



封闭母线

Enclosed Busbar

江苏大全封闭母线有限公司

JIANGSU DAQO ENCLOSED BUSBAR SYSTEMS CO.,LTD.

公司简介

Company Profile

大全集团是电气、新能源、轨道交通领域的领先制造商，主要研发生产高低压成套电器设备、智能元器件、轨道交通设备、多晶硅、太阳能电池、组件及上网接入系统等。

大全集团是国家创新型企业、国家技术创新示范企业、国家重点高新技术企业、工信部两化融合管理体系贯标示范企业、中国民营企业500强和中国机械工业100强企业，2014、2015年蝉联中国电气工业百强榜第一名。

大全集团拥有国家能源局授牌的武汉新能源接入装备与技术研究院、大全西交大先进电气技术研究院和南京大全电气研究院，以及国家级博士后科研工作站、院士工作站、国家级企业技术中心、国家级电气检测站等研究机构，科研能力和技术装备水平居于国内同行业前列。2015年获得中国质量奖提名奖，2017年获得国家技术发明奖二等奖。



Daqo Group is a leading manufacturer in Electrical Equipment, New Energy and Railway Electrification, specializing in researching and manufacturing for HV&LV electrical equipment, smart component, railway electrification equipment, polysilicon, solar cell, PV module and grid access system, etc.

Daqo Group is a national innovation enterprise, key high-tech enterprise, ranking in the top 500 private enterprises and the top 100 enterprises in machinery industry in China. It was also the No.1 in China's top 100 electrical industry in the year of 2014 and 2015.

Daqo Group has Wuhan New Energy Institute of Access Equipment&Technology approved by National Energy Administration, Daqo Xi'an Jiaotong University Advanced Electrical Technology Research Institute and Nanjing Daqo Electrical Institute, and National Postdoctoral Research Station, Academician Workstation, National Enterprise Technology Center, National Electrical Testing Stations, etc. Its scientific research capacity and technical equipment level ranks front row in domestic industry. Daqo won China Quality Award nomination at the year of 2015 and the second prize of the State Technological Invention Award at the year of 2017.

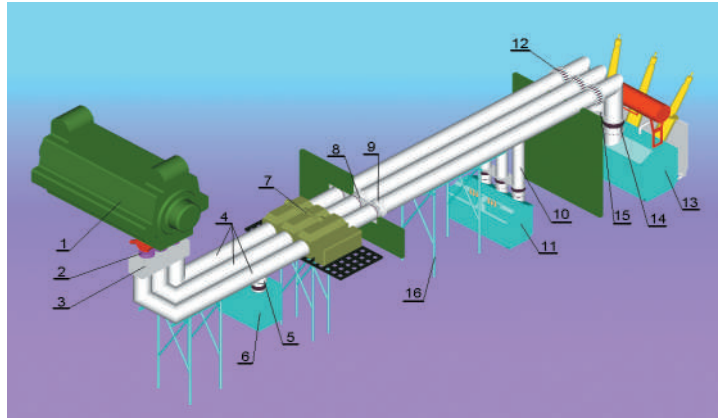




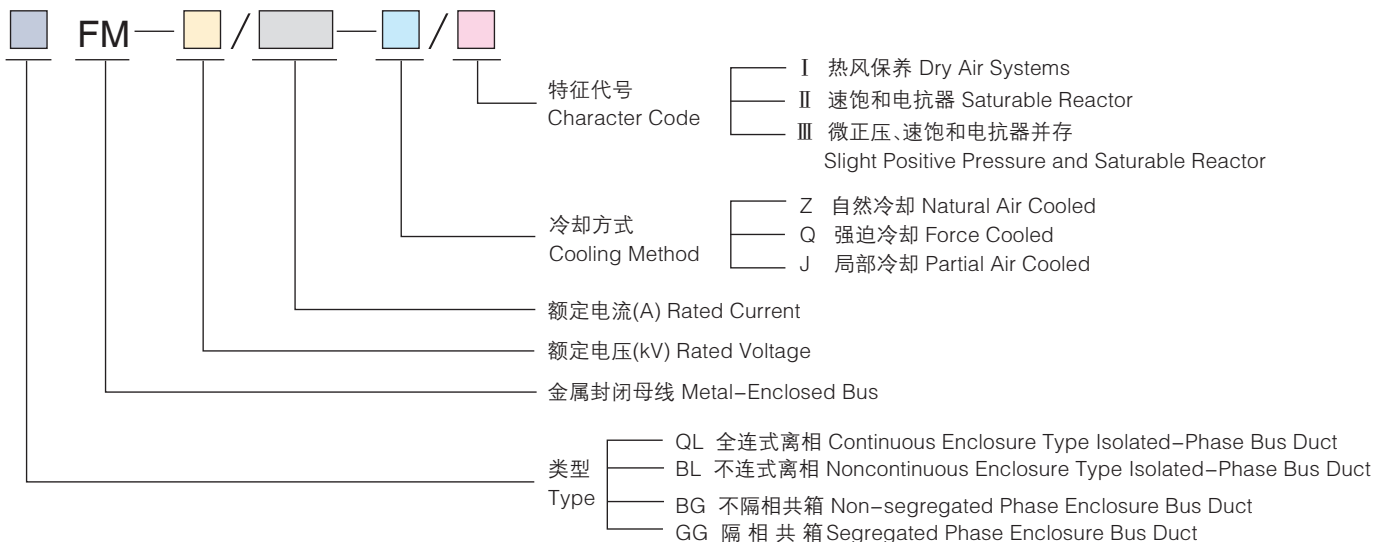
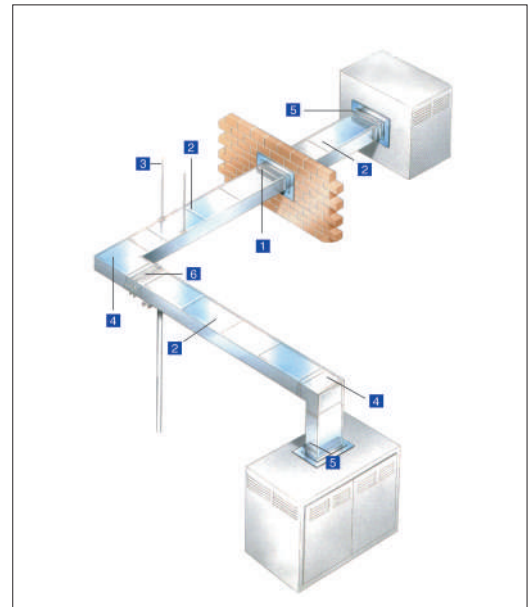
布置及型号

Arrangement & Model

1. 发电机 Generator
2. 电流互感器 Current Transformer
3. 出线箱 Generator Termination Enclosure
4. 主回路封母 Main Run IPB
5. PT分支封母 PT Tap-off Run IPB
6. PT&LA柜 PT&LA Cubicle
7. 断路器或隔离开关 GCB or Isolator
8. 穿墙结构 Wall Seal Assembly
9. 外壳伸缩节 Enclosure Expansion Joint
10. 厂用分支封母 Auxiliary Transformer Tap-off Run IPB
11. 厂用变压器 Auxiliary Transformer
12. 可拆结构 Removable Section Splice
13. 主变压器 Set-up Transformer
14. 与主变连接结构 Transformer Interface
15. 短路板 Bonding Plates
16. 支持结构 Supporting Structure



- 1 穿墙结构 Wall Seal Assembly
- 2 直线段 Straight Section
- 3 吊杆 hanger
- 4 弯头 Elbow
- 5 设备连接结构 Termination Assembly
- 6 伸缩结构 Expansion Joint





优质的产品

Excellent Products

■ 离相封闭母线

- ◆ 用于发电机与主变压器之间的连接、主回路及厂用回路
- ◆ 可提供的电流等级 1000A~28000A 电压等级 10.5kV~35kV
- ◆ 加强导体外壳环流的屏蔽作用,基本消除母线附近的钢构发热
- ◆ 大大降低短路电动力



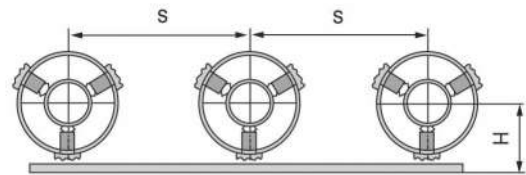
Isolated Phase Enclosed Bus Duct

This system is used for connection between generator and set-up transformer, main run and auxiliary transformer tap-off run.

