



# FOR BETTER ENVIRONMENT FOR BETTER FUTURE

Professional in providing high performance capacitor and solutions

为更好的环境和更美好的未来

为中国及世界提供高性能的电容器产品及专业的电容解决方案



宁波市江北九方和荣电气有限公司  
NINGBO JIANGBEI GOFRONT HERONG ELECTRIC CO., LTD.

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## ABOUT US 关于我们

宁波市江北九方和荣电气有限公司前身是宁波机车电容器研制中心，是铁道部运输局批准的定点生产机车电容的企业。公司始建于1991年4月，由中车株洲电力机车有限公司、中车株洲电力机车研究所有限公司、宁波市江北区资产经营公司共同出资成立，坐落于美丽的东海之滨——浙江宁波，是宁波市和谐企业创建先进单位、连续多年成为宁波市江北区工业企业三十强。

公司拥有二十多年的专业制造电容器的历史，拥有70余项专利及多项核心技术，以及拥有国际顶尖的920宽幅金属化镀膜设备。拥有多台韩国、欧洲进口的全自动卷制设备，并建成了先进的试验站，可以按照IEC61881标准对各种型号的电容器和电力设备进行检测、高压实验、振动试验，高低温试验及寿命试验等全套型式试验。此外，公司是《GB/T25121-2010轨道交通机车车辆设备电力电容器》国家标准的第一起草

Ningbo Jiangbei GOFRONT HeRONG Electric CO.,LTD was formerly known as Ningbo Locomotive Capacitor Research Center, which is a unique enterprise can produce locomotive capacitors approved by Ministry of Railways Transportation Bureau.

Our company was founded in April 1991, which is located in the beautiful East China Sea - Ningbo and co-founded by CRRC ZHUZHOU LOCOMOTIVE CO.,LTD., CRRC ZHUZHOU INSTITUTE CO.,LTD., and Ningbo Jiangbei District Assets Management Company. Our company is the advanced unit of harmonious enterprise establishment and the top thirty industrial enterprise of Jiangbei District for continuous years in Ningbo. Our company was founded in April 1991, which is located in the beautiful East China Sea - Ningbo and co-founded by CRRC ZHUZHOU LOCOMOTIVE CO.,LTD., CRRC ZHUZHOU INSTITUTE CO.,LTD., and Ningbo Jiangbei District Assets Management Company. Our company is the advanced unit of harmonious enterprise establishment and the top thirty industrial enterprise of Jiangbei District for continuous years in Ningbo.

Our company has more than 20 years experiences of professional manufacturing capacitors, which has achieved more than 70 patents and multiple core technologies, as well as the metallized coating equipment in 920 width. We have many full-automatic winding equipment imported from Korea and Europe also have built an advanced test station, which can

单位，是国内轨道交通电容器的龙头企业。公司的主型产品 - 薄膜电容，应用于轨道交通（机车、动车、地铁、轻轨）、新能源汽车、有轨无轨电车、工程机械、冶炼行业、风电、光伏、油气、电力电网输变电等多个行业及领域。依托集团公司的资源，公司2013年起逐步开发新产业，至今包括在线轮对检测、内燃机车辅助启动等新型产业上项目已具备一定市场。

为客户创造价值，满足客户需求，是公司经营的核心。公司建立了科学的企业管理制度，拥有资源规划系统(ERP)、产品数据库系统(PDM)、客户关系管理系统(CRM)等先进的信息化管理系统。公司拥有强大的研发团队，是浙江省认定的高新技术企业。在行业内率先通过ISO9001质量管理体系认证、OHSAS职业安全健康管理体系认证、ISO3834国际焊接体系认证和EN15085焊接体系认证、ISO14001环境管理体系认证、

test various types of capacitors and power equipment according to IEC61881 standard, including full set type tests such as high-voltage experimentation, experiment of oscillations, high and low temperature test and life test. In addition, our company is the first drafting unit of the national standard of GB/T 25121-2010 power capacitor on the railway application, and the leading capacitor enterprise of domestic railway industry. Film capacitor is main product of our company, which is applied in the rail transit (locomotive, motor vehicle, subway, light rail), new energy vehicles, tramways, construction machinery, smelting industry, wind power, photovoltaic, oil and gas, power grid transmission and transformation and other industries and fields. And relying on the resources of group company, our company gradually developed new industries since 2013 and we already have a certain market so far in new industry projects such as online wheelset measurement and diesel locomotive auxiliary start-up.

