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DONGFANG BOILER GROUP CO.,LTD.



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BOILER GROUP CO.,LTD.

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# COMPANY PROFILE

## 企业概况



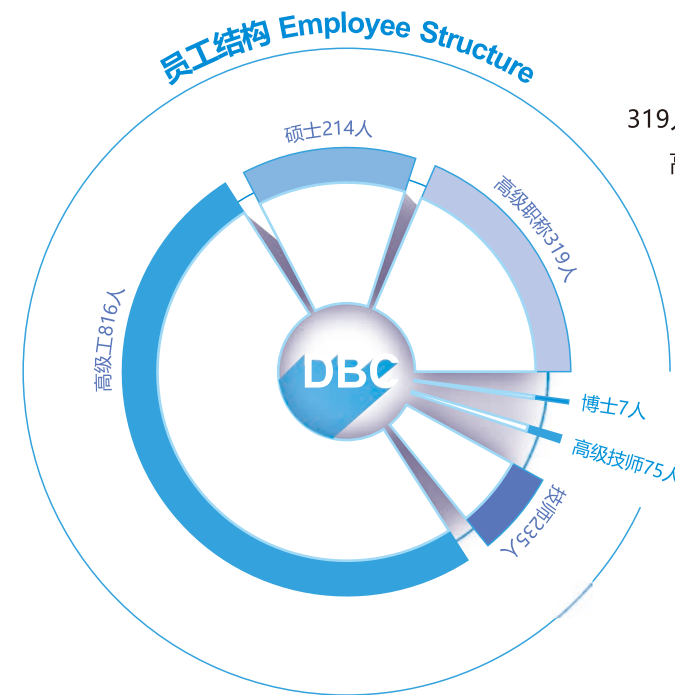
## 公司简介 ABOUT DBC

东方锅炉股份有限公司（简称“东方锅炉”）是中国先进装备制造业的杰出代表，具有火力发电设备、核电站设备、电站辅机、化工容器、环保设备、煤气化设备、太阳能光热等装备的设计、制造、安装、调试、维护能力，为中国东方电气集团有限公司下属核心企业。

东方锅炉建于1966年，经过51年的建设与发展，形成了以四川省自贡市为注册地，辐射成都、德阳、嘉兴、深圳，多地域、多产业的分布格局。东方锅炉秉承“社会、企业、员工和谐统一”的核心价值观，“终身服务，终身先进，全生命周期服务”的服务观和“一次干好”的质量观，致力于为世界能源及环境保护提供先进装备和一流服务。

Dongfang Boiler Group Co., Ltd. (DBC) is an outstanding representative of advanced equipment manufacturing industry in China. DBC is a core subsidiary of Dongfang Electric Corporation, possessing strong design, manufacturing, erecting, debugging and maintenance capabilities of thermal power equipment, nuclear power equipment, power plant auxiliaries, chemical vessels, environmental protection equipment and coal gasification equipment, etc..

DBC was founded in 1966. Through 51 years of effort, DBC has been developed into a multi-region and multi-industry company, with its registered address in Zigong, two branches located in Chengdu and Deyang and two subsidiaries located in Jiaxing and Shenzhen. Adhering to the core value of “Harmony and Unification of Society, Enterprise and Employees”, the service concept of “Lifetime Service, Lifetime Advancement and Product Lifecycle Service” and the quality view of “Success at First Attempt”, DBC is committed to providing the advanced equipment and the first-class service for energy and environmental protection industries in the world.



东方锅炉拥有正高级工程师29人，高级职称（含正高级）319人，博士7人，硕士214人，高级技师75人，技师235人，高级工816人。

东方锅炉拥有享受政府特殊津贴的专家25人，四川省有突出贡献的优秀专家3人，四川省学术和技术带头人2人，四川省学术和技术带头人后备人选14人。

There are 319 employees with senior professional titles, including 29 employees with professor Level senior professional titles, 7 employees with doctor degree, 214 employees with master degree, 75 senior technicians, 235 technicians and 816 senior workers.

There are 25 experts enjoying the government special allowance, 3 outstanding contributors of Sichuan Province, 2 pioneers and 14 pioneer candidates of academy and technology of Sichuan Province.



