XI'AN HERONG MECH-ELECTRICAL ENGINEERING CO., LTD.

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2017 Edition

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HERONG ELECTRIC

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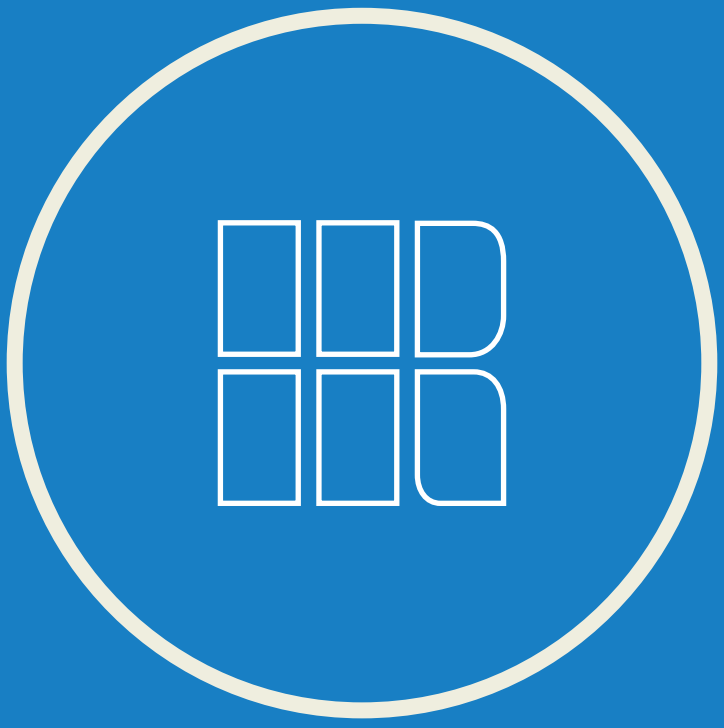
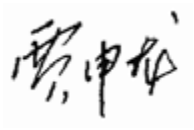
H E R O N G

XI'AN HERONG MECH-ELECTRICAL ENGINEERING CO., LTD.



Herong Electric Co., Ltd develops fast under the care from society. Herong people always uphold the company culture of “Integrity, gratitude, respect”. We have been committed to the use of advanced technology and reliable products to serve the construction of power grid. 2016 is the start of "The 13th five-Year Plan", the promotion of The Belt and Road Initiative by our government also brings new opportunities for the power development. Facing the new development opportunities, Herong people will continue to adhere to the business philosophy of "customer needs is Enterprise standards" and speed up technological progress, optimize internal management, improve product quality and service system, provide quality and efficient services to customers and make contribution for power development!



Company Profile

Xi'an Herong Mech-Electrical Engineering Co., Ltd. subsidiary of Herong Electric Co., Ltd., was established on December 28, 2012, with the registered capital CNY 21 million. Company is mainly responsible for the overseas market development of power capacitor, reactor, discharge coil, SVC, SVG produced by Herong Electric, sale of electrical equipment and elevators, also engages in design, construction, installation and maintenance of power transmission, new energy, wind power, construction and other projects.

Herong Electric found in 2005 with registered capital CNY 74.5 million, is a national high-tech enterprise. Herong Electric engaging in R&D, production, domestic and foreign trade and services, is the key supplier of State Grid Corporation of China, China Southern Power Gird Company. The main products are: 6 ~ 750kV frame type high voltage shunt capacitor bank and filter, 6 ~ 66kV tank shunt capacitor, series capacitor, induction and heating capacitor, high and low voltage reactive power automatic compensation device and series reactor, discharge coil, SVC, SVG and other products, among which 66kV 20MVAR tank shunt capacitor has maximum capacity at 66kV voltage level in China. Products are widely used in SGCC, China Southern Power Grid power system, electrified railway system, metallurgical systems, new energy and other areas of reactive power compensation and harmonic control, including HVDC projects such as ± 500kV Hubei Jiangling substation, ± 500kV Yunnan Funing substation, ± 800kV Hami - Zhengzhou, Lingzhou - Shaoxing, Ximeng - Taizhou, Shandong - Shanghai miao, Changji - Guquan and 1000kV UHV Yu Heng AC transmission project. The products are exported to Mexico, Poland, Brazil, Pakistan , Angola, Laos, Vietnam, Egypt and other countries. Herong Electric is qualified supplier for ABB, Siemens and GE.

Herong Electric is top 3 capacitor manufactures in China owning advanced intellectual property right for capacitor, reactor and discharge coil. Herong Electric pioneered China's first plateau type HV shunt capacitor, first assembled shunt capacitor, first half core shunt

reactor, first magnetic shielding shunt reactor, etc. Herong Electric's safe and reliable products provide reactive power solution to our clients. Herong Electric has cutting edge raw material inspection and supplier qualification process, the capacitor unit is produced by the most advanced production line including automatic winding machine, intelligent oil impregnation system, and auto painting line. Herong Electric also has the largest capacitor testing line among Chinese capacitor manufactures.

Herong Electric owns three major intellectual property rights, 5 invention patents, more than 40 patents of utility model and more than 10 kinds of core technology. 13 items of developed products are listed as national key new products and 5 kinds of products fill in the domestic blank; the company takes six national Torch Plan Projects. Herong Electric has passed ISO9001, ISO14001 and ISO18001 certification. Company has obtained honors, such as "Shaanxi Province Outstanding Private Enterprise", "Shaanxi Trustworthiness Enterprise", "Shaanxi Province Non-public Enterprises Large Taxpayer", "Shaanxi Province Famous Brand Product", "Most Influential Brand in China Electrical Equipment Industry"; it is the "Shaanxi Province Famous Trademark".