Suitable for current rating from 1000A up to 28000A and the voltage rating from 10.5kV up to 35kV.

The shield effect of enclosure circulation, the heating of the steel structure nearby the bus duct is eliminated basically.

The short circuit electromotive force is also dropped greatly.



额定电压(kV) Rated Voltage	绝缘水平(kV) Insulation Class or Level	额定电流(A) Rated Current	外形尺寸 Dimension(mm)				毛重(kg) Gw/1m
			外壳 Enclosure	导体 Conductor	相间距(S) Space	高 (H)	
15~20	68/125	4000	Φ450	Φ150	≥ 650	480	50
		4000	Φ600	Φ150	≥ 850	580	110
		6000	Φ650	Φ200	≥ 900	600	120
		8000	Φ750	Φ300	≥ 1000	650	120
		9000	Φ800	Φ350	≥ 1050	670	135
		10000	Φ850	Φ450	≥ 1100	700	140
20~24	75/150	12500	Φ1050	Φ500	≥ 1300	770	180
		14000	Φ1050	Φ500	≥ 1300	770	180
		16000	Φ1150	Φ600	≥ 1400	830	190
		18000	Φ1200	Φ650	≥ 1450	880	200
		23000	Φ1450	Φ950	≥ 1700	970	270
35	100/185	27000	Φ1500	Φ950	≥ 1750	1000	300
		28000	Φ1650	Φ1090	≥ 2000	1070	400

* 强迫冷却封闭母线参数及尺寸根据工程技术要求确定。

* Data and dimensions of force cooling type isolated phase enclosed bus duct are Considered according to the technical requirement of project



■ 共箱封闭母线

- ◆ 用于厂用回路、变电站、小水电发电机与变压器之间的连接
- ◆ 可提供矩形、槽形或管形导体
- ◆ 可提供的电流等级达 6300A, 电压等级达 35kV
- ◆ 具有铝(或弱磁钢板)外壳的保护, 维护工作量小
- ◆ 采用双重绝缘, 显著提高安全性能

Non-segregated Phase Enclosed Bus Duct

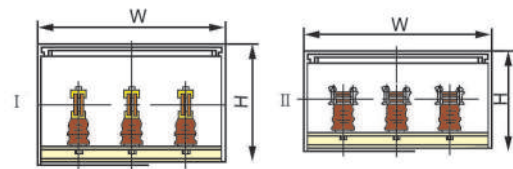
This type bus duct is used in run of auxiliary transformer, substation and also be applied as the connection between generator and set-up transformer for mini-type hydroelectric power substation plant.

The system is suitable for current rating up to 6300A and the voltage rating up to 35kV.

The conductor can be rectangle, channel and tube shape.

Providing the system with the aluminum alloy (or weak magnetic steel plate) enclosure to protect the bus-bar.

The maintenance is reduced obviously and the safety is promoted prominently by the double insulation used in the system.



额定电压(kV) Rated Voltage	3.15	6.3	10.5	35
绝缘等级(kV) Insulation	18/40	23/60	45/75	100/185
额定电流(A) Rated Current	外形尺寸 (W × H)(mm × mm) Enclosure dimension			
1000~3000	I 750 × 400 II 850 × 350	I 900 × 560 II 1060 × 460	I 900 × 560 II 1060 × 460	I 1500 × 920 II 1600 × 800
3500	I 750 × 440 II 850 × 480	I 900 × 560 II 1060 × 460	I 900 × 560 II 1060 × 460	
4000	* 850 × 440 I 750 × 440 II 850 × 480	* 1060 × 440 I 900 × 560 II 1060 × 460	* 1060 × 440 I 900 × 560 II 1060 × 460	
4500	* 980 × 480 I 750 × 440	* 1180 × 480 I 1000 × 560	* 1180 × 480 I 1000 × 560	
5000	* 1040 × 500 I 1350 × 500	* 1240 × 500 I 1500 × 600	* 1240 × 500 I 1500 × 600	
6300	I 1350 × 500	I 1500 × 600	I 1500 × 600	

注: * 部分为全绝缘共箱封闭母线。4000A 以上的共箱封闭母线导体也可采用圆管或槽型铝导体。

Note: '*' is for full insulation NSPB. Tubular or channel aluminum alloy conductor can also be adopted for NSPB with current greater than 4000A.



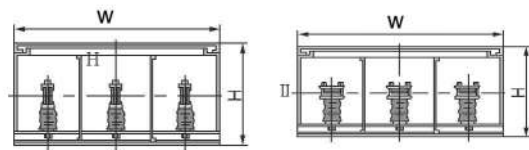
■ 隔箱封闭母线

- ◆ 可提供的电流等级达 4500A 电压等级达 35kV
- ◆ 独特的三相间隔离, 形成比共箱封闭母线小的外部磁场, 避免相间短路

Segregated Phase Enclosed Bus Duct

Suitable for the current rating up to 4500A, and the voltage rating up to 35KV.

Each phase conductor is separated, It forms 3 independent spaces therefore the separated phase makes the outer magnetic field less than non-segregated phase enclosed bus duct. This system effectively avoids occurring of phase to phase short circuit.



额定电压(kV) Rated Voltage	10.5	15.75	35
绝缘等级(kV) Insulation	42/75	57/105	100/185
额定电流(A) Rated Current	外形尺寸 (W × H)(mm × mm) Enclosure dimension		
1000~2500	I 1200 × 560 II 1400 × 460	I 1400 × 600 II 1600 × 550	I 2100 × 900 II 2350 × 800
3500	I 1200 × 560 II 1400 × 460	I 1400 × 600 II 1600 × 550	I 2200 × 900 II 2350 × 800
4000	I 1200 × 560 II 1400 × 460	I 1400 × 600 II 1600 × 550	
4500	I 1200 × 560 II 1400 × 460	I 1400 × 600 II 1600 × 550	

注:

- 1) I —— 矩形导体立放; II —— 矩形导体平放。
- 2) 本表尺寸的母线相间隔板为铝材, 如相间隔板为绝缘板, 则母线外形尺寸与不隔相共箱母线相同。
- 3) 电流在 4000A 及其以上的共箱母线也可采用槽型或圆管形导体, 具体尺寸与制造商协商。

NOTE:

- 1) I —— Vertical rectangular conductor; II —— Horizontal rectangular conductor
- 2) The material of the barriers is the aluminum for the above table SPBD, if change the material to insulation plate, the overall dimensions of SPBD are same as NSPBD.
- 3) The round tube type conductor also can be used for NPBD which current above 4000A, please consult with the manufacturer.



■ QLFM-Q 系列强冷式离相封闭母线

QLFM-Q 系列离相封闭母线用于 30000A 以上发电机出线及其与主变压器之间连接的主输电回路,以安全地传输电能。本产品符合 IEEE C37.23、GB/T 8349 等国内外标准。

强迫风冷封闭母线采用冷却空气对导体和外壳进行强迫冷却,其冷却空气通常采用闭式循环系统。空气在母线中受热后,进入空气——水热交换器,冷却以后由风机送回母线,循环使用。电厂循环水可作为热交换器的冷却水来冷却空气。

QLFM-Q Forced Air Cooled Isolated Phase Bus Duct

QLFM-Q forced air cooled IPBD is used for connection between generator and main transformer which the continuous current 30000A above. This product complies with IEEE C37.23 and other international standards.