## 领导关怀 LEADERS' SOLICITUDE

得知华电百万千瓦超超临界燃煤  
机组投产，谨致祝贺。要积累经验，  
继续努力，确保机组安全、稳定运行。

温家宝  
十月四日



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1 2006年12月4日，华电国际邹县电厂1000MW机组通过168小时试运行，国务院总理温家宝发来贺电

2 2011年10月29日，中共中央政治局原常委、中央纪律检查委员会原书记吴官正（左二）来公司视察

3 2012年5月12日，全国政协常委张国宝（右二）来公司视察

4 2011年10月29日，中共四川省委书记、省人大常委会主任刘奇葆（左二）来公司视察

5 2014年8月14日，国务院国资委国有大型企业监事会主席孙来燕（左二）来公司视察

6 2015年11月23日，国家质检总局副局长陈钢（左二）来公司视察

7 2016年1月4日，国家核安全局副局长郭承站（左四）来公司视察

1 1000MW boiler unit for Zouxian Power Plant passed the 168 hours trial operation on Dec. 4, 2006, and Wen Jiabao, premier of the State Council, offered his congratulation.

2 Wu Guanzheng, former member of the Politburo Standing Committee and former secretary of the Central Discipline Inspection Committee, inspected DBC on Oct. 29, 2011.

3 Zhang Guobao, member of the Standing Committee of CPPCC, inspected DBC on May 12, 2012.

4 Liu Qibao, secretary of Sichuan Provincial Committee of CPC and director of the Standing Committee of Sichuan Provincial People's Congress, inspected DBC on Oct. 29, 2011.

5 Sun Laiyan, chairman of the Supervisory Board for Large State-owned Enterprises of State-owned Assets Supervision and Administration Commission of the State Council, inspected DBC on Aug. 14, 2014.

6 Chen Gang, vice minister of General Administration of Quality Supervision, Inspection and Quarantine, inspected DBC on Nov. 23, 2015.