Certification:

ISO9001, ISO14001 and ISO18001 certification

Partner:

GE, Siemens, ABB etc.

Honors:

Shaanxi Province Outstanding Private Enterprise

Shaanxi Trustworthiness Enterprise

Shaanxi Province Non-public Enterprise Large Taxpayer

Shaanxi Province Famous Brand Product

Most Influential Brand in China Electrical Equipment Industry

Shaanxi Province Famous Trademark

Memorabilia

◎ 2016

Won the tender for ±1100kV DC transmission in SGCC system.

Signed the contract for 240MVAR capacitor bank for Indian 400KV STATCOM project. This is largest capacitor bank in the world under 400KV level.

Got qualification by CFE, Mexico and supplied 240nos capacitor units.

Got supplier qualification by Egyptian Electricity Holding Company for 500KV HVDC capacitor bank.

33KV, 5MVAR and 12.5MVAR capacitor bank commissioned in Bangladesh Power Development Board System. The capacity of single capacitor unit was 828.89KVAR.

Won the tender for 230/33KV substation for HOSCO Steel factory, Iran. The capacity of single capacitor unit was 876KVAR.

◎ 2015

10kV container type series compensation capacitor bank was developed and commissioned.

Won the tender for UHV AC ± 1000kV Yu Heng project in SGCC system.

35kV, 10000KVAR three-phase tank type capacitor was successfully developed and commissioned.

Got qualification by EEHC, Egypt and supplied 600nos capacitor units.

Supplied 16 sets series reactor to the Vietnam and commissioned in EVN system.

Won tender for 165 sets of 15kV 600KVAR pole mounted capacitor bank for Ethiopian power company.

◎ 2014

66KV, 20MVAR tank type capacitor bank commissioned at Changli 500KV substation, Hebei. This is the tank type capacitor with largest capacity and highest voltage.

Developed and commissioned integrated tank type capacitor bank TBBJ10-5000/12-AKW. The iron core reactor is integrated with tank type capacitor to reduce the installation work and needed area.

Won tender for 750KV AC filter for Lingshao ±800kV HVDC project.

◎ 2013

Breakthrough South African market, supplied 20 sets of reactor and 200 nos of capacitor unit.

◎ 2012

Commissioned our first AC filter for HVDC project. - "Jiangling converter substation 5624 filter device" successfully connected to the network operation.

◎ 2011

Qualified for SGCC's HVDC project, won tender for Riyueshan 750KV substation in ±800kV HVDC system.

◎ 2010

The first 110KV side direct compensation capacitor in China commissioned.

The first shunt capacitor bank for 20KV system in China commissioned.

◎ 2009

Won tender for 4 sets 132KV, 24MVAR capacitor bank for Pakistan.

◎ 2008

Developed series capacitor CAM5.5-550-1W and passed type test.

Developed and commissioned first de-icing device TCB8.7-26100/290.

The company was rated as National Hi-Tech Enterprise.

◎ 2006

Qualified for supplying 220KV equipment to SGCC.

◎ 2005

Won tender for 3750nos BAM11 √ 3-150-1W capacitor unit for Pakistan.

◎ 2004

Tank type capacitor bank TBB35-30000+30000-ACW was commissioned at Wuhai 500kV substation. The capacity of each bank was 60MVAR, it was the largest capacity in China and recorded in annual memorabilia for power capacitor industry.

◎ 2003

Automatic reactive power compensation device with multi steps TBBZ10-300×5-AK was developed and commissioned.

◎ 2002

Developed TBBG10-3600/300-AK cabinet type HV capacitor bank.

◎ 2001

Developed 6~10KV pole mounted automatic reactive power compensation device.

◎ 1999

Developed PWB type low voltage pole mounted automatic reactive power compensation device.

◎ 1997

Successfully developed China first 66kV ground mounted tank type shunt capacitor BWFH66 / √ 3-3334-1W.

◎ 1996

Successfully developed China first 35kV ground mounted tank type shunt capacitor BWFH38.5 / √ 3-3334-1W.

Successfully developed China first explosion-proof plateau high-voltage shunt capacitors.

◎ 1995

Successfully developed China first fully sealed discharge coil FDE11 / √ 3-3.4-1W.

◎ 1994

Successfully developed China first fully sealed free-maintenance oil-immersed iron core series reactor CKSQ-180 / 10-6.

◎ 1992

Successfully developed China first fully sealed large - capacity shunt capacitors BWF11 / √ 3-1800-1W.

◎ 1991

Successfully developed China first set large - capacity outdoor tank type equipment TBB10-3600 - AKW.

◎ 1985

Developed china first tank type capacitor BWF11/ √ 3-3600-3W and first plateau type capacitor BWF11/ √ 3-50-1GW.

Efficient management

Excellent individuals with different backgrounds form our excellent management team. With scientific management, rich experience, high enthusiasm and efficient execution, the company has a strong cohesion, and achieved stable development. In recent years, the company changed the mode of development, the implementation of management changes, from traditional extensive management to modern lean management, has gradually established advanced manufacturing model, management model and business model, greatly reduced production costs, and improved the efficiency, management Efficiency has become increasingly prominent, significantly improved economic efficiency.

Quality Assurance

Herong Electric has always abided the "quality management, value sharing" business purposes, certified by ISO9001 international quality management system certification, ISO14001 environmental management system certification and ISO18001 occupational health and safety management system certification. So far, the company has established quality control mechanism from staff training to the development of new products, from production, transportation to after-sales service to provide users with reliable products and quality service.


CERTIFICATE OF QUALITY MANAGEMENT SYSTEM CERTIFICATION
HERONG ELECTRIC CO., LTD.


CERTIFICATE OF ENVIRONMENT MANAGEMENT SYSTEM CERTIFICATION
HERONG ELECTRIC CO., LTD.