FAC IPBD adopts cold air to cool the conductor and enclosure which is closed circulatory system. After the heat of air in the bus duct, the air flow cooled by air-water heat exchanger, and then put back into the IPBD by fan and motor to finish a circulation. The power plant circulating water can be used as cooling water to cool the air.



■ 技术参数

名称 Description	单位 Unit	参数 Parameter
额定频率 Rated power frequency	Hz	50 & 60
额定短时耐受电流 (有效值) 2s Rated short-time withstand current (2s)	kA	50~315
额定峰值耐受电流 Rated momentary withstand current (peak)	kA	125~800
外壳防护等级 IP Class		IP65

■ 技术参数

额定电压 Rated Voltage (kV)	绝缘水平 Rated Insulation Levels (kV)	额定电流 Rated Current (A)	外形尺寸 Overall Dimension (mm)			毛重 Cross Weight (kg/1m)
			外壳 Enclosure	导体 Conductor	相间距 Phase space	
24	75/150	30000	Φ1150	Φ600	≥ 1500	220
35	100/185	33000	Φ1410	Φ770	≥ 1700	250
35	100/185	45000	Φ1580	Φ950	≥ 1900	330

■ 产品特点

- 1、采用强迫风冷装置,最大限度缩小母线尺寸,减少现场安装工作量,节约现场空间。
- 2、风机和热交换器采用一用一备,确保强迫风冷装置长期可靠运行。
- 3、集成温度、湿度、风压、水压等关键运行参数的监测和报警模块,提高产品安全性能。
- 4、通过仿真计算,确保母线在强迫风冷装置失效后能安全运行 120 分钟。
- 5、外壳防护等级达 IP65,可有效防止人体和外界异物接近带电体,保证人身安全和设备可靠运行。

1、When using the forced air cooling equipment, can minimize the IPBD size, reduce site installation workload, save the space of the plant.

2、To ensure the long-term reliable operation of FAC equipment, one normal and one standby fan and heat-exchanger is applied.

3、To improve the product safety performance, the operating monitors and alarming modules is integrated, such as temperature, humidity, air pressure, water pressure etc.

4、The IPBD can safety runs 120 minutes at least after the forced air cooling equipment failure.

5、Enclosure protection class can reach IP65; can effectively prevent the human body and the foreign matter close to the electrified body to ensure personal safety and reliable operation of equipment.



■ 屏蔽绝缘管型母线

适用范围：

- ◆ 主要用于各类变电站、火电、水电发电厂
- ◆ 适用于钢铁厂和大型化工厂等污染、腐蚀严重场合的自备电站

产品优点：

- ◆ 载流量大、集肤效应低、功率损失小
- ◆ 散热条件好、温升低
- ◆ 允许应力 $[\sigma]$ 大、机械强度高
- ◆ 电气绝缘性能强、绝缘材料耐热系数高
- ◆ 抗电器震动能力强、不受环境干扰、可靠性高
- ◆ 布置清晰、安装方便、免维护运行
- ◆ 产品使用寿命大于30年



Shield-insulation Circular Bus duct

This type bus duct is used for current transforming between the transformer and switchgear in the transformer substations, thermal power plants, and hydropower stations. Also it can be used in the self-power stations which are the corrosive and contaminative places Such as the steel, iron works and large chemical plants.

规格型号(KV/ A) Specification	绝缘等级 (KV) Insulation Grade	热稳定电流 4S (KA) Rated short time withstand current	动稳定电流(KA) Rated momentary withstand current	温升(K) Temperature rise	局部放电(KV, pc) Partial discharge
10 / 4000	42/105	50	125	≤ 40	1.5Um/√ 3, ≤ 20
35 / 3150	95/200	50	125	≤ 40	1.5Um/√ 3, ≤ 20

规格型号(KV/ A) Specification	管材 Material	导体规格 mm Conductor	截面积 mm ² Area of section	标准弯曲半径 mm Bending radius	相间距 mm Space	跨距 m Span
10 / 4000	铜 Cu	Φ100 × 10	2826	450	≥ 225	≤ 8
	铝 Al	Φ120 × 15	4945	450	≥ 225	≤ 6
35 / 3150	铜 Cu	Φ100 × 8	2311	450	≥ 225	≤ 8
	铝 Al	Φ100 × 15	4003	450	≥ 225	≤ 6

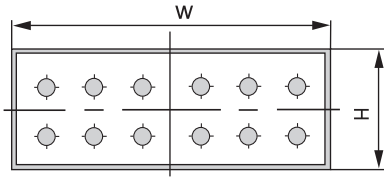
※ 在保证导体载流量的情况下,导体规格可以进行协商调整。

※ The specification of the conductor can be adjusted, under the circumstances of guaranteeing the conductor's ampacity is qualified.



■ 电缆封闭母线

Cable Enclosed Bus Duct



额定电压(kV) Rated Voltage	绝缘水平(kV) Insulation	额定电流(A) Rated Current	W(mm)	H(mm)	备注 Notes
10	35/75	1000	750	250	电缆可由需方提供，现场安装，从而减少安装接头。 When installing at site, the cable can be provided by users so that the jointer quantity can be decreased.
		2000	750	250	
		3000	900	300	
		4000	900	300	

■ 微正压热风保养系统

Micro-Pressurization & Hot Air Blowing System

本系统能保证停机时，对母线内吹入经除尘、干燥的热风，使封闭母线内始终保持运行状态时的温度，对防止绝缘子结露等引起的母线绝缘性能下降效果显著；在母线运行状态，能起到微正压装置功能。

This system could guarantee at the downtime of the equipment, blow the de-dusting, dry hot air into the bus duct, to make sure the temperature inside is the same when it is working, has significant effect to prevent the degradation of the insulation caused by condensation of insulator. When the bust duct is working, it plays the role of micro-pressurization device.

该系统为自动控制，能根据设定的温度值、压力值自动开机和关机。自动化程度高，免维护，户外型。

This system could control automatically, could start-up and shut-down according to the set temperature and pressure. It has a high degree of automation, maintenance-free, outdoor type.





■ 微正压控制系统

Dry Air Pressurization Control System



通过向母线内充入干燥空气,使母线内保持一定的微正压(300–2500Pa),防止外部潮湿空气及灰尘入内,从而提高母线运行安全性能。整个系统具有报警保护、自动放水及设备启动运行计次功能。

Through filling dry air into the bus duct to maintain a certain degree of micro-pressurization (300–2500Pa), to prevent the outside moisture and dust, thereby improving the operation safety. The entire system has alarming protection, automatic draining and counting times of start-up and operation function.

它通常由三部分组成:无油空压机、储气罐(可配)及控制箱等组成。该系统也可使用现场气源。

It usually has three parts: oil-free air compressor, air tank(if required), control cabinet and so on. This system can also use gas source at site.

主要技术性能

Main technical functions:

1. 输出气体干燥度:露点低于 -30°C (20°C 时)。Dryness of output gas: dew point lower than -30°C (at 20°C)
2. 浮充压力:0~4000Pa(可调)。0~4000Pa(could be adjusted)
3. 供气量: $\geq 10\text{m}^3/\text{h}$ (以 $0.22\text{ m}^3/\text{min}$ 无油空压机为气源)。Air demand: $\geq 10\text{m}^3/\text{h}$ (use $0.22\text{ m}^3/\text{min}$ oil-free air compressor as the gas source)
4. 报警保护功能:空压机超载停机报警、空压机运行超时停机报警。Alarm protection: Air compressor overload shutdown alarm、air compressor work overtime shutdown alarm.
5. 报警方式:灯光显示与音响并存。Alarm method: light and sound
6. 具有自动放水及设备启动运行计次功能。Has automatic draining and counting times of start-up and operation function.
7. 电源:三相380V,功率4KW。Power supply: Three phase 380V, Power 4KW.
8. 使用条件:室内使用,环境温度 $0-40^{\circ}\text{C}$,相对湿度 $\leq 85\%$ 。Conditions of use: Indoor use, environment temperature $0-40^{\circ}\text{C}$, relative humidity $\leq 85\%$.