The core of our company is to create value for customers and meet customers' needs. Our company has established a scientific enterprise management system, which possesses advanced information management systems such as Enterprise Resource Planning(ERP), Product Data Management(PDM), Customer Relationship Management(CRM) and so on. We have a strong R&D team and are recognized by Zhejiang's high-tech enterprise. We take the lead

OHSAS18001职业健康安全管理体系认证和ISO/TS22163国际铁路行业标准，2015年2月通过TS16949质量体系认证审核，并取得证书。

经过近三十载的技术积累，公司产品开发能力强、产品技术成熟、品质稳定，曾经承担了国家火炬计划项目、国家创新基金项目以及多个市级科研项目。

未来公司将持续发展新的产业，其中超高级电容器的前伸后延产业将作为公司新的经济增长点。公司奉行可持续发展战略，注重关心员工健康和保护环境，面对经济全球化的挑战，和荣电气坚持“国际化、科技化、产业化”发展方向，不断创新，大力引进先进的设备、技术和优秀人才，整合企业资源，创百年传世公司。

in passing ISO9001 Quality Management System, OHSAS Management System, ISO3834 International Welding System, EN15085 Welding System, ISO14001 Environmental Management System, OHSAS1800 Occupation Health Safety Management System and ISO/TS22163 International Railway Industry Standard. In February 2015 we passed TS16949 quality system.

We have already owned strong product development capability, the mature technology, and stable quality of products through 30 years technical accumulation, we were responsible for China Torch Program, National Innovation Fund Program and many municipal scientific research projects.

We are keeping continuing to develop new industries, therefore, related products of super capacitors industry will be the new economic growth point of our company, and, our capacitor monitoring device and monitoring equipment will enhance the company's ability to resist risks in the future.

We adhere to follow the strategy of sustainable development, commit to staff health, and protect environment. Facing the challenge of economic globalization, HeRONG Electric will adhere to the orientation of Internationalization, Technicalization, and Industrialization, keep innovating, introducing advanced equipment, technology, outstanding staff and integrate enterprise resource continually so as to become a well-known enterprise for years.



## 历程

1991

铁道部株洲电力机车研究所宁波机车电容器研制中心成立

Ningbo locomotive capacitor development center of CRRC ZHUZHOU INSTITUTE CO., LTD. was established.

1998

公司首次搬迁，产品覆盖所有直流机车用电容器

Relocated for the first time, products include all the DC locomotive capacitors.

2002

引进金属化膜电容器生产线

Introduced the product line of metallized film capacitor.

2003

更名为宁波市江北九方和荣电气有限公司，电容器开始用于电力机车牵引变流系统

Renamed the NINGBO JIANGBEI GOFRONT HERONG ELECTRIC CO., LTD. Capacitors were beginning to be used in electric locomotive traction converter system.

2011

公司二次搬迁，产品应用广泛

Relocated for the second time, products were widely used.

2014

中车集团内交直流机车配套用电容全线覆盖

Capacitors for AC-DC locomotives were full covered in CRRC group.

2017

研发用于动车组，新能源汽车、风电、光伏配套用的干式电容产线筹建完成

Research and development for EMU, dry capacitor production line preparation completed for new energy vehicles, wind power and photovoltaic matching.

2018

符合省级高新技术企业研究开发中心建设条件

In line with the construction conditions of provincial new high-tech enterprise RADIC

# PROFESSIONAL QUALIFICATIONS AUTHORITATIVE ATTESTATION

专业资质，权威认证

# CONCENTRATE ON STUDYING TECHNOLOGY, FOCUS ON INNOVATION

精研科技，专注创新

十年如一日，我们始终坚持生产、技术、研发的持续创新和发展，致力于为更多客户提供更加有价值的产品和服务。

We always adhere to innovate and develop our production, technology and research, and also devote ourselves to provide more valuable products and service for more clients for 10 years.



## 专业研发能力

01

### R&D Investment 研发投入

每年投入销售额的 6% 以上作为研发费用。  
We invest more than 6% of our sales in R&D every year.



02

### R&D Capability 研发能力

承担 ( 国家火炬计划、国家创新基金项目 )、市、区级科研攻关项目，致力于进口电容器的国产化；  
Undertake city and district-level scientific research projects such as China Torch Program, National Innovation Fund Program, as well as commit to the localization of imported capacitors.