CERTIFICATE OF OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATION
HERONG ELECTRIC CO., LTD.


承装(修、试)电力设施许可证


高新技术企业


重合同守信用企业
陕西省人民政府


优秀民营企业
中共陕西省委 陕西省人民政府
二〇一〇年十二月


合容电气股份有限公司
西安市中小企业20强
西安市人民政府


文明单位
中共西安市委员会
西安市人民政府
二〇一三年二月


知识产权优势企业
西安市科学技术局
西安市知识产权局


陕西省著名商标证书
陕西合容电气电容器有限公司」
你单位用于 商品
（服务项目）上的 商标被认定为陕西省著名
商标，有效期三年。


荣誉证书

Capacitor Production Line

1000 Level Cleanness Winding Workshop

Indoor temperature, humidity and cleanliness level can be monitored on-line automatically.

Automatic Capacitor Elements Winding Machine

Elements winding, capacitance measuring, withstand voltage testing, data recording could be done automatically at one time by inputting parameters to computer control interface after feeding material to machine, with small capacity tolerance. Unqualified devices will be screened out directly.

Capacitor Cases Automatic CNC Welding Equipment

Computer controlled equipment; parameters displaying interface;
All the welding are automatic argon arc welding. Welding seam is smooth, without leakage.

Automatic Argon Arc Welding Machine for Oil Injection Hole

It uses PLC to control the rotation speed of variable frequency motor, foward and reverse rotation, ignition and extinguish of welding gun for pressing weld elements and keep welding gun rotating with even speed circularly; welding is controlled automatically and safely; leakage rate is less than 0.2%.

Automatic Painting and Testing Line

It has capacitor on-line & off-line automatic testing and robot automatic painting funcitons. The testing data is transferred in RFID way and monitored real-timely; all parameters are adjustable; The painting robot runs accurately; painting is atomized exquisitely; thickness is uniform while painting surface is smooth.

Testing Station

When products passing into the test area, the data could be identified and obtained by reading the bar code and the routine tests will be finished automatically. The testing data can be saved automatically and connect with MES system to achieve the production monitoring and data checking; Defective products could be identified and transfered to unqualified area automatically for inspection and maintenance.

◎ All type test could be carried out according to IEC 60871, ANSI/IEEE-18, GB/T11024 standards.

◎ Single unit 66KV, 20Mvar tank type capacitor voltage withstand testing, temperature rise testing and product shot blasting etc could be carried out..

Painting Processing

Sand Blasting

Robot Painting

Products finishing

Reactor Production Line

Coating Workshop

Air Core Reactor Production Workshop

Iron Core Reactor Production Workshop


4
3
2

SVG Production Line


GSD-M6C

Capacitor Unit

◎ Capacitor liquid dielectric: 100% M/DBT, which has excellent electrical performance and low temperature features.

◎ The capacitor elements is equipped with internal fuse as protection which acts reliably and safely.

◎ The capacitor cover and flange adopt pressed sealing structure which can avoid leakage.

◎ Anti-pollution type bushing is used; Available for vertical and horizontal arrangement.

◎ Voltage withstand test between terminals is done through AC.

◎ Film-paper combined insulation structure could guarantee the 100% terminal to case insulation, even without protection.

Main Parameters

◎ Rated voltage: 1-24kV

◎ Rated frequency: 50Hz / 60Hz

◎ Rated capacity: 100, 200, 250, 300, 334, 400, 417, 500, 535, 550, 570, 600, 625, 667, 800, 900kVar or as per user request.

◎ Available for customized parameter and design

◎ Nos of Phase: Single or Three phases

◎ Discharge resistor: Capacitor unit is equipped with discharge resistor. Terminal voltage will drop to less than 50V within 5mins after disconnecting with grid.

◎ Capacitance tolerance: -3% ～ +5%

◎ Altitude: ＜ 2000m（plateau type capacitor is recommended for higher altitude)

◎ Applicable Standards:

GB/T 11024-2010 *Shunt Capacitor under Nominal Voltage above 1KV for AC Power System*

IEC60871 *Shunt Capacitors for AC Power Systems with Rated Voltage above 1KV*

Capacitor Bank

◎ HV Shunt Capacitor Bank

◎ HV AC filter, On-load capacity adjustable, Multi-step automatic switching capacitor bank, Reactive power compensation installation for electrification railways.

◎ HV series capacitor and AC de-icing capacitor bank

◎ Capacitor bank for HVDC project

Capacitors are designed strictly according to related IEC Standard, National Standard and User's specification and requirements etc.

Main Parameters

◎ Rated voltage: 6-750kV

◎ Rated capacity: 1000~120000kvar or as per user's request

◎ The ratios of the maximum and minimum values of the three phases ≤1.01

◎ Capacitor bank could operate continuously under 1.1*Un.

◎ Loss tangent: tanδ≤0.0003

◎ Capacitance tolerance: The deviation of measured capacitance and its rating capacitance is between 0 - + 5%

◎ Altitude: 2000m or lower (Please mark it before order if it is more than 2000m)

◎ Applicable Standards:

GB/T 11024-2010 *Shunt capacitor for AC power systems with rated voltage above 1000 V*

IEC60871 *Shunt Capacitors for AC Power Systems with Rated Voltage above 1000 V*

Induction Heating Capacitor

Induction heating capacitor uses hazed polypropylene film immersed in the high performance liquid M/DBT as the compound dielectric and high-purity aluminum foil as the plate electrode; Case material is embossed aluminum sheet. The element is equipped with water cooling tube. Induction heating capacitors are mainly used in 40~50000Hz induction heating system whose rated voltage is less than 3.6kV for induction heating, melting, stirring or casting devices and similar applications to improve the power factor and improve circuit characteristics.

