Ø120*23	

绝缘母线技术指标 Technical index of insulating busbar

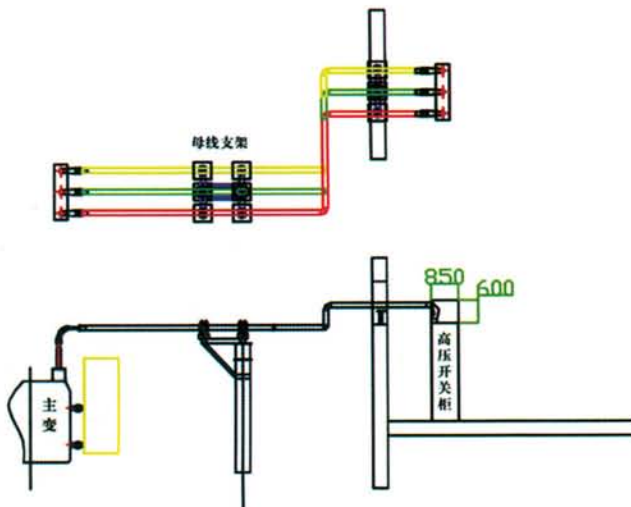
试验项目 Test item	10kV绝缘母线标准要求 Standard requirement for 10kV insulating busbar	35kV绝缘母线标准要求 Standard requirement for 35kV insulating busbar
工频耐压 Power frequency withstand voltage	42kV/min不闪络, 不击穿 No flashover, no breakdown	95kV/min不闪络, 不击穿 No flashover, no breakdown
局部放电试验 Partial discharge test	15kV下≤5PC Lower than 15kV, ≤5PC	45kV下≤5PC Lower than 45kV, ≤5PC
冲击电压试验 Impulse voltage test	105kV, 正负极性各10次, 不闪络, 不击穿 10 times at each pole, no flashover, no breakdown	200kV, 正负极性各10次, 不闪络, 不击穿 10 times at each pole, no flashover, no breakdown
出厂试验 Delivery test	42kV/1min不闪络, 不击穿, 15kV下局放≤5PC No flashover, no breakdown, lower than 15kV, partial discharge ≤5PC	95kV/1min不闪络, 不击穿, 45kV下局放≤5PC No flashover, no breakdown, lower than 45kV, partial discharge ≤5PC

## 方式一、主变到控制室架空母联

### Way 1 Overhead Buscouple From Main Transformer to Control Room

这是管型绝缘母线应用的最常见的方式，母线从主变的低压端子直接联到控制室的开关柜端子。主要优点：适合大电流，布线清晰美观，可采用全绝缘、半绝缘两种方式。

It is common application of tubular insulating busbar. The busbar is connected from the low voltage terminal of main transformer to the terminal of switch cabinet in the control room. Main advantages: suitable for large current, clear and nice wiring. Both all-insulation type and semi-insulation type can be used.