7 Guo Chengzhan, deputy director of National Nuclear Safety Administration, inspected DBC on Jan. 4, 2016.



# EXCELLENT 卓越能力 CAPABILITIES

## DBC

### 经营范围 BUSINESS SCOPE

电站锅炉  
Utility Boilers

辅机产品  
Auxiliary Products

核电产品  
Nuclear Power Products

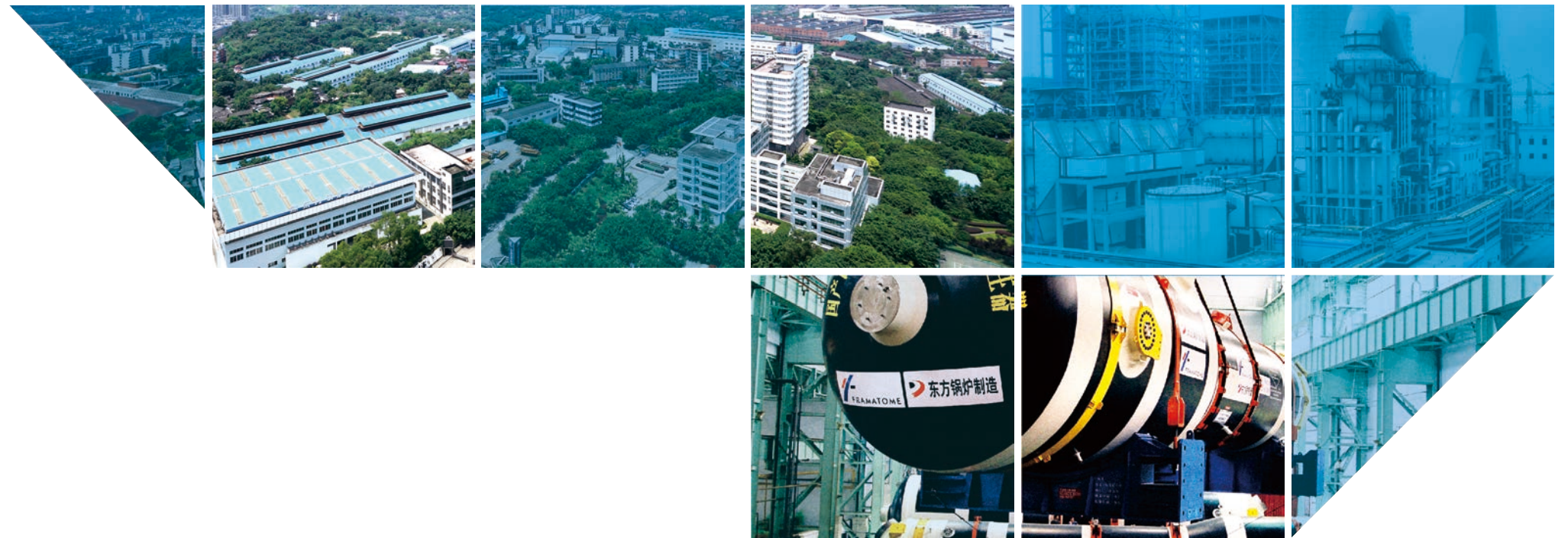
容器产品  
Vessels

环保产品  
Environmental Protection  
Products

煤气化设备  
Coal Gasification Equipment

电站服务  
Services for Power Plant

太阳能光热产品  
Concentrated Solar Power





# 体系保障 ASSURANCE SYSTEMS



东方锅炉建立了完善的质量管理体系。持有国家A级锅炉设计、制造许可证，民用核安全设备制造许可证，A1、A2、A3级压力容器设计、制造许可证，美国机械工程师学会（ASME）颁发的S、U、U2、N、NPT（含MO）、NS授权证书及认证类型代号，环境工程（大气污染防治工程）专项甲级证书，武器装备科研生产许可证，通过了ISO9001质量管理体系认证及武器装备质量管理体系认证。

DBC has set up a perfect quality assurance system, possessing Design and Manufacture License of Boilers Class A, Manufacture License of Civil Nuclear Pressure Retaining Equipment, Pressure Vessels Class A1, A2 and A3, and Certificates of Authorization (S, U, U2, N, NPT(MO) and NS) issued by American Society of Mechanical Engineers (ASME), Class A Certificate in Environmental Engineering(Air Pollution Control Engineering), Weapons and Equipment Research and Production License, and has passed ISO9001 Quality System Accreditation and Weapons and Equipment Quality Management System Accreditation.



EXCELLENT  
CAPABILITIES

Assurance Systems





## 研发能力 RESEARCH & DEVELOPMENT CAPABILITY

作为国家高新技术企业，东方锅炉目前拥有两个机械工业重点实验室和一个四川省重点实验室，拥有先进的硬件条件，建设有3MW PC和CFB燃烧试验台、切圆燃烧试验台与下行燃烧试验台、生物质小型连续性液化试验台、150t/d煤粉密相输送研究平台、煤气化热态研究小试平台、太阳能储热换热试验平台、高温高压材料及焊接试验室、基础研究实验室等，具备燃料清洁燃烧技术研究、烟气净化技术研究、煤气化技术研究、燃料清洁利用机理研究、材料及焊接研究、应力应变分析、炉内燃烧和煤化学反应动力学研究和数值模拟计算等强大的新技术、新产品研发能力。

As a national high-tech enterprise, DBC has set up two state key laboratories of Machinery Industry and one key laboratory of Sichuan Province and possesses such advanced facilities as 3MW PC and CFB combustion test rig, tangential firing test and downward combustion test rig, small continuous biomass liquefaction test rig, 150t/d pulverized coal dense phase conveying research facility, coal gasification hot-state test facility, solar heat storage and transfer test bed, high temperature & high pressure materials and welding laboratory, fuel mechanism utilization research laboratory so as to make certain that DBC possesses strong R&D capabilities of new technology and new product, including doing fuel clean combustion technology research, flue gas purification technology research, coal gasification technology research, clean fuel utilization mechanism research, materials and welding research, stress and strain analysis, coal combustion chemical reaction kinetics research and numerical simulation calculation, etc..



EXCELLENT  
CAPABILITIES

- 1 高新技术企业证书
- 2 清洁燃烧与烟气净化四川省重点实验室
- 3 机械工业高温高压材料与焊接工程实验室
- 4 太阳能热发电熔盐储热换热试验中心
- 5 3MW等级CFB炉+PC炉燃烧热态实验台
- 6 燃料机理利用研究实验室
- 7 切圆燃烧试验台与下行燃烧试验台
- 8 煤气化热态研究小试平台





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1 博士后科研工作站

2 600MW等级CFB锅炉研发荣获多项科技进步奖一等奖

3 电站燃煤锅炉烟气脱硝处理用混合装置荣获四川省专利奖一等奖

4 大型电站锅炉烟气脱硝技术开发及工业应用荣获四川省科技进步奖二等奖

5 自主知识产权的OPCC燃烧器荣获2012年第十四届中国专利优秀奖

1 Postdoctoral Scientific Research Workstation

2 R&D of 600 MW Class CFB Boiler won the first prizes of National Science and Technology Progress Award and Sichuan Provincial Science and Technology Progress Award.