03

### Technician 技术人员

专业背景：绝缘、电气、轨道交通相关领域的从业人员；  
广泛合作：轨道装备商、高校常年项目合作开发；  
外部支持：轨道交通领域的资深专家做顾问支持。  
Professional Background: Employees are all related in Insulation, Electric, and rail transit fields;  
Extensive Cooperation: Railway equipment dealer, often cooperate with colleges and universities;  
External Support: Senior experts consultants support in rail transit field.

## PRODUCTION CAPACITY

### 生产能力

公司构建 600m<sup>2</sup> 卷制净化车间，拥有世界顶级卷制设备 15 台，年生产能力超过 6 万台电容器，可以满足电容各行业供货需求。

We build 600 m<sup>2</sup> winding purification workshop with 15 pieces top-ranked rolling equipment, Annual production capacity exceeds 60,000 capacitors, we could meet the supply demand of various capacitors industries.

**SPECIALIZED PRODUCTION CAPACITY**  
专业化的生产实力

600m<sup>2</sup>

净化车间  
Purification Workshop

15 台

卷制设备  
Pieces Rolling Equipment

60,000 台/年

生产能力  
Pieces For Daily Production



## TEST ABILITY

### 试验能力

公司拥有一批高素质的试验技术人员，装备有国际先进水平的试验装备，包括：

瑞士哈弗莱 2820A 测试电桥，美国太平洋 3450AFX 纹波电源，东菱 ES-50-445 振动平台等，可按照 GB/T25121(IEC61881)、GB/T17702(IEC61071) 标准进行全套的型式试验，包括端子间的电压试验、端子与外壳间的交流电压试验、密封性试验、热稳定试验、谐振频率的测量、浪涌放电试验、自愈性试验、耐久性试验、破坏性试验、环境试验、机械试验、局部放电试验。综合试验检测能力位居行业领先地位。

The company has a group of high-quality test technicians equipped with internationally advanced test equipment, including:

Swiss Hafley 2820A test bridge, US Pacific 3450AFX ripple power supply, Dongling ES-50-445 vibration platform, etc., can carry out full type test according to GB/T25121 (IEC61881), GB/T17702 (IEC61071) standards, including terminals Voltage test, AC voltage test between terminal and case, seal test, heat stability test, resonance frequency measurement, surge discharge test, self-healing test, durability test, destructive test, environmental test, mechanical test Partial discharge test. The comprehensive test and testing capability is in the leading position in the industry.

**PROFESSIONAL TEST ABILITY**  
专业的试验能力



## **NINGBO JIANGBEI GOFRONT HERONG ELECTRIC CO.,LTD IS ONE OF THE MOST INNOVATIVE INDUSTRIAL GROUPS IN ASIA.**

宁波市江北九方和荣电气有限公司亚洲区  
域具有优秀创新价值的工业公司之一

我们的产品、工厂和解决方案在众多领域都是全球尖端技术的代表：从涉及轨道交通（机车、动车、地铁、轻轨）、新能源电动汽车、有轨无轨电车、工程机械、冶炼行业、风电、光伏、油气、电力电网输变电等多个应用领域。我们通力合作，为各个行业重要的应用领域和未来市场提供解决方案。

Our products, factory, and solutions are the advanced representation of global cutting-edge technology in many fields:

We work together to provide solutions for various important application fields and prospective market, which include rail traffic ( engine, motor car, subway, Light Rail Transport), New energy electric vehicles, tramcar, trolleybus, construction machinery, smelting, wind power, PV or photovoltaic, associated gas, power, and power grid.



# DC-LINK/SECONDARY FILTERING APPLICATION

## 直流支撑、滤波电容器

Construction Machinery, Associated Gas Program,  
Rail Traffic, Wind Power Projec, PV Projec  
工程机械、油气项目、轨道交通、风电项目、光伏项目