Product Features

◎ Bushing: resin insulation bushing, with good insulation performance and not easy to damage.

◎ Perfect cases: capacitor case material adopts embossed aluminum sheet, which could not only guarantee the good heat dissipation performance but also ensure abrasive and elegant features.

Tank type HV Shunt Capacitor

Herong Electric manufactured the first set of tank type shunt capacitor of China in 1985 with its independent intellectual property rights. The products covers less area, easier to install and maintenance-free.

Main Parameters:

◎ Rated Voltage: 11kV, 33kV, 66kV

◎ Rated capacity of each single unit: 1000~20000 kVar

◎ The ratios of the maximum and minimum values of the three phases ≤ 1.01

◎ Capacitor bank could operate for long term under 1.1*Un

◎ Altitude: 1000m or lower (Otherwise please select our plateau type tank shunt capacitor)

◎ Applicable Standards:

GB/T 11024-2010 *Shunt Capacitor for AC power Systems with Rated Voltage above 1kV*

IEC60871 *Shunt Capacitors for AC Power Systems with Rated Voltage above 1000 V*

10kV Series Compensation Capacitor Bank

Connected with 10kV Power frequency AC power system in series.

Main functions: use the capacitive reactance of series capacitors to compensate the inductive reactance of transmission lines to decrease the line loss, improve user's terminal voltage and increase the distribution line capacity.

The scope of supply: primary devices such as container, series capacitor, high-speed switch, Isolating switch, voltage transformer, current transformer, damping reactor, damping resistors, metal oxide arrester and other secondary devices such as controller .

Design Features

◎ Pole-mounted, Container installation, Compact structure, easier to installation and occupy less area.

◎ Capacitor bank is equipped with secondary power supply and energized easily.

◎ Flexible compensation mode control; better compensation effects.

◎ Use internal fuse capacitors, which operates reliably.

10kV, 35kV Compact Type Tank Shunt Capacitor Bank

It is mainly used in 10kV and 35kV power frequency AC power systems.

Main function: improve the power factor and voltage quality of the power grid; decrease line losses.

Scope of supply: tank type shunt capacitor, oil-immersed series reactor, discharge coil, lightning arrester and pressure release devices, temperature display devices and related primary and secondary wiring works etc.

Advantage: compact type; integration arrangement; simple wiring; easy installation and smaller occupied area.

Design Features

◎ Compact type structure; the land occupied is about 1/3 of the tank capacitor bank.

◎ Fully sealed: integrated; no bare conductor; anti-bird and sand-proof; low requirement on environmental conditions.

◎ Assembling works will be finished within factory before shipment and delivered intergrally.

◎ Easy installation; simple wiring; short construction period and easy operating maintenance at site.

◎ Fully insulated and direct ground installation, with good seismic performance.

HRJC Type HV Capacitor On-line Monitoring Equipment

HV capacitor on-line monitoring equipment is mainly used in 6-35kV HV reactive power compensation system;

Main function:

Real-time display and record the capacitance value of the high voltage capacitor by measuring the capacitor voltage and current;

Monitor the voltage, current and unbalance current signals etc of the capacitor reactive power compensation at the same time.

Find the capacitor faults timely so as to grading, alarm and record the voltage and current waveform in details while alarming of the failure occurs;

Provide the important clues to seek the reasons of capacitor unit failure.

Scopes of supply: container, Industrial Personal Computer (IPC), Liquid Crystal Display (LCD) and data acquisition card etc (excluding the primary devices).

Design Features

◎ Real-time monitor: display each phase voltage, current and waveform data of the capacitor bank.

◎ Real-time display and record the capacitance value of each phase for capacitor bank.

◎ Multi-alarming way: voltage drop, over-voltage, over-current, open delta voltage or unbalanced current and capacitance out-of-limit alarms; grading alarm.

◎ Alarm and wave recording function: fully record the full waveform 2 seconds before and after failure occurred.

◎ Hard disk storage: large data storage capacity and long record time.

◎ History data statistics and backup functions.

◎ Simple internal structure; function is modularized; easy to extend.

◎ Built-in watchdog program: restart automatically once failure happens.

◎ RS232, RS485 etc. various communication methods.

HV Smart and Compact Type Tank Capacitor Bank

HV smart and compact type tank capacitor bank is mainly used in 6-10kV distribution line for power and industrial enterprises;

Functions: it can be parallel mounted on a single pole for HV AC overhead line to compensate the inductive reactive power of the transmission line and load, adjust the network voltage, improve the power factor, decrease the line losses and increase the active power output of the transformer.

The main scope of supply: drop-out fuse, zinc oxide lightning arrester, HV intelligent capacitor (the integration with control, communication, permanent magnet vacuum switch, HV shunt capacitor and protection devices etc.), out door open type CT and its accessories.

Design features

◎ Smaller size and reduced weight: compared with traditional pole mounted reactive power automatic compensation capacitor bank, its size is narrowed by 60% and weight is reduced by 50%

◎ Single pole mounting: more convenient and easy for installation; save 50% installation period and 70% installation cost

◎ Permanent magnet vacuum switch used for opening/closing circuit: the coil circuit of the permanent magnet vacuum switch will be disconnected after closing, it is safe and reliable without power dissipation and heating.

◎ Multiple switching methods: time, voltage and reactive power setting;

◎ Communicating functions: remote communication, remote control, remote regulation, remote metering and GPRS etc.

◎ It could record 120 days operating data for review and downloading.

◎ Multiple protection functions: short circuit/ over voltage/ over current/ loss voltage/ default phase and time delay switching protections.

◎ Open type wireless CT(Herong technology patent): no need to cut off the system power during installation which could keep signals transmission more securely.

◎ Real time data; switching On/Off data; download history could be checked; set via mobile internet.