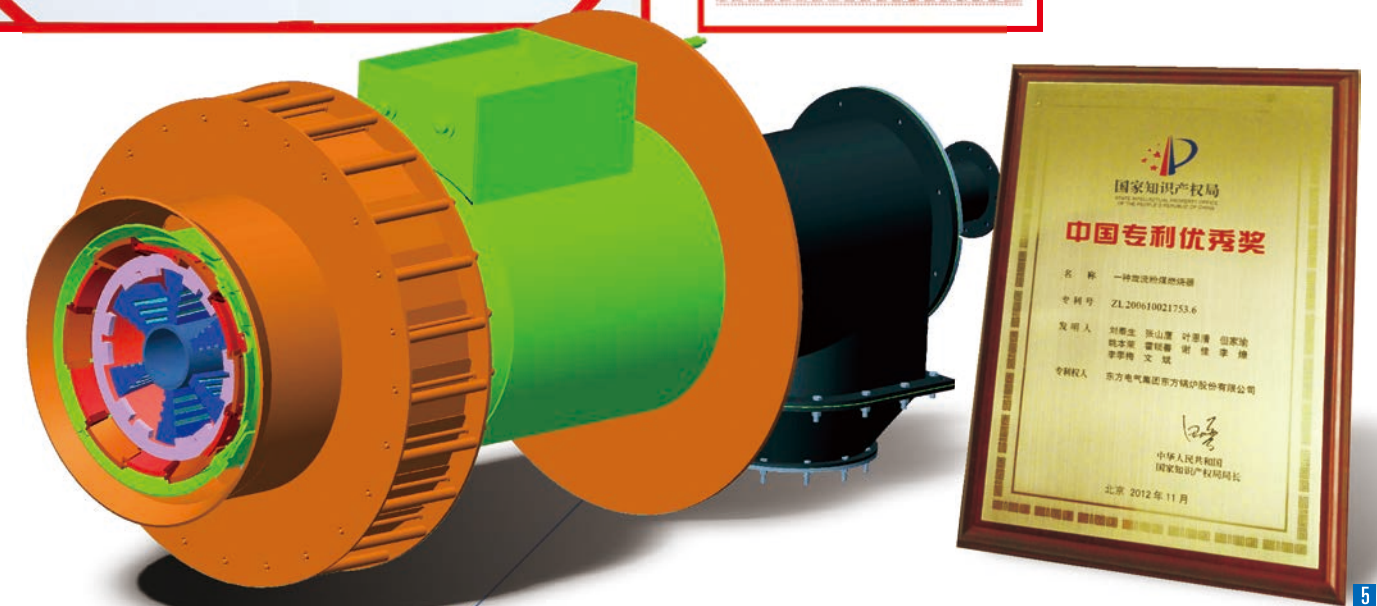
3 Mixing Device for Power Plant Coal-fired Boiler Flue Gas Denitrification won the first prize of Sichuan Provincial Patent Award.

4 Development and Industrial Application of Large Power Station Boiler Flue Gas Denitration Technology won the second prize of Sichuan Provincial Science and Technology Progress Award.

5 OPCC Burner with independent intellectual property rights won the 14th Chinese Patent Excellence Award in 2012.

东方锅炉拥有国内一流的研发团队和管理团队，设立了博士后科研工作站以及锅炉、环保、材料、焊接和自动控制等相关专业研究机构，成立了“低成本捕集二氧化碳的新型燃煤燃烧技术四川省青年科技创新研究团队”和“电站锅炉烟气污染物控制技术研发团队”，后者荣获自贡市首批高层次人才培养“千人计划”优秀创业创新团队。公司多年来经过不断的技术创新，已有近百项填补国内火电、核电、环保、化工容器技术空白的重大新产品、新技术。其中，10余项技术获国家级科技进步奖；98项成果获省、部级科技进步奖。