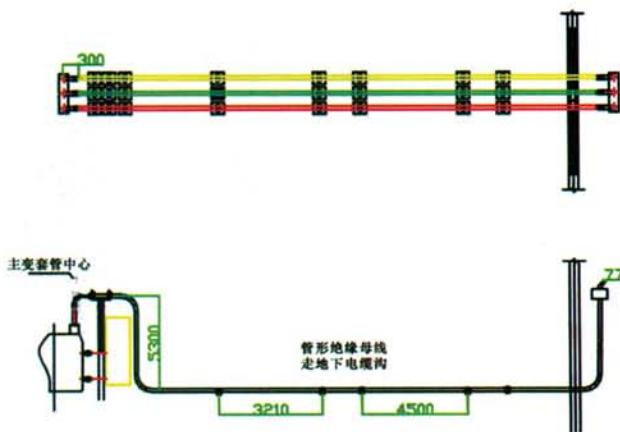


## 方式二、母线走电缆沟或电缆夹层

### Way 2 Busbar Go From Cable Trench or Cable Interlayer

下图是管型绝缘母线应用的另一种常见方式，母线可以经过地下电缆沟或者电缆夹层和开关柜连接，也可用于开关柜之间的连接。该母线采用全绝缘型，特别适合布线困难的场合。

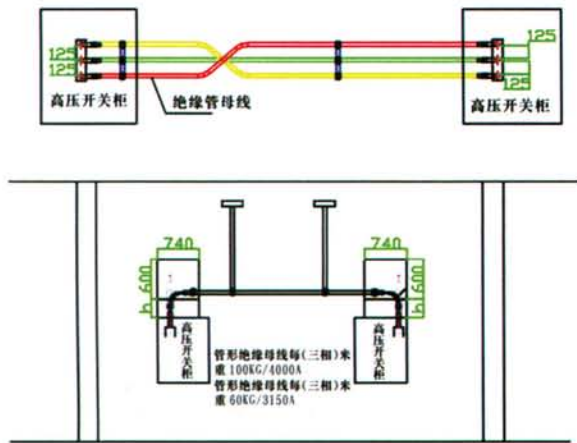
The following picture is another common application of tubular insulating busbar. The busbar can be connected to switch cabinet from the following cable trench or cable interlayer and also can be used for connecting switch cabinet and switch cabinet. The busbar uses all-insulation type. It is suitable for the area where it is very difficult for wiring.



### 方式三、开关柜上母联 Way 3 Buscouple on the Top of Switch Cabinet

该方式为开关柜间顶部上进线连接方式。也可以通过电缆夹层，采用征进线方式。用户可根据实际情况自行选择。母线类型为全绝缘。

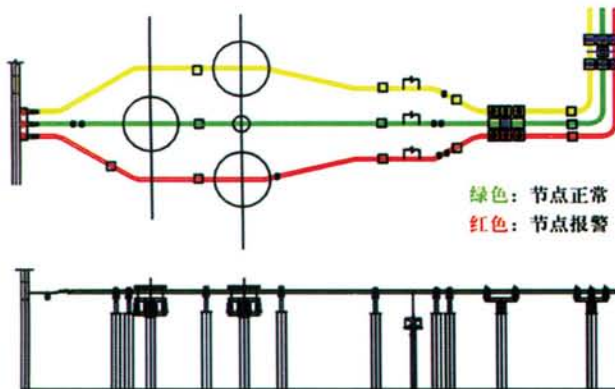
The way is suitable for inletting the wire from the top of switch cabinet. The way also can be used from the cable interlayer. The customer can choose according to actual situation. The type of busbar is all-insulation.



### 方式四、电抗器母联 Way 4 Reactor Buscouple

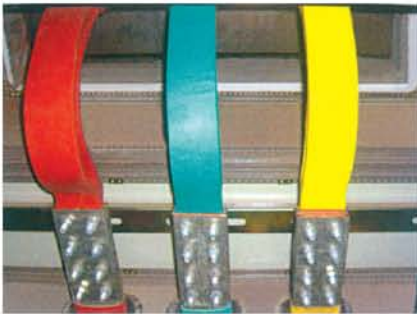
我公司自行研制，对管母线的多项技术数据实行无人智能监控。

Our company independently develops and implements smart monitoring of many items of technical data for tubular busbar.



## 设计安装 Design and Installation

- 设计：由工程提供母线走线图、总长度及弯头数，厂家按载流量设计与制造。
- 安装：厂家可负责现场安装。
- Design: the layout of busbar, total length and Qty of elbow are provided by the project, the maker will design and manufacture according to the current-carrying capacity.
- Installation: the maker is responsible for site installation.





## 铝合金管型母线执行标准、性能、技术指标及参数

### Standards, Performance, Technical Index and Parameters of Aluminum Alloy Tubular busbar

#### 执行标准 Executive standard

QB/HG102-2000 铝及铝合金管型导体 Aluminium and aluminium alloy tubular conductor

#### 引用标准 Reference standards

GB/T3190-96 变形铝及铝合金化学成分 Chemical composition of wrought aluminium and aluminium alloy

GB/T6893-2000 工业用铝及铝合金拉(轧)制管 Industrial aluminium and aluminium alloy drawn (rolled) pipe

YS/454-2003 铝及铝合金导体 Aluminium and aluminium alloy conductor

#### 适用范围 ERange of application

用于110kV、220kV、500kV发电站、开关站 User for 110kV, 220kV, 500kV power generation station, switching station

#### 铝合金牌号及化学成份 Designation and chemical component of aluminum alloy

牌号 Grade	化学成份(%) Chemical component						铝含量不小于 Aluminum content is not less than	技术标准 Technical standard
	Si	Fe	Mg	Mn	Cu	Re		
铝锰系列3A21 (LF21)	0.6	0.7	0.05	1.0-1.6	0.20		余量 Allowance	GB/T3190-1996
铝镁系列6063 (LD31)	0.2-0.6	0.35	0.45-0.9	0.1	0.10		余量 Allowance	
铝镁稀土系列 (LDRE)	0.2-0.6	0.35	0.45-0.9	0.1	0.10	0.07-0.16	余量 Allowance	