Dry type Air Core Reactor（6~230kV）

Design Characteristics: small cross section design; small skin effect and eddy current loss; good inductance linearity; rational magnetic field distribution; uniform winding withstand electromagnetic force; good mechanical properties and thermal stability; noiseless, maintenance-free and flexible installation etc.

Main Products

Dry type air core series reactor
Dry type air core shunt reactor
Dry type air core current-limiting reactor
Dry type air core filter reactor
Dry type air core split reactor
Dry type semi-core magnetic shield structure reactor

Dry type Semi-core Magnetic Shield Structure Reactor

Dry type semi-core magnetic shield reactor is designed by adding the columnar iron core inside the dry type air core reactor with iron core surrounding the entire coil so as to save the core material; The entire core is molded with epoxy resin vacuum casting, it is dense and strong, with high mechanical strength, low noise. In addition to the characteristics of an air core reactor, the volume of the dry type semi-core magnetic shield reactor is reduced by 30% to 50% and the loss is reduced by 20% to 30%.

Main Products

Dry type semi-core series reactor
Dry type semi-core shunt reactor
Magnetic shielding dry type semi-core series reactor
Magnetic shielding dry type semi-core shunt reactor

Dry type Iron Core Reactor (6-35kV)

The coils of dry type Iron core series/shunt reactor use epoxy vacuum casting technology. it has characteristics such as small mechanical vibration and noise, small volume, strong short circuit withstand ability, no leakage pollution and easily installation etc.

Main Products

Dry type Iron Core Series Reactor
Dry type Iron Core Shunt Reactor

Wholly Sealing Oil-Immersed Reactor

The oil-immersed reactor is maintenance-free product with adoption of advanced cooling oil compensation structure, vacuum oil filling technology, new type of insulating dielectric, with reliable and excellent performance and anti- explosion & anti-fire function.

Dry type discharge coil, wholly sealing type discharge coil

The dry type discharge coil is vacuum casted with epoxy resin,adopting enhanced insulation, with characteristics such as high safety, maintenance-free, simple construction and easy installation etc.

Wholly sealed type discharge coil adopts advanced expansion oil compensation structure, advanced oil filling process and new type of insulating dielectric, the performance is reliable and excellent.

Active Power Filter (APF)

HRAPF

APF is three phases inverter consisting of IGBT. It is shunt connected to the grid through series reactor, collecting the load current to the APF control system through current transformer. It injects compensation current to the system to neutralize the harmonic current. So that the current in system could be sinusoidal.

The advantage of Herong active power filter (HRAPF)

(1) Based on IGBT inverter
(2) No large capacity capacitor and reactor, it can filter 2-50 times harmonics at the same time.
(3) Quick response, compensate power grid harmonics synchronously.
(4) Harmonic is adjustable, continuous and smooth
(5) Small area occupancy with a very high cost performance advantage

Technical Parameters

Module current(A)	35/50/75/100
System voltage (V)	400/690/1140(-50%to+20%)
System frequency (Hz)	50/60(-10%to+10%)
Filter range	2 ~ 50 times filter harmonics full range effectively
Filter efficiency	>98%
Temperature range	-25℃ to +40℃
Ambient humidity	No coagulate frost while ambient humidity≤ 90%
Response time	≤1ms
APF loss	<3%
Noise level	≤65dB
Overload capacity	120%/1ms
Communication mode	Modbus
Protection Function	Over voltage protection, under voltage protection, over current protection, DC over voltage protection, over temperature protection, automatic current limiting protection.

LV Static Var Generator (LV SVG)

HRSVG

SVG uses three phase large power voltage inverter as the core and outputs voltage to the system through transformer or reactor. It has the same frequency, same phase with the system side voltage, and determines the output power characteristic and capacity through adjusting its voltage amplitude and the system voltage amplitude. When the amplitude value is more than system amplitude value, it will output capacitive reactive power. When it is less than amplitude value, it will output inductive power.

The advantage of LV Static Var Generator (HRSVG)

(1) Structure: Three-phase full bridge inverter structure, high reliability.
(2) Strong compensation performance: rapid continuous adjustable dynamic reactive power output, compensate unbalance at any time for the power factor to be close to 1.0.
(3) Response: quick response speed, less than half cyclic wave.
(4) Harmonic characteristic: no harmonic current, filter 13 times or lower harmonic current.
(5) Operation: SVG is a controllable current source. It does not produce over current and harmonic voltage amplification.

LV Static Var Generator (HRSVG) is applicable for low voltage system impact, harmonic loads, it could improve the power factor, filter harmonic, save energy and reduce consumption.

Technical Parameters

Module rated capacity (kVar)	50/100/150
Rated voltage (V)	400/690/1140(-50%to+20%)
System frequency (Hz)	50/60(-10%to+10%)
Filter range	<13 times filter harmonics
Compensation efficiency	>97%
Temperature range	-25℃ to +40℃
Ambient humidity	No coagulate frost while ambient humidity≤ 90%
Response time	≤5ms
SVG loss	<3%
Noise level	≤65dB
Overload capacity	120%/1ms
Communication mode	Modbus
Protection Function	Overvoltage protection, under voltage protection, overcurrent protection, DC overvoltage protection, DC undervoltage protection, overtemperature protection and automatic current limiting protection

Static Var Generator (SVG)

Herong Electric cooperates with Tsinghua University, successfully developed the 10 kV, 35 kV voltage level of Static Var Generator (SVG), Which is the most advanced reactive power compensation device. Its response speed is less than10ms. It can provide inductive or capacitive reactive power during loads changing real-timely without producing harmonic, or equipping filter capacitor bank. SVG is designed with container for easy installation, small area occupancy. The application fields of SVG is same with SVC, its compensation effect is better than SVC.