Motor Car, New Energy Electric Vehicles  
动车、新能源电动汽车

## Characteristics 特点

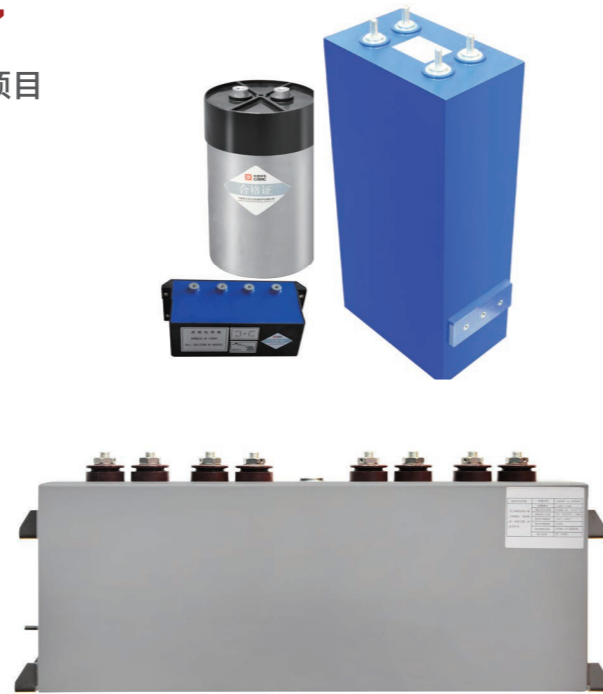
- 低电感 / Low Self-Inductance
- 损耗小 / Lower Dissipation Factor
- 低 ESR / Low ESR
- 温升高 / Low Temperature Rise
- 长寿命 / Long Life Expectancy

## Technical Data

### 性能指标

额定电压	Voltage Rating	500~4400VDC
额定容量	Capacitance	300UF~36000UF
容量偏差	Cap Tolerance	± 5%
损耗角正切值	Dissipation Factor	≤ 0.3%
运行温度	Operating Temperature	-45℃ ~ +70℃
运行海拔	Altitude	Max.5100m above sea level
运行湿度	Humidity	Max.85%
冷却方式	Cooling	自冷 / natural
封装	Encapsulating	圆柱状铝壳 / Cylindrical aluminum 不锈钢 / Stainless steel 塑料 / PPS / PC
浸渍剂	Impregnant	硅油 / Silicone oil 菜籽油 / Vegetable oil 聚氨酯 / Polyurethane 环氧树脂 / epoxy resin
执行标准	Reference Standard	GB/T25121(IEC61881) or GB/T17702(IEC61071)

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer's requirement.



## Application Area

### 应用领域

直流滤波、直流支撑、谐振滤波、交直交传动及牵引  
DC Filtering, DC Link, Resonant Filtering, AC-DC-AC Traction And Drives



# AC SHUNT CAPACITOR

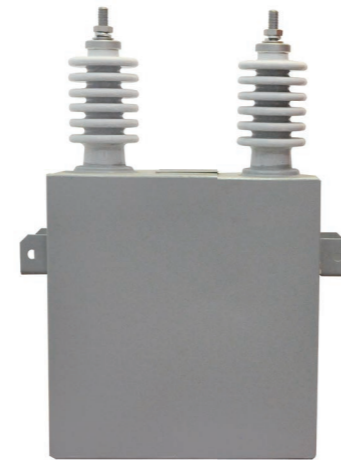
## 交流高压并联电容器

### Wind Power Project, Power Grid Project Traction Convention

风电项目、电力项目、牵引变电站

## Characteristics 特点

- 损耗非常小 / Lower Dissipation Factor
- 局放低 / Lower Partial Discharge
- 浸渍剂无公害 / Impregnant Harmless
- 高可靠性 / High Reliability
- 长寿命 / Long Life Expectancy



## Technical Data

### 性能指标

额定电压	Voltage rating	1~20KVAC
额定功率	Rated Power	100~600Kvar
工作频率	Frequency	50/60Hz
容量偏差	Cap tolerance	± 5%
损耗角正切值	Dissipation factor	≤ 0.03%
运行温度	Operating temperature	-40℃ ~ +45℃
运行海拔	Altitude	Max.5100m above sea level
运行湿度	Humidity	Max.85%
冷却方式	Cooling	自冷 / natural
封装	Encapsulating	不锈钢 / Stainless steel
浸渍剂	Impregnant	苜基甲苯 / M / DBT
执行标准	Reference standard	GB/T11024(IEC60871)

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer' s requirement.