■ 离相母线强风空气干燥循环装置(DQAC-50)

Force air dry circulation system

DQAC50 离相封闭母线强风空气干燥循环装置为一体化设备,包含了空气循环和微正压保护功能,提供全工况的防凝露性能。

1)强风空气干燥循环

当检测到母线内湿度大于70%(初设值,可调节)时,采用复合式单风循环除湿方式,把封闭母线内的潮湿空气从中间相抽出,通过罗茨鼓风机、储气罐、干燥机、后置加热后重新送入两边相母线,空气流量达54m³/h;如此周而复始,使母线内空气水分越来越少,相对湿度不断降低,从而防止发电机运行或停机时母线内部绝缘水平降低或发生凝露现象。

2)微正压保护

当检测到母线内湿度低于40%(初设值,可调节)时,自动切换到微正压保护模式,防止外界湿气或灰尘进入母线内部,从而达到低能耗、全方位、不间断的防止母线凝露的效果。

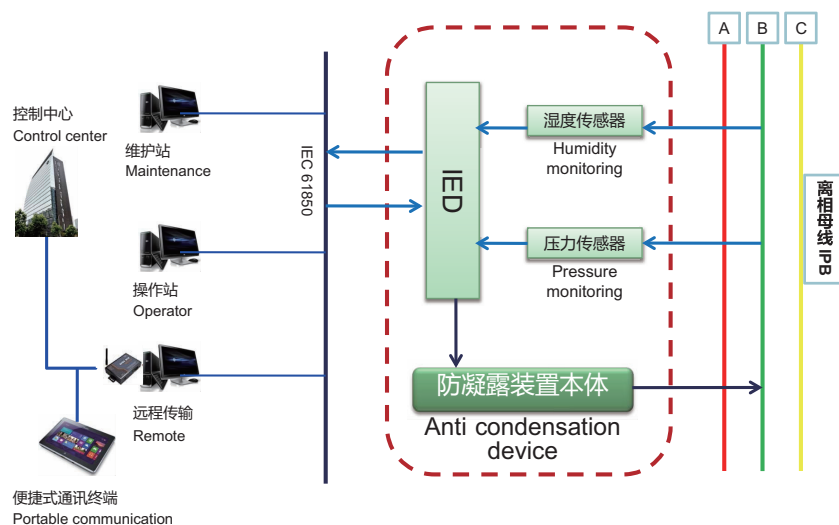
DQAC50 IPB force air dry circulation system is the integration system. it contains the protection function of force air circulation and micro-pressurization provide the prevent condensation performance for all condition.

1)Force air dry circulation

When the humidity in the IPB more than 70% (initial value, adjustable) use single air circulation mode to extract moist air from IPB phase and go through Roots blower air tank dry device then heating in to IPB A/C phase the airflow up to 54m³/h, after cycle of operation, the air moisture in the IPB more and more few the relative humidity coming down, it can prevent the IPB insulation reduce or condensation occurs.

2)Micro-pressurization protection

When detected the humidity in the IPB less than 40% (initial value adinstable) it auto matily switch to micro-pressurization protection mode to prevent the air moisture and dust in to the IPB, so as to achieve the low power consumption comprehensive uninterrupted to prevent the IPB condensation.





■ 智能化发电机中性点接地柜(DQ-IGTR)

The generator neutral point earthing cabinet intelligent (DQ-IGTR)

DQ-IGTR 智能化发电机中性点接地柜采用大全自主研发的 PA320 智能控制单元。

该柜体内装纪律电阻器动作次数及显示系统正常情况偏移电流的检测仪表。

智能控制器正常是可监视中性点不平衡电流、电阻片、电阻柜的温度；单相接地故障时，可记录接地电流大小、接地时间、电阻片、电阻柜的温度变化及接地动作次数。并且预留 RS485 通讯接口，可将检测、记录的信息传递至主控室。

DQ-IGTR intelligent generator neutral point earthing cabinet adopts intelligent PA320 control unit complete independent research and development.

The number of the action of the cabinet body discipline resistor loading and display instrumentation system is normal offset current.

The intelligent controller can monitor the normal is the neutral point unbalance current, resistance, resistance cabinet temperature; when the single-phase grounding fault, can record the temperature change of ground current size, ground time, resistance, resistance cabinet and grounding operation times. And the reservation of RS485 communication interface, can be detected, recorded information is transmitted to the main control room.



■ DQ-OTM 系列在线测温装置

DQ-OTM On-line temperature measuring device

DQ-OTM 系列在线测温装置用于封闭母线导体和外壳运行温度的在线监测，可实现母线运行温度的数据采集、处理、就地显示、远程传输和报警功能，显著提高母线的安全性能。

DQ-OTM on-line temperature measuring device is applied for on-line monitor operation temperature of IPBD enclosure and conductor, it can realize the IPBD running temperature data acquisition, processing, display, remote transmission and alarm function, significantly improve the IPBD system safety performance.



■ 技术参数 General Technical Parameter

名称 Description	参数 Parameter
电源 Power source	AC220V ± 10%
频率 Power frequency	50 / 60 Hz
功率 Capacity	500 W
导体测温 Conductor monitor	CT-SR 红外线探头 infrared sensor
外壳测温 Enclosure monitor	PT100 铂热电阻 sensor
外壳防护等级 IP class	IP55
测温箱外形尺寸 Overall dimension	520mm(W) × 520mm(H) × 230mm(D)



■ DQ-PTLA 系列电压互感器避雷器柜

DQ-PTLA Potential Transformer & Lightning Arrester Cubicle

DQ-PTLA 系列电压互感器避雷器柜专用于发电机出口封闭母线的线路保护、监测和电压值采集。本产品符合 IEC 60298、GB 3906 等国内外标准。

DQ-PTLA Potential Transformer & Lightning Arrester cubicle is special applied for protection and monitoring for generator outlet busduct and voltage acquisition. This product complies with IEC 60298, GB3906 and other international standards.



PT 柜 PT Cubicles

■ 技术参数 General Technical Parameter

名称 Description	单位 Unit	参数 Parameter		
额定电压 Rated voltage	kV	10.5	24	35
1min 工频耐压 Power frequency withstand voltage (1min)	kV	42	75	100
雷电冲击耐压 Lightning impulse withstand voltage (peak)	kV	105	150	185
额定频率 Rate power frequency	Hz	50 / 60		
额定电流 Rated current	A	1000		
外壳防护等级 IP class		IP4X		

■ 外形尺寸 Product Overall Dimension

额定电压(kV) kV	外形尺寸(mm)Overall dimension		
	宽度 Width	高度 Height	深度 Depth
10.5	800	1800	2000
24	1000	1800	2000
35	1200	2000	2500

■ 产品特点 Product Features

- 采用组合式结构,可根据具体工程配置不同数量及种类的电压互感器。
- 整体采用移开式金属铠装结构和抽拉式 PT 小车,操作维修方便。
- 低压部分和高压部分完全隔离。
- 防护等级达 IP4X,可有效防止人体和外界固体接近带电体,保证人身安全和设备可靠运行。
- 简单而有效的连锁,防止误操作。
- 电缆室有充裕的空间,可连接多根电缆,安装维修方便。
- 可加装放电计数器和避雷器监测器,提高产品安全性能。
- Modular structure, different number and types of PT can be configured according to the specific project.
- Removable & metal sheathed structure and pull type PT car, easy operation and maintenance.
- Completely isolated between low voltage parts and high voltage parts
- Enclosure protection class can reach IP4X; can effectively prevent the human body and the foreign matter close to the electrified body to ensure personal safety and reliable operation of equipment.
- The cable compartment has ample space, easy installation and maintenance.
- To prevent incorrect operation, mechanical or electrical linkage can be added.
- To improve product safety performance, the discharge counter and arrester monitor can be added.