Integral type DC Charger

Integral type DC Charger is integration of power transformation, DC output control and customer interface. Its protection degree is IP54 and applicable for the outdoor installation. The system can set the charging modes, and the charging process parameters, etc.

Product Advantages

1. High efficiency: max ≥ 96%
2. Small volume
3. Light-weight
4. High protection degree: IP54
5. Multifunction: with the human-computer interaction, billing and measuring, background communication, control and protection and other functions.
6. Wide application fields: the fast/slow charging station, parking lots and residential area etc.

Detachable DC Charger

Detachable DC Charger for electric vehicles is integration of power conversion and customer interface, its protection degree is IP30, and applicable for indoor installation.

Product Advantages

1. Humanized design;
2. Customized capacity;
3. Standard cabinet size;
4. Unique convergence design;
5. High efficiency: max ≥ 96%;
6. Small volume;
7. Light-weight;
8. High protection degree: IP30;
9. Multifunction: human-computer interaction, billing and measuring, background communication, control and protection etc.
10: Multiple charging modes: available for double chargers, three chargers and four chargers of output, uniform type charging and rotary type charging etc.
11. Wide application fields: large fast charging stations, container charging system, bus parking lots and electrical changing stations etc.

AC Charger

AC Charger could take 220V±20% AC input. When the control panel of charger received swiping card orders from user, it controls AC contactor to act and output power rating 7 kW, 2*7 kW and 40 kW AC electricity.

The AC charger adopts standard charging interface with intelligent system design of protection including lightning, under voltage, overload and short circuit etc. It could detect the charging cable connection status real-timely and stop the system charging while connection state is fault to ensure the safety of person and vehicles in the process of charging.

Products Advantages

1. Intelligent control
2. Accurate measurement
3. Multi-layer protection, guarantee personal safety during charging
4. Small volume
5. Light-weight
6. High protection degree: IP54
7. Multifunction: friendly human-machine interface, with functions of complete monitoring, billing and money deduction etc.
8. Wide application fields: indoor and outdoor type electric vehicle charging stations, public parking lots, residence parking lots, large shopping malls parking lots and roadside parking lots etc.

Super Capacitor

Super capacitor is a new type special component comparing with traditional battery and capacitor. It has features like quick charging, long service life, good temperature characteristic, energy-saving etc. It could replace the traditional battery or capacitor in a wide variety of applications.

In the application of automatic meter reading system, consuming electronics, renewable energy, electric and hybrid cars and uninterrupted power supply (UPS), super capacitor is a better choice.

Products Advantages

◎ Quick charging, complete within 0.1 ~ 30 seconds.
◎ Long circulation service life with charging and discharging cycle times up to 500000 times.
◎ High energy conversion efficiency, large current energy cycle efficiency≥ 90%.
◎ High power density can be up to 300W/KG~5000W/KG, equivalent to 5 ~ 10 times of the battery.
◎ Green and environmental power, no pollution in the composition.
◎ Temperature range: -40℃ to +70℃
◎ Small leakage current with voltage memory function of long voltage keeping time.
◎ Convenient detection, residual electricity can be read directly.
◎ High safety, maintenance-free.

Application Fields

◎ The electric/hybrid electric vehicle
◎ Wind turbine system
◎ Energy storage type railway vehicles
◎ Rail transportation energy recovery system
◎ heavy-duty machinery
◎ UPS power/dynamic voltage compensation system
◎ Diesel engine starting system

Technical Parameters

Technical	Parameters
Rated voltage	2.7 V
Surge voltage	2.85V
Rated capacitance	surge voltage
Capacitance tolerance	0%~+10%
Internal resistance (ESR)	AC:≤0.2 mΩ；DC：≤0.25 mΩ
Leakage current	72h,≤5.5 mA，@25℃
Rated current	150A
Maximum short circuit current	5300A
Weight(g)	538±5
Energy density(wh/kg)	5.9
Power density(k w/kg)	14.8
Operating temperature range	-40℃ to 65℃
Circulation times	>1000000
Operating temperature range	-40℃ to 65℃
Storage Temperature Range	-40℃ to 70℃

Super Capacitor Modules Bank

Super capacitor bank is a new type energy package with combination of multiple series connected super capacitor and voltage balancing and discharge voltage stabilizing system. The birth of the super capacitor bank has made up for the defects of energy storage devices like lead-acid batteries, it solves the problem of low efficiency under the low temperature. Super capacitor bank not only has all the features of super capacitor, but also has the function of working status monitoring so as to achieving the easy maintenance.

Products Advantages

◎ Non-pollution
◎ Long service life with charging times up to 100000 times.
◎ Quick charging speed with range of 0.3s to 15mins
◎ High charging and discharging efficiency up to 98%
◎ High power density, 10kW/kg
◎ Completely maintenance-free

Application Fields

New enegry vehicle (NEV), railways transportation, communication, bus, locomotive and Uninterruptible Power Supply(UPS) etc.