#### 管母线物理及力学性能 Physical and mechanical properties of tubular busbar

性能指标 Performance index	3A21	LD31 (6063)		LDRE (6063Re)	
	H14	T10	T6 (G)	T10	T6 (G)
密度 g/Cm <sup>3</sup> (20°C) Density	2.73~2.75	2.73~2.75		2.73~2.75	
熔点°C Melting point	634-656	616-660		616-665	
抗拉强度 Mpa Tensile strength	≥135	≥180	≥205	≥180	≥205
屈服强度 Mpa Yield strength	—	≥160	≥175	≥160	≥175
延伸率 % Elongation	—	≥8		≥8	
相对导电率 IACS% Relative conductivity	≥43	≥51		≥53	
泊松比 u Poisson ratio	0.305	0.315		0.317	
膨胀系数 1/°C (100°C附近) Expansion factor 1/°C (near 100°C)	22.6×10 <sup>-6</sup>	23.4×10 <sup>-6</sup>		24.7×10 <sup>-6</sup>	
弹性模量 E Mpa Elasticity modulus	72000	70000		72000	
使用环境及条件 Use environment and conditions	为管母线初始阶段产品， 现在较少使用 The product at the initial stage, used less now	高热、高寒及地震多发 区及多种条件 Very hot, very cold and earthquake-prone areas and various conditions		湿度大、温度高、风力大， 特别适合沿海地区 High humidity, high temperature, strong wind, especially suitable for coastal area	
执行标准 Executive standard	GB/T6893-2000	YS/T454-2003			



## 铝合金管型母线执行标准、性能、技术指标及参数

### Standards, Performance, Technical Index and Parameters of Aluminum Alloy Tubular busbar

#### 常用管母线计算数据 Common tube bus calculation data

规格 Specifications (mm)	导体截面 Conductor cross section (mm <sup>2</sup> )	+70°C载流量 (A) Current-carrying capacity			截面系数 Section coefficient W (cm <sup>3</sup> )	惯性半径 Radius of inertia R (cm)	惯性矩 Moment of inertia J (cm <sup>4</sup> )	理论重量 (kg/m) Theoretical weight			供货长度 Supply length M
		3A21	6063	6063Re				3A21	6063	6063Re	
Φ70/64	631	1560	1645	1700	10.3	2.37	35.5	1.73	1.72	≤13	
Φ80/72	955	2100	2226	2289	17.6	2.69	69.2	2.62	2.60	≤13	
Φ90/80	1335	2486	2635	2810	27.4	3.01	121	3.66	3.64	≤13	
Φ100/90	1491	2810	2979	3063	34.4	3.36	169	4.10	4.07	≤13	
Φ110/100	1649	2850	3021	3107	42.2	3.72	228	4.53	4.50	≤13	
Φ120/110	1805	3090	3275	3368	50.8	4.07	299	4.96	4.93	≤13	
Φ130/116	2703	3900	4134	4251	80.4	4.36	513	7.43	7.38	≤13	
Φ150/136	3143	4400	4664	4796	109.4	5.06	806	8.64	8.58	≤13	
Φ170/156	3583	4694	4976	5116	142.9	5.77	1193	9.88	9.81	≤10	
Φ200/180	5966	7460	7908	8131	275.1	6.73	2701	16.40	16.30	≤9	
Φ250/230	7536	8300	8798	9047	443.1	8.49	6487	20.74	20.6	≤8	

注：在环境温度20°C，导体工作温度90°C时，管型导体载流量。

Note: The current-carrying capacity of the tubular conductor is for the condition that the ambient temperature is 20°C and the working temperature of conductor is about 90°C.

## 铝合金管型母线执行标准、性能、技术指标及参数

### Standards, Performance, Technical Index and Parameters of Aluminum Alloy Tubular busbar

#### 常用管母线衬管及封端球和封端盖配合尺寸

#### Matching dimension for commonly used tubular busbar, end-sealing ball and end-sealing cover

主管 Main pipe			衬管 Bushing			封球或封盖 Sealing ball or sealing cover
D, mm	d, mm	重量 Weight kg/m	D, mm	d, mm	重量 Weight kg/m	外径 D External diameter
80	4	2.60	71	4	2.30	71
90	5	3.64	79	5	3.17	79
100	5	4.07	89	5	3.60	89
110	5	4.50	99	5	4.03	99
120	5	4.93	109	5	4.46	109
130	7	7.38	115	7	6.48	115
130	10	10.28	119	10	9.35	119
150	7	8.58	135	7	7.68	135
170	7	9.81	155	7	8.88	155
170	10	13.72	149	10	11.92	149
200	10	16.30	179	10	14.30	179
250	10	20.60	229	10	18.77	229

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