■ DQ-NGR 系列中性点接地电阻柜 DQ-NGR Neutral Grounding Resistor Cubicle

DQ-NGR 系列中性点接地电阻柜为专用于发电机中性点采用高电阻接地的成套装置。当定子发生一点接地时,可限制接地电流在很小的数值,并有效抑制电弧接地暂态过电压。本产品符合 IEC 60298、GB 3906 等国内外标准。

DQ-NGR Neutral Grounding Resistor Cubicle is the special device for generator neutral point grounding with high resistance; when the generator stator single point grounding, the NGR can limit ground current in a very small value and suppress arcing ground transient over voltage effectively. This product complies with IEC 60298, GB3906 and other international standards.



中性点柜 Neutral Point Grounding Cubicle

■ 技术参数 General Technical Parameter

名称 Description	单位 Unit	参数 Parameter		
额定电压 Rated voltage	kV	10.5	24	35
1min 工频耐压 Power frequency withstand voltage (1min)	kV	42	75	100
雷电冲击耐压 Lightning impulse withstand voltage (peak)	kV	105	150	185
额定频率 Rate power frequency	Hz	50 / 60		
额定电流 Rated current	A	400		630
外壳防护等级 IP class		IP4X		

■ 外形尺寸 Product Overall Dimension

额定电压(kV) kV	外形尺寸(mm)Overall dimension		
	宽度 Width	高度 Height	深度 Depth
10.5	1700	2000	1600
20	2100	2400	1400
35	2100	2400	1400

■ 产品特点 Product Features

- 电阻采用不锈钢材质镍铬合金(Cr20Ni80),电导率高,温度系数高,耐高温、耐腐蚀、稳定性好。
- 接地变采用干式变压器,容量大,耐冲击。
- 自带隔离开关结构,检修方便。
- 防护等级达 IP4X,可有效防止人体和外界固体接近带电体,保证人身安全和设备可靠运行。
- 产品可加装接地记录装置,记录接地电阻接地次数。
- Resistance using stainless steel nick-chromium alloy (Cr20Ni80), high conductivity, high temperature coefficient, high temperature resistance, corrosion resistance, and good stability.
- Grounding transformer is dry type, large capacity, and impact resistance.
- Include disconnection switch, maintenance conveniently.
- Enclosure protection class can reach IP4X; can effectively prevent the human body and the foreign matter close to the electrified body to ensure personal safety and reliable operation of equipment.
- Grounding counter can be installed to record grounding number for resistor.



■ 检验设备

Testing Equipments



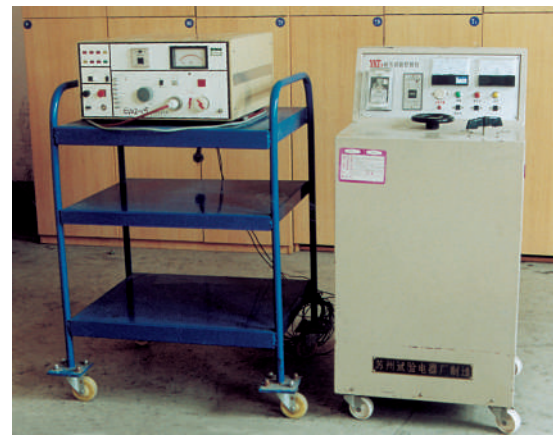
BUDF-1 超声波探伤仪
Model BUDF-1 Ultrasonic Wave Penetrating Detector



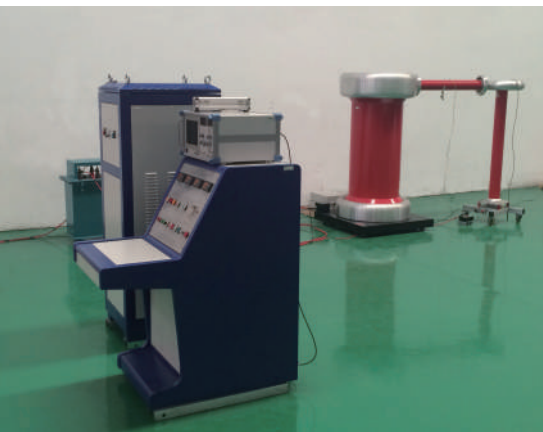
X射线探伤测试仪
The Tester with X-ray Penetrating Detector



温升试验设备
Temperature Rising testing equipments



耐压试验设备
The Withstand Voltage Test equipments



局放测试仪
Partial discharge tester



数控折弯机(意大利)
Computer-controlling Bending Machine (Italy)



进口全自动微机控制4辊卷板机(瑞典)
The Fully Automatic Micro-processor Control Bending Machine with 4 Rollers (Imported from Sweden)



进口坡口机(瑞典)
The Beveling Machine (Imported from Sweden)



进口全自动纵缝焊接工作站(瑞典)
The Fully Automatic Vertical-seam Welding Station (Imported from Sweden)



进口全自动环缝焊接工作站(瑞典)
The Fully Automatic Ring-seam Welding Station (Imported from Sweden)



金属粉末喷涂生产线(台湾)
Powder Painting Line (Taiwan)



热浸锌加工系统(德国)
Hot-dip galvanizing system (Germany)



主要业绩

Main Supply Record



三峡水电站(32×840MW)

Three Gorges Hydropower Station (32×840MW)

我公司是三峡左岸、右岸、地下电站32台840MW机组的离相封闭母线及中高压附属设备的优质供货商。现左、右岸工程机组均已满负荷成功运行。

三峡水电站单台机组额定电流为26000A。

The World's largest Hydropower Station

Rated Current: 26000A

Rated Voltage: 20kV

阳江核电站是我国第一台采用CRP1000技术的核电站。主回路离相封闭母线采用强迫风冷型式。

额定电流:33000A

额定电压:24kV

The first CPR1000 nuclear power plant in China

Rated Current: 33000A (FAC)

Rated Voltage: 24kV



阳江核电站(4×1100MW)

Yangjiang Nuclear Power Plant (4×1000MW)



华能海门电厂(4×1151MW)

Guangdong Haimen Thermal Power Plant (4×1151MW)

华能海门电厂是我国第一台单机容量超过1000MW的火电机组,也是我国目前单机容量较大的火力发电机组。

该项目的一、二期工程封闭母线的制造任务全部由我公司完成。一期工程两台发电机组已经于2009年成功投运。

海门电厂单台机组额定电流为28000A。

The First over 1000MW Thermal Plant in China.

The Largest Unit General Capacity in China.

Rated Current: 28000A

Rated Voltage: 27kV



湖北清江水布垭电站(4×460MW)
Hubei ShuiBuyaHydropower Station (4×460MW)

湖北清江水布垭电站是我国封闭母线落差最大的水力发电站,母线落差达118米。

水布垭水电站是国家“十五”计划重点建设项目和清江流域开发的骨干工程,我公司生产的长垂直段、长倾斜段封闭母线采用先进的微机辅助和计算系统,对温湿度进行全电脑自动实时监控,得到专家和用户的一致好评。

The Longest Vertical Busbar Hydroin China

The Vertical Busbar is 118m.