Technical Parameters

Technical	Parameters
Rated voltage	48 V
Rated capacitance	165 F
Capacitance tolerance	-10%~+20%
internal resistance(ESR)	DC：5 mΩAC：4mΩ
Leakage current	72h,≤5 mA
Weight	14.5kg
The biggest energy density 65℃	3.65Wh/kg
Maximum continuous working current IMCC（ΔT = 15℃）	81 A
Maximum continuous working current IMCC（ΔT = 40℃）	135A
Maximum current	2000A
Storage energy	54wh
Operating temperature range	-40℃ to 65℃
Storage Temperature Range	-40℃ to 70℃
Dimension of L*W*H mm	418*194*179

Main Customers List

SN	Delivery Date	Product type	Substation	Voltage（kV）	Capacity（kvar）	Quantity	The Name of Customers
1	2007-07-09	TBBZ10-8016/334-AK	Mengshimen 110kV Substation	10	8016	5 sets	Qinhuangdao Futian transmission engineering Co.
2	2009-04-23	TBB10-7200/400-AK	Shanguo 110kV Substation	10	7200	4 sets	Shandong Luneng Material Group Co.,Ltd
3	2009-11-15	TBB10-6000/500-ACW	Xuzhuang 110kV Substation	10	6000	7 sets	Supply Chain Management center, North China Power Grid Co.
4	2009-08-01	TBB10-5010/334-AK	Longwan 110kV Substation	10	5010	8 sets	Zhaopqing Power Supply Bureau, Guangdong Grid Company
5	2009-07-23	TBB10-12000/500-ACW	Jinghu 220kV Substation	10	12000	4 sets	Zhejiang Province Electricity Co.
6	2009-08-02	TBB10-10020/334-ACW	Pingpo 220kV Substation	10	10020	3 sets	Guangxi Power Grid Corporation
7	2003-05-20	TBB10-8100/2700-3W	Songjiaying 220kV Substation	10	8100	12 sets	Beijing Power Supply Bureau
8	2007-12-24	TBB10-60000/500-AK	YangchenBei 500kV Substation	10	60000	4 sets	Shanxi Province Electricity Co.
9	2008-06-12	TBB35-75000/625-AQW	Chaoyang 500kV Substation	35	75000	2 sets	Hunan Province Electricity Co.
10	2009-12-02	TBB35-15000/500-BL	Jinhua 220kV Substation	35	15000	2 sets	Xinjiang Xinneng Material Group Co.,Ltd
11	2009-02-27	TBB35-10008/417-BLW	Lianzhuang 220kV Substation	35	10008	4 sets	Shanxi Province Electricity Co.
12	2003-11-30	TBB35-10000/3334-3W	Jiangdong 220kV Substation	35	10000	3 sets	Anhui Province Electricity Co.
13	2004-03-20	TBB35-9600/100-AKW	Bangbu Donghu 220kV Substation	35	9600	8 sets	Wandian Material Co., Anhui Province
14	2009-07-20	TBB35-28056/334-AQW	Xiangyang 330kV Substation	35	28056	4 sets	Qinghai Electricity Co.
15	2008-04-22	TBB35-20000/6667-ACW	Shikong 330kV Substation	35	20000	4 sets	Ningxia Electricity Co.
16	2008-12-20	TBB66-28000-ACW	Fuxin Songtao 220kV Substation	66	28000	2 sets	power grid construction branch, Liaoning Power Grid Corporation
17	2009-11-12	TBB66-108000/500-AQW	Shiyang 500kV Substation	66	108000	8 sets	Guangdong Power Grid Corporation
18	2010-10-30	TBB132-28800/400-BLW	--	132	28800	4 Sets	Pesharwar Electric Supply Company, Pakistan
19	2013-8-20	TBB22-8400/200-BLW	--	22	8400	2sets	ENERBENSA SDN.BHD
20	2015-6-20	BAM6.35-300-1W WBAM12.7-300-1W	220kv substation	6.35KV /12.7kv	300	600 pcs	EGEMAC of Egypt
21	2015-10-10	BAM12-120-1W		12	120	10 pcs	PSEI Egypt
22	2012-11-14	BAM12/√3-200-1W	--	12/√3	200	972 sets	Quetta Electric Supply Company
23	2016-1-11	BAM11.2-476-1W		11.2	476	24 pcs	RWW south Africa
24	2012-8-1	TBB11-7200/200-BLW	--	11	7200	4sets	Alstom Grid Pakistan(Private) limited
25	2015-1-4	TBB11-7200/200-BLW		11	7200	1 Set	Siemens Pakistan
26	2013-1-31	TBB11-4800/200-BLW	--	11	4800	8 sets	ABB Pakistan
27	2014-1-10	BAM11-100-1W	--	11	100	550nos	M.M Enterprise, Bangladesh
28	2012-8-15	BAM11/√3-150-1W	--	11/√3	150	1050nos	Supplied to LESCO Pakistan through Siddique Sons Engineering
29	2014-1-3	BAM10.97-411-1W	--	10.97	411	12nos	ELMA sp. zo.o.
30	2014-1-20	BAM6.6/√3-67-1W	--	6.6/√3	67	12nos	General Electric
		BAM6.6/√3-134-1W	--		134	6nos	

Main Customers List of Reactor

SN	Date	Custom	Substation	Type	Qty(set)
1	2013.8.5	Qinghai Power Company	Hebei 110KV substation	BKGKL-1000/10	2
2	2013.7.29	Guangdong Power Grid Company Maoming Power Supply Administration	Maoming 110KV Dry-type reactor	BKGKL-2667/10	5
3	2013.11.11	Hunan Power Company	220KV Xupudong substation	BKGKL-3330/10	2
4	2011.7.28	Hainan Power Grid	Longbei 220kv shunt reactor	BKGKL-3334/10	3
5	2012.3.30	Henan Power Company	Zhengzhou 220KV Fenghuang substation	CKSC-300/10-5	3
6	2013.9.11	Guangxi Power Grid CompanyLiuzhou Power Supply Administration	110KV Yanghe substation	CKSC-360/10-6	2
7	2012.7.9	Hubei Power Company	Wuhan 220KV Taishansi substation	CKSC-960/10-12	3
8	2013.9.13	Hainan Power GridDanzhou Power Supply Administration	Yangpudeyi 110KV substation	CKSC-720/10-12	4
9	2013.11.11	State Grid Hebei Power Grid	shizhong 220KV	CKSC-960/10-12	4
10	2012.9.6	Jiangsu Power Company	Zhenjiang 220KV Huqiao substation	XKGKL-10-3000-10	4
11	2012.3.16	Sichuan Power Grid	Mianyang 220KV Hongsha substation	XKGKL-10-4000-10	2
12	2013.11.30	State Grid Hubei Power Company	500KV Chaoyang substation1-2C reactor	CKGKL-3000/35-12	2
13	2014/12/9	South africa	South Africa RWW	LKK11-376A-2.8501mH	2
14	2015/1/13	South Korea	South Korea Hyosung (Group)	BKGKL-15-1010-5	2
15	2015/7/6	Vietnam	Vietnam POWER MORE	CKGKL-38.5-150A-5	14
16	2013/2/12	South Korea	HYOSUNG	BKGKL-12-2X3-760	3
17	2013/5/23	Poland	ELMA	LKGKL-36-77-65.29	1