## Application Area

### 应用领域

并联无功补偿系统、谐波滤波器、静止无功发生器

Parallel Reactive Power Compensation Device, Harmonic Filter, SVC



# AC RESONANT CAPACITOR

## 谐振电容器

### Medium Frequency Induction Heating Power Supply, EAF (Electric Arc Furnace), Forging, Heat-Treat, Smelt

中频感应加热电源、电炉、锻造、热处理、熔炼

## Characteristics 特点

- 大容量 / Big Capacity
- 浸渍剂无公害 / Impregnant Harmless
- 承受大电流 / High Current Capability
- 高可靠性 / High Reliability
- 压力保护 / Pressure Protection

## Technical Data

### 性能指标

额定电压	Voltage Rating	0.75~3.05KVAC
额定功率	Rated Power	180~6000Kvar
额定频率	Frequency	75~50KHZ
容量偏差	Cap Tolerance	± 10%
损耗角正切值	Dissipation Factor	≤ 0.05%
运行温度	Operating Temperature	+1℃ ~ +50℃
冷却方式	Cooling	水冷 / Water cooling
封装	Encapsulating	铝 / Aluminium
浸渍剂	Impregnant	苜基甲苯 / M / DBT
执行标准	Reference Standard	GB/T3984(IEC60110)

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer's requirement.



## Application Area

### 应用领域

中、高频感应炉、功率补偿、加热器

Medium High Frequency Induction Furnaces, Improve Power Factor, Heaters





# AC PROTECTION CAPACITOR

## 保护吸收电容器

## Characteristics 特点

- 损耗小 / Lower Dissipation Factor
- 高可靠性 / High Reliability
- 体积小、重量轻 / Compacted And Light
- 寿命长 / Long Life Expectancy
- 易安装 / Install Conveniently

## Technical Data

### 性能指标

额定电压	Voltage Rating	1.7~3KVAC
额定容量	Capacitance	3UF~18UF
容量偏差	Cap Tolerance	± 5%
损耗角正切值	Dissipation Factor	≤ 0.2%
运行温度	Operating Temperature	-45℃ ~ +70℃
运行海拔	Altitude	Max.5100m above sea level
运行湿度	Humidity	Max.85%
冷却方式	Cooling	自冷 / natural
封装	Encapsulating	马口铁 / tinplate
浸渍剂	Impregnant	聚氨酯 / Polyurethane
执行标准	Reference Standard	GB/T17702(IEC61071)

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer's requirement.



## Application Area

### 应用领域

该产品主要适用于吸收电路中非线性元件产生的过电压。保护线路中的晶闸管、可控硅等元件。

This product is mainly suitable for absorbing the overvoltage generated by nonlinear components in the circuit. Protect the thyristors and other components in the circuit.



# SELF-HEALING TYPE LOW VOLTAGE SHUNT CAPACITOR

## 自愈式低压并联电力电容器

### Characteristics 特点

- 损耗小 / Lower Dissipation Factor
- 自愈性 / Self Healing
- 高可靠性 / High Reliability
- 体积小、重量轻 / Compacted And Light
- 易安装 / Install Conveniently

### Technical Data

#### 性能指标

额定电压	Voltage Rating	0.525~2KVAC
额定容量	Capacitance	3UF~138.6UF
容量偏差	Cap Tolerance	± 5%
损耗角正切值	Dissipation Factor	≤ 0.3%
运行温度	Operating Temperature	-45℃ ~ +70℃
运行海拔	Altitude	Max.5100m above sea level
运行湿度	Humidity	Max.85%
冷却方式	Cooling	自冷 / natural
封装	Encapsulating	马口铁 / tinplate
浸渍剂	Impregnant	石蜡 / paraffin
执行标准	Reference Standard	GB/T25121(IEC61881)

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer's requirement.



### Application Area

#### 应用领域

用于低压无功补偿装置,提供无功补偿,提高功率因数,降低线路损耗。

The device is mainly suitable for low voltage electric network to improve power factor, reduce reactive loss and better the voltage quality.



# DC PULSE CAPACITORS

## 直流脉冲电容器

### Characteristics 特点

- 可充放电次数高 / More Charge And Discharge Times
- 低电感 / Dlow Self-Inductance
- 损耗小 / Lower Dissipation Factor
- 浸渍剂无公害 / Impregnant Harmless
- 高可靠性 / High Reliability

### Technical Data

#### 性能指标

额定电压	Voltage Rating	0.8~50KVDC
额定容量	Capacitance	200UF~15000UF
容量偏差	Cap Tolerance	± 5%
损耗角正切值	Dissipation Factor	≤ 0.3%
运行温度	Operating Temperature	-45℃ ~ +70℃
运行海拔	Altitude	Max.5100m above sea level
运行湿度	Humidity	Max.85%
冷却方式	Cooling	自冷 / natural
封装	Encapsulating	不锈钢 / Stainless steel
浸渍剂	Impregnant	聚氨酯 / Polyurethane
执行标准	Reference Standard	JB/T8168

注：接受客户特殊规格和尺寸定制。  
Other specification and dimension can be designed as customer' s requirement.