Rated Current: 16000A

Rated Voltage: 20kV

华电国际山东邹县电厂是我国第一台1000MW火电机组。

我公司凭借雄厚的实力承包了山东华电邹县电厂2台百万机组的所有封闭母线的供货任务。该母线运行良好,并得到业主的好评,成为此项目封闭母线的优秀供应商。

山东邹县电厂单台机组额定电流为27000A

The First 1000MW Thermal Plant in China

Rated Current: 27000A

Rated Voltage: 27kV



华电国际山东邹县电厂(2×1000MW)
Shandong ZhouxianThermal Power Plant (2×1000MW)

我公司在2007年成功获得 BECHTEL 公司承包的美国德克萨斯州 SANDOW 5 电厂离相封闭母线合同。我公司是国内首次具有产品出口美国市场的封闭母线制造商。

额定电流:19000A

额定电压:27kV

The ONLY ONE IPB SUPPLIER which Exports

USA market in China

Rated Current: 19000A

Rated Voltage: 27kV



美国德克萨斯州 SANDOW 5 电厂(1×615MW)
Bechtel TEXAS SANDOW 5 Power Plant (1×615MW)

主要业绩

Main Supply Record

国内用户业绩表

Chinese Domestic Supply Record

核电机组工程 Nuclear Power Plant Project

广东阳江核电站(4×1100MW)
Guangdong Yangjiang Nuclear Power Plant

浙江三门核电站(2×1250MW)
Zhejiang Sanmeng Nuclear Power Plant

山东海阳核电站(2×1250MW)
Shandong Haiyang Nuclear Power Plant

江苏田湾核电站(2×1150MW)
Jiangsu Tianwan Nuclear Power Plant

水电机组工程 Hydropower Plant Project

长江三峡水电站 26×840MW 机组
Three Gorges Hydropower Plant 26×840MW

青海黄河公伯峡水电站 4×300MW 机组
Qinghai Yellow River Gongboxia Hydropower Plant 4×300MW

三峡地下电站 6X700MW 机组
The three gorges undetground power station 6X700MW

贵州北盘江光照水电站 4×300MW 机组
Guizhou Beipanjiang Guangzhao Hydropower Plant 4×300MW

广西龙滩水电站 7×700MW 机组
Guangxi Longtan Hydropower Plant 7×700MW

山西黄河万家寨电站 2×200MW 机组
Shanxi Yellow River Wanjiashai Hydropower Plant 2×200MW

湖北清江水布垭水电站 4×400MW 机组
Hubei Qingjiang Shuibuya Hydropower Plant 4×400MW

贵州索风营水电站 3×200MW 机组
Guizhou Suofengying Hydropower Plant 3×200MW

云南小湾水电站 6×700MW 机组
Yunnan Xiaowan Hydropower Plant 6×700MW

湖南凤滩水电站 2×200MW 机组
Hunan Fengtan Hydropower Plant 2×200MW

云南澜沧江景洪水电站 5×400MW 机组
Yunnan Lantsang Jinghong Hydropower Plant 5×400MW
Plant Phase-II 300MW

湖南碗米坡水电站 3×135MW 机组
Hunan Wanmipo Hydropower Plant 3×135MW

贵州乌江渡发电厂改造工程 3×300MW 机组
Guizhou Wujiangdu Hydropower Plant Rebuilding Project
3×300MW

广西乐滩水电站 4×135MW 机组
Guangxi Letan Hydropower Plant 4×135MW

贵州乌江渡发电厂扩建工程 2×300MW 机组
Guizhou Wujiangdu Hydropower Plant Enlarging Project 3×300MW

广西平班水电站 3×135MW 机组
Guangxi Pingban Hydropower Plant 3×135MW

贵州天生桥一级水电站 4×300MW 机组
Guizhou Tianshengqiao Hydropower Plant 4×300MW
四川岷山紫坪铺水电站 4×300MW 机组
Sichuan Minshan Zipingpu Hydropower Plant 4×300MW

福建街面水电站 2×150MW 机组
Fujian Jiemian Hydropower Plant 2×150MW

浙江新安江水电站 9×300MW 机组
Zhejiang Xinanjiang Hydropower Plant 9×300MW

福建穆阳溪周宁水电站 2×125MW 机组
Fujian Muyangxi Zhounin Hydropower Plant 2×125MW

新疆吉林台一级水电站 4×135MW 机组
Sinkiang Jielintan Hydropower Plant 4×135MW

贵州引子渡水电站 3×120MW 机组
Guizhou Yinzidu Hydropower Plant 3×120MW

湖北高坝洲水电站 3×100MW 机组
Hubei Gaobazhou Hydropower Plant 3×100MW

湖南江垭水电站 3×100MW 机组
Hunan Jiangya Hydropower Plant 3×100MW

黑龙江尼尔基水电站 4×100MW 机组
Helongjiang Nierji Hydropower Plant 4×100MW

黄河苏只水电站 4×100MW 机组
Yellow Rive Suzhi Hydropower Plant 4×100MW

四川田湾河水电站 6×100MW 机组
Sichuan Tianwanhe Hydropower Plant 6×100MW

黄河小峡水电站 3×60MW 机组
Yellow Rive Xiaoxia Hydropower Plant 3×60MW

广东惠州抽水蓄能电站 8×300MW 机组
Guangdong Huizhou Pumping Storage Power Plant 8×300MW

河南宝泉抽水蓄能电站 4×300MW 机组
Henan Baoquan Pumping Storage Power Plant 8×300MW

火电机组工程 Thermal Power Plant Project

广东海门电厂 4×1000MW 机组
Guangdong Haimen Power Plant 4×1000MW

浙江玉环电厂 4×1000MW 机组
Zhejiang Yuhuan Power Plant 4×1000MW

华电山东邹县电厂 2×1000MW 机组
HuaDian Shandong ZouXian Power Plant 2×1000MW

浙江宁海电厂 2×1000MW 机组
Zhejiang Ninghai Power Plant 2×1000MW

铜陵电厂 2X1000MW 机组
TongLing electric power plant 2X1000MW

广东惠来电厂 2X1000MW 机组
GuangDong HuiLai electric power plant 2X1000MW

华能金陵电厂 2X1000MW 机组
HuaNeng JingLing electric power plant 2X1000MW

华电宁夏灵武发电有限公司二期 2X1000MW 机组
HuaDian NingXia LingWu power plant Co,Ltd phase II 2X1000MW