Main Customers List of SVC/ SVG

SN	Custom	Load	compensated mode	Voltage (kV)	Capacitance per set(Mvar)	Qty. (set)	Total capacitance (Mvar)
1	Chenghe Coal Mining Administration Xizhuozi 110KV Substation	Reactive power compensation and harmonic suppression device	SVG	10	8	2	16
2	Shanxi Fengxi Huarui Coal Chemical Engineering Co., Ltd	Reactive power compensation and harmonic suppression device	SVG	10	8	2	16
3	Shaanxi Zhongmei Construction Co., Ltd	Reactive power compensation and harmonic suppression device	SVC	10	22	2	44
4	Hubei New Metallurgical Steel	furnace electric arc	TCR+FC	35	30.7	1	30.7
5	Yangchun New Steel Co., Ltd	Heat crown wine	TCR+FC	10	7	4	28
6	CSR Yangtze Co., Ltd Tongling Branch Comapany	furnace electric arc	TCR+FC	10	26	1	26
7	Shanxi Gaoyi Steel Company	Reactive power compensation and harmonic suppression device	MSVC	10	18	1	18
8	Zhejiang Yingzhan Planished Sheet Co., Ltd	Planished sheet	SVC	10	14	1	14
9	Jiangsu Taizhou Steel Company	furnace electric arc	SVC	35	15	1	15

Hubei Jiangling 500KV Converter Station

TBB500-294336/483-AQW shunt capacitor bank

This is our first capacitor bank for SGCC's converter station which is commissioned in Jan. 2012 and operates well till now.

±500kV Yunnan Funing Converter Station

TAL500-242049.6/560.3-AQW AC filter capacitor bank

12 sets of TAL500-242049.6/560.3-AQW AC filter capacitor bank operates at ±500kV Funing converter station in China Southern Power Grid system.

All the 12 sets filter banks were commissioned by 30-06-2017.

Jibei Changli 500KV Substation

TBB66-60000/20000-AQW assembled shunt capacitor bank

4 sets of TBB66-60000/20000-AQW tank type capacitor bank operates at Changli 500KV substation.

These capacitors banks were commissioned in 2013. The BAMH79/√3-20000-1W tank type capacitor in these capacitor banks is with the largest capacity, highest voltage tank type capacitor in China. it has got national patent.

Qinghai Riyueshan 750KV Substation

TBB66-154080/535-AQW shunt capacitor bank

The altitude of this substation is about 2500 meters above sea level. The capacitor bank was commissioned in 2013, it is a breakthrough, we made in shunt capacitor bank for high altitude application.

Xinjiang Hami ±800KV Tianshan Convertor Station

TBB66-120000/500-AQW HV shunt capacitor bank

This is the first HVDC project we won. The capacitor bank was commissioned in 2013, it is operates well till now.

Jiuquan ±800KV Convertor Station

TAL750-396825.6/516.7 - AQW AC filter capacitor

In 2015, the company successfully won the bid for SGCC Jiuquan-Hunan ±800KV UHV DC transmission project Jiuquan±800KV converter station; It provided 3 groups of HP3 AC filter capacitor group and completed all supply on August 31, 2016.

Ningxia Lingzhou ±800kV Convertor Station

TAL750- 457632/476.7 - AQW AC filter capacitor

In 2014, the company successfully won the bid for the SGCC Lingzhou -Shaoxing ±800KV UHV DC transmission project Lingzhou ±800KV converter station; it supplied 4 sets of HP24/36 AC filter capacitor bank; It is the first time in the world to install AC filter at 750 KV side; Using double bridge differential protection for unbalance current protection for filter is also a kind of innovation.

Yuheng 1000KV UHV AC Power Transmission and Transformation Projects

TBB110-240192/556 - AQW HV shunt capacitor

In 2015, we won the bid for SGCC Yuheng-Weifang 1000KV UHV AC transmission project. We supplied 2 sets of 110KV, 240MVAR frame type capacitor bank with 5% and 12% reactance ratio reactor for 1000KV Shijiazhuang substation. The products were commissioned in 2016.

TBB132-28800/400-BLW capacitor bank operates in Mansehra, Pakistan

TBB22-2500/210-BLW capacitor bank operates in Laos

TBB22-3600/200-BLW capacitor bank operates in Laos

TBB22-8400/200-BLW capacitor bank operates in Vietnam

1set CKGKL-123-150A-180.16mH,1 set CKGKL-123-150A-128.69mH,14 sets CKGKL-38.5-250A-5mH air core series reactor operating in Vietnam

LKK-11-62A-51.93mH & LKK-11-123A-8.55mH filter reactor with capacitors operating in Lesotho at Storm Mountain Diamond Mine

International Market

Products from Herong Electric have been already exported to Mexico, Poland, Brazil, Pakistan , Angola, Laos, Vietnam, Egypt and other countries.

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Customer Service

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