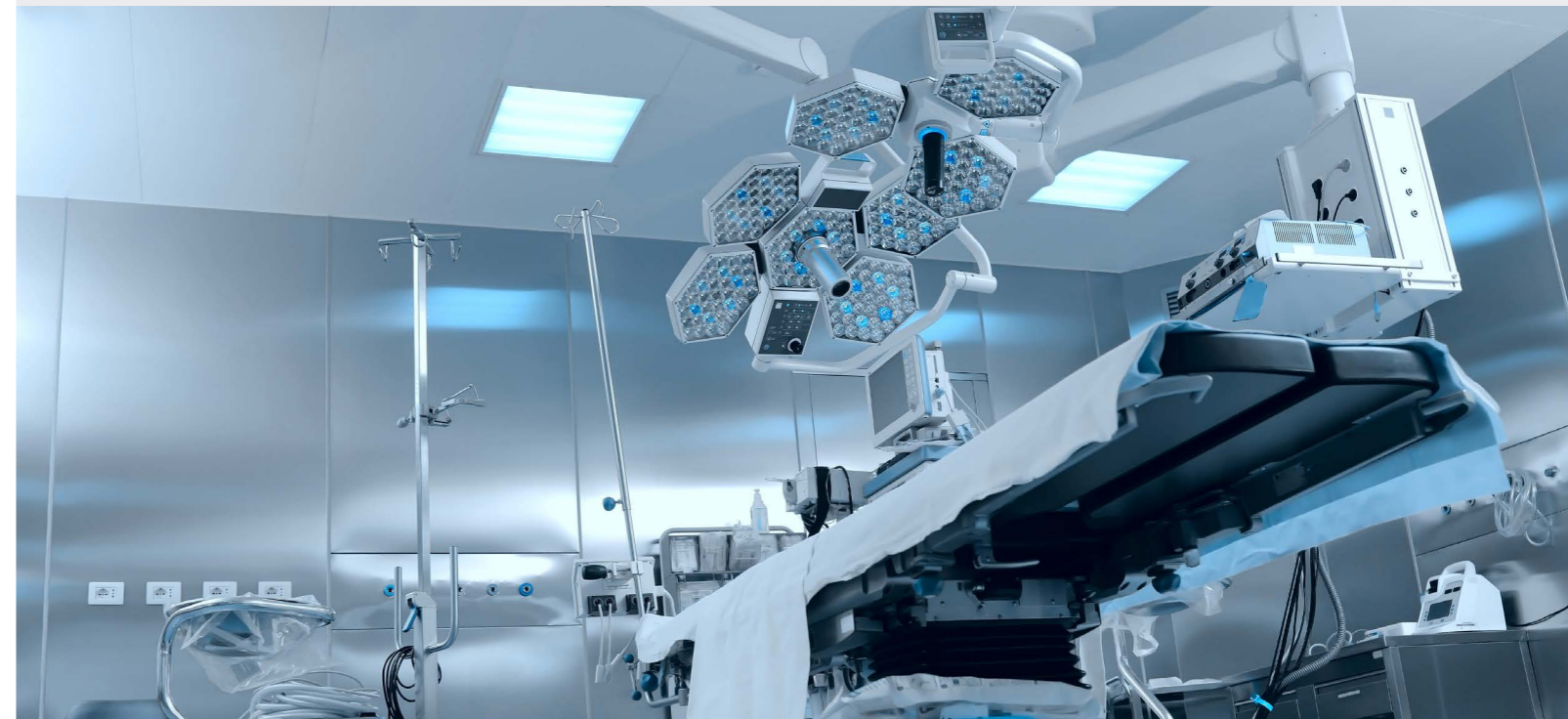


## Application Area

### 应用领域

医疗器械、军工电源、激光电源、脉冲发生器

Medical Instruments, Military Power Supply, Laser Power Supply, Pulse Generator



# MAIN CUSTOMER BASE

## 主要客户群

中车株洲电力机车有限公司  
中车株洲电力机车研究所有限公司  
中车大连机车车辆有限公司  
中车大同机车车辆有限公司  
中车洛阳机车有限公司  
中车大连电力牵引研发中心有限公司



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湖南中车时代电动汽车股份有限公司  
大连东芝机车电气设备有限公司  
铁科院北京纵横机电技术开发公司



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