国电谏壁发电厂 2X1000MW 机组
China Power JianBi power plant 2X1000MW

浙江大唐乌沙山电厂 4×600MW 机组
Zhejiang Datang Wushashan Power Plant 4×600MW

浙江嘉兴电厂 4×600MW 机组
Zhejiang Jiaxing Power Plant 4×600MW

浙江宁海电厂 4×600MW 机组
Zhejiang Ninhai Power Plant 4×600MW

内蒙古大唐托克托电厂 6×600MW 机组
Inner Mongolia Datang tuoketuo Power Plant 6×600MW

内蒙古京隆发电有限公司 2×600MW 机组
Inner Mongolia Jinglong Power Plant 2×600MW

内蒙古元宝山电厂 1×600MW 机组
Inner Mongolia Yuanbaoshan Power Plant 1×600MW

内蒙古通辽电厂 1×600MW 机组
Inner Mongolia Tongliao Power Plant 1×600MW

山西大同二电厂 2×600MW 机组
Shanxi Datong No.2 Power Plant 2×600MW

山西武乡电厂 4×600MW 机组
Shanxi Wuxiang Power Plant 4×600MW

山东费县电厂 2×600MW 机组
Shandong FeiXian Power Plant 2×600MW

河北西柏坡电厂 2×600MW 机组
Hebei Xibaipo Power Plant 2×600MW

河北黄骅电厂 2×600MW 机组
Hebei Huanghua Power Plant 2×600MW

河北大唐王滩发电厂 4×600MW 机组
Hebei DaTang Wangtan Power Plant 4×600MW

大唐吕世港电厂 4×600MW 机组
DaTang Lv Sigang Power Plant 4×600MW

陕西国华锦界发电厂 4×600MW 机组
Shanxi GuoHua Jinjie Power Plant 4×600MW

陕西银河府谷电厂 2×600MW 机组
Shanxi Yinhe Fugu Power Plant 2×600MW

宁夏灵武电厂 2×600MW 机组
Ninxia Lingwu Power Plant 2×600MW

河南新乡宝山电厂 2×600MW 机组
Henan Xinxiang Baoshan Power Plant 2×600MW

河南南阳天益发电有限公司 2×600MW 机组
Henan Nanyang Tianyi Power Plant 2×600MW

河南鹤壁兴鹤电厂 2×600MW 机组
Henan Hebi Xinghe Power Plant 2×600MW

江苏江阴利港电厂 4×600MW 机组
Jiangsu Jiangyin Ligang Power Plant 4×600MW

江苏徐州阚山电厂 2×600MW 机组
Jiangsu Xuzhou Kanshan Power Plant 2×600MW

安徽淮南田集电厂 2×600MW 机组
Anhui Huainan Tianji Power Plant 2×600MW

湖北荆门电厂 2×600MW 机组
Hubei Jingmen Power Plant 2×600MW

江西黄金埠电厂 2×600MW 机组
Jiangxi Huangjinbu Power Plant 2×600MW

贵州发耳电厂 4×600MW 机组
Guizhou Faer Power Plant 4×600MW

湖南鲤鱼江电厂 2×600MW 机组
Hunan Liyujiang River Power Plant 2×600MW

广东湛江奥里油发电厂 2×600MW 机组
Guangdong Zhanjiang Aoliyou Power Plant 2×600MW

广东大唐潮州发电有限责任公司 4×600MW 机组
Guangdong DaTang Chaozhou Power Plant 4×600MW

福建可门电厂 2×600MW 机组
Fujian Kemen Power Plant 2×600MW

福建福州江阴电厂 2×600MW 机组
Fujian Fuzhou Jiangyin Power Plant 2×600MW

四川泸州电厂 2×600MW 机组
Sichuan Luzhou Power Plant 2×600MW

四川金堂电厂 2×600MW 机组
Sichuan Jintang Power Plant 2×600MW

黑龙江双鸭山电厂 2×600MW 机组
Heilongjiang Shuangyashan Power Plant 2×600MW

江苏张家港华兴发电有限公司 2×400MW 机组
Jiangsu Zhangjiagang Huaxing CCGT Project 2×400MW

浙江半山电厂 3×400MW 机组
Zhejiang Banshan CCGT Project 2×400MW

浙江余姚燃气电站 3×400MW 机组
Zhejiang Yuyao CCGT Project 3×400MW

浙江温州电厂 2×300MW 机组
Zhejiang Wenzhou Power Plant 2×300MW

河南郑州燃气电站 2×400MW 机组
Henan Zhengzhou CCGT Project 2×400MW

河南中原燃气电站 2×400MW 机组
Henan Zhongyuan CCGT Project 2×400MW

河南新密电厂 2×300MW 机组

Henan Xinmi Power Plant 2×300MW

河南平东电厂 2×300MW 机组
Henan Pingdong Power Plant 2×300MW

河南大唐洛阳热电厂 2×300MW 机组
Henan Datang Luoyang Thermal Power Plant 2×300MW

河南鹤壁电厂 2×300MW 机组
Henan Hebi Power Plant 2×300MW

河南永城电厂 2×300MW 机组
Henan Yongchen Power Plant 2×300MW

河南伊川电厂 2×300MW 机组
Henan Yichuan Power Plant 2×300MW

河北上安电厂 2×300MW 机组
Hebei Shangan Power Plant 2×300MW

河北秦皇岛热电厂三期工程 2×300MW 机组
Hebei Qinhuangdao Thermal Power Plant Phase III Project 2×300MW

京达发电有限责任公司 2×300MW 机组
Jingda Power Plant 2×300MW

内蒙古达拉特电厂 2×300MW 机组
Inner Mongolia Dalate Power Plant 2×300MW

内蒙古蒙华海勃湾电厂 2×300MW 机组
Inner Mongolia MengDian HuaNeng Haibowan Power Plant 2×300MW

内蒙古乌拉山电厂 2×300MW 机组
Inner Mongolia Wulashan Power Plant 2×300MW

内蒙古临河热电厂 2×300MW 机组
Inner Mongolia Linhe Thermal Power Plant 2×300MW

内蒙古新丰电厂 2×300MW 机组
Inner Mongolia Xinfeng Power Plant 2×300MW

内蒙古准大发电厂 2×300MW 机组
Inner Mongolia Zhunda Power Plant 2×300MW

内蒙古包头第三热电厂 2×300MW 机组
Inner Mongolia Baotou No.3 Thermal Power Plant 2×300MW

甘肃平凉电厂 2×300MW 机组
Gansu Pingliang Power Plant 2×300MW

陕西蒲城电厂 3×300MW 机组
Shanxi Pucheng Power Plant 2×300MW

山西河津电厂 2×300MW 机组
Shanxi Hejin Power Plant 2×300MW

山西永济电厂 2×300MW 机组
Shanxi Yongji Power Plant 2×300MW

山西兴能发电有限责任公司 2×300MW 机组
Shanxi Xingneng Power Plant 2×300MW

山东胜利电厂 2×300MW 机组
Shandong Shengli Power Plant 2×300MW

屏蔽绝缘管型母线业绩表 Shield-insulation Circular Bus Duct Supply Record

鞍钢集团朝阳鞍凌钢铁有限公司分相绝缘铜管母线项目 PJTM-15/2500A
中国瑞林华亨中煦热电装置工程 PJTM-12/3150A
迈号 220 变电站工程 PJTM-12/4000A
文罗 220 变电站工程 PJTM-40.5/2000A
大成 220 变电站等工程绝缘铜管母线 PJTM-40.5/3000
海口长流 220 变电站新建工程绝缘铜管母线 PJTM-12/4000
海口大英山 220 变电站新建工程绝缘管母线 PJTM-12/4000
山东莱钢永锋钢铁有限公司屏蔽绝缘铜管母线 PJTM-12/2500
正菱集团 0.6 全绝缘屏蔽铜管母线设备 0.6、5000A、6000A、9000A
正菱集团 0.6 全绝缘屏蔽铜管母线设备 0.6、5000A、6000A、9000A
新疆独山子绝缘铜管母线 PJTM-12/4000
新疆独山子绝缘铜管母线增补 PJTM-12/4000
新疆独山子天利高新技术股份有限公司 110 枢纽变项目绝缘铜管母线 PJTM-12/4000
徐矿宝鸡 60 万吨/年甲醇工程绝缘铜管母线 PJTM-12/2500、2000
中国石化仪征化纤股份有限公司铜管母线 PJTM-24/1600
东营生活垃圾焚烧发电项目 PJTM-12/1600
110 拉法基瑞安水泥临沧总降工程 PJTM-12/3150A
唐山建龙实业有限公司 65MW 超高压中间再热发电工程 PJTM-12/6000
海化变电站改造项目 PJTM-40.5/2000
安徽莱特实业集团有限公司蚌埠义务国际商贸城 10 绝缘管型母线 PJTM-12/2000
山东莱钢永丰钢铁有限公司汽动鼓风机工程全屏蔽绝缘铜管母线 PJTM-12/5000
泰州东联化工有限公司管型母线项目 PJTM-12/3150
蚌埠保障房 PJTM-12/1600
邹平县码头公共集中供热有限公司 10 全屏蔽管式绝缘铜母线 PJTM-12/5000、PJTM-12/2000
烟台福山高瞳风电场 PJTM-40.5/2000A
金海新源电气江苏有限公司 10 全屏蔽绝缘铜管母线项目(安徽蚌埠大学科技园) PJTM-12/2000
天津协合荆门子陵铺风电 PJTM-40.5/2000
英德龙山水泥有限责任公司全屏蔽绝缘铜管母线 PJTM-12/4000
老挝南杉 3A 水电站 11 全绝缘铝管母线及其附属设备 PJTM-12/1000
海南电网公司 PJTM-12/4000
印尼占碑 PJTM-12/5000
九江石化煤制氢 PJTM-12/2000
越南河静 PJTM-12/2500
中天合创鄂尔多斯煤炭深加工 PJTM-12/3150
晶科能源阿左旗光伏电站 PJTM-40.5/1250
晶科能源横峰光伏电站 PJTM-40.5/1250
晶科能源灵武光伏电站 PJTM-40.5/1250
晶科能源弋阳光伏电站 PJTM-40.5/1250

■ 国外用户业绩表

Overseas Project Supply Record

墨西哥 Laysca 水电站 6×400MW 机组
Mexico Laysca Hydropower Plant 6×400MW

越南 Sonla 水电站 6×400MW 机组
Vietnam Sonla Hydropower Plant 6×400MW

伊朗阿拉克热电厂 4×300MW 机组
Iran Alark Thermal Power Plant 4×300MW

伊朗萨汉德热电厂 4×300MW 机组
Iran Sahand Thermal Power Plant 4×300MW

印度尼西亚中爪哇燃煤电站 2×300MW 机组
Indonesia Mid Java Coal-fired Power Plant 2×300MW

印度督伽坡电厂 1×300MW 机组
India Durgapur Power Plant 1×300MW

印度撒伽迪电厂 2×300MW 机组
India Sargardighi Power Plant 2×300MW

印度 BALCO 燃煤自备电站 4×135MW 机组
India BALCO Coal-fired Power Station 4×135MW

马来西亚古晋电厂 2×55MW 机组
Malaysia Gujing. Power Plant 2×55MW

印尼北苏风港 2×115MW 燃煤电站项目
Indonesian North Labuhan Angin 2×115MW Coal-Fired
Thermal Power Plant EGSA Guaracachi II Santa Cruz

刚果英布鲁水电枢纽
Congo Imboulou Hydraulic Power Plant Project

印度水电站工程
Indian JURALA Hydropower Plant Project

越南波夏河水电站 2×110MW
Vietnam Song Ba Ha 2×110MW Hydropower Plant Project

印度古吉拉特 4×23MW 热电厂 EPC 工程
Indian Gujarat 4×23MW Thermal Power Plant EPC Project

美国伯克德 1×600MW 5#
U.S.A BECHTEL Sandow steam Electric Station Unit 5

伊朗塔瓦兹电厂 4×55MW 机组
Iran Tavazon Power Plant 4×55MW

缅甸邦郎水电站 4×135MW 机组
Burma Banglang Hydropower Plant 4×135MW

越南宣光水电站 3×114MW 机组
Vietnam TUYEN QUANG Hydropower Plant 3×114MW

土耳其 ICDASBIGA 电站
Turkey ICDASBIGA Power Plant

格鲁吉亚卡杜里水电站
Georgia Khadori Hydropower Plant

巴基斯坦马兰水电站
Pakistan Neelum-Jhelum Hydropower Plant

玻利维亚 EGSA Guaracachi II Santa Cruz 工程
Bolivia EGSA Guaracachi II Santa Cruz Project

印度维柯拉姆 2×23MW 热电厂 EPC 工程
Indian Vikram 2×23MW Thermal Power Plant EPC Project

印度朗科 2×300MW 燃煤电厂项目
Lanco Amarkantak Power Private Limited(2×300MW Coal
based Thermal Power Plant)

印尼苏门答腊巴拉旺 MILL 扩建工程
Indonesian Sumatra Perawang Mill Project

越南锦普燃煤火力发电厂封闭母线
Vietnam Cam Pha Coal-Fired Thermal Power Plant

奎那拉工程
KWINANA Project AUSTRALIA

越南电力公司项目邦克水电站 2×200MW
Viet Nam Electronilsand Informaties Joint Stock Corporation

墨西哥巴家项目
CCC baja Mexico



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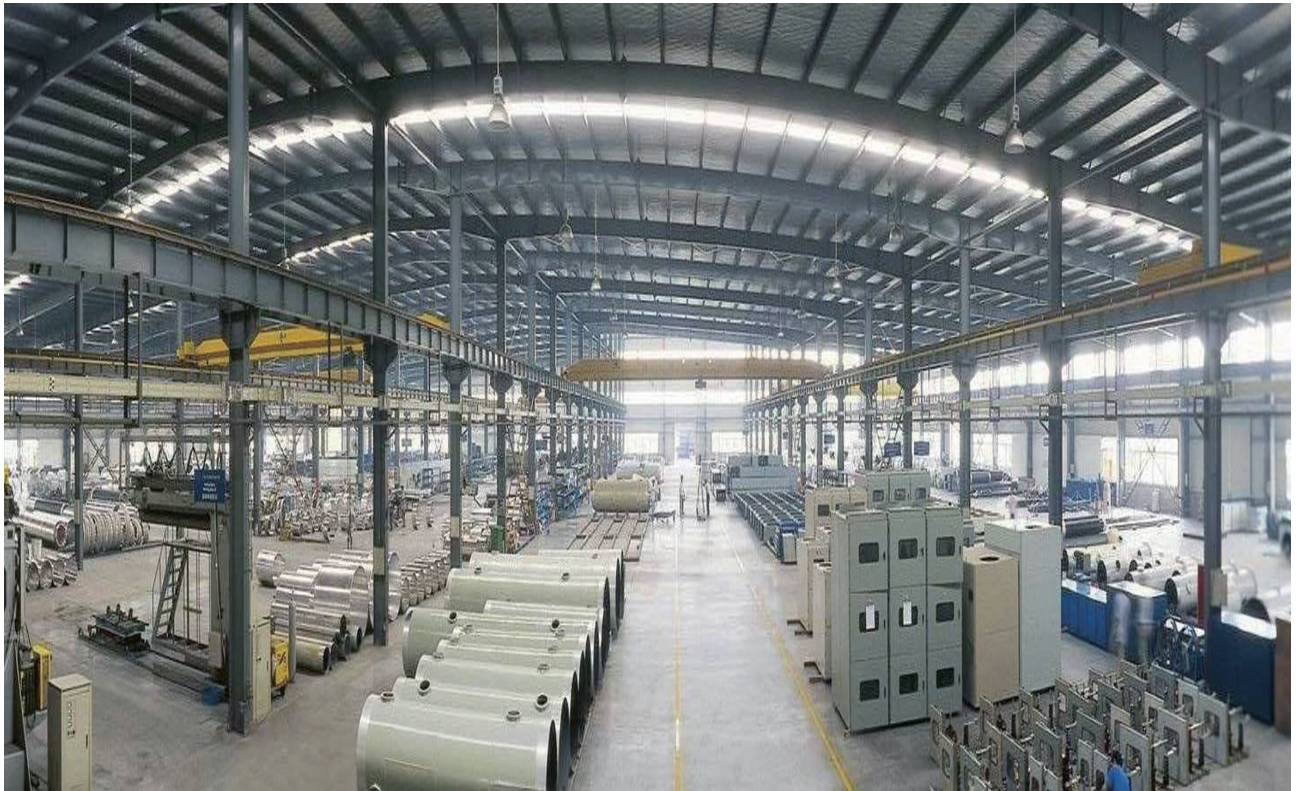




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