DBC has the domestic first-class R&D team and management team such as Sichuan Youth Science and Technology Innovation Team for New Type Coal Combustion Technology (Low Cost CO<sub>2</sub> Capture) and Power Plant Boiler Flue Gas Pollutions Control Technology Research and Development Team which was awarded the Excellent Entrepreneurial and Innovation Team of "The Recruitment Program of Global Experts" by Zigong Municipal Government. DBC has established a postdoctoral scientific research workstation and professional scientific research institutions with regard to boiler, environmental protection, materials, welding and automatic control, etc.. Through incessant technological innovation, DBC has possessed more than one hundred new products and technologies, filling in the blanks of domestic thermal power, nuclear power, environmental protection and chemical vessel technologies. Among them, more than 10 technologies won the National Science and Technology Progress Award and 98 achievements won the Science and Technology Progress Award with provincial or ministerial level.



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# 生产能力 PRODUCTIVE CAPABILITY

- 1 4000吨模压水压机
- 2 窄间隙伊莎焊机
- 3 5米立车
- 4 数控气割机
- 5 联箱轻容车间生产现场
- 6 四轴龙门移动式数控平面钻床

- 1 4000 Tons Hydraulic Press
- 2 Narrow Gap ESAB Welding Machine
- 3 5m Lathe
- 4 Numerical Control Gas Cutting Machine
- 5 Production Field of Headers & Light vessels Workshop
- 6 Mobile Four Axis Gantry CNC Plane Drilling Machine



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东方锅炉拥有居国内外先进水平的双丝窄间隙埋弧自动焊机、集箱窄间隙热丝TIG自动焊接装置、热丝TIG管子接长对接焊机、单台20头MPM焊机、单台六头龙门管屏焊机等各类自动焊接设备。拥有数控顶墩弯管机、卧式成排弯管机、冷卷宽度4200毫米、厚度150毫米及热卷厚度250毫米的四辊筒卷板机、4000吨模压水压机、2000吨油压机、42×8.6×8.7米大型分段式热处理炉、100吨重型焊接变位器、5米立车、数控三轴深孔钻、数控龙门移动钻床、数控镗铣床、数控平面磨床、立式加工中心、封口焊清洁室、9MeV直线加速器、工业电视实时探伤系统、焊接变形实时监控系统等设备，用于电站锅炉与辅机、化工容器、核岛主设备、气化炉等制造与检验。

DBC has possessed advanced double wire narrow gap submerged arc automatic welding machine, narrow gap hot wire TIG automatic header welding machine, hot wire TIG tube butt welding machine, 20-torch MPM welding machine and 6-torch gantry tube panel welding machine, etc.. DBC is also equipped with CNC booster bending machine, horizontal tube panel bending machine, four-roller plate bender with 4200mm cold bending width, 150mm cold bending thickness and 250mm hot bending thickness, 4000t hydraulic press, 2000t oil press, 42×8.6×8.7m sectional type heat treatment furnace, 100t heavy welding positioner, 5m vertical lathe, three-spindle CNC deep hole drilling machine, CNC gantry drilling machine, CNC boring and milling machine, CNC surface grinder, vertical machining centre, seal welding cleaning room, 9MeV linear accelerator, real-time flaw detection system and real-time welding distortion monitoring system for the fabrication and inspection of power plant boilers and auxiliary equipment, petrochemical vessels, nuclear island main equipment and gasifiers, etc..

## EXCELLENT CAPABILITIES





## ZIGONG MANUFACTURING BASE 自贡制造基地

自贡制造基地经过51年的建设，已形成48万平方米的占地面积，拥有4000吨水压机、2000吨油压机、φ200主轴的数控镗铣床、窄间隙热丝TIG焊机、伊莎焊机、32×5×5m分段式台式全电脑控制热处理炉、双R顶墩弯管自动线等国内领先、国际先进的生产设备，达到年产锅炉集箱28000吨、蛇形管高温受热面35000吨，并批量生产重型化工容器、塔器、各类高压、超高压容器、高压釜、军工产品、核电站核岛产品的能力的大型高效清洁设备制造基地。

Through 51 years of development, Zigong manufacturing base has had a building area of 480,000m<sup>2</sup>, which is equipped with advanced facilities such as 4000t hydraulic press, 2000t oil press, Φ200 spindle CNC boring-milling machine, narrow gap hot wire TIG welding machine, ESAB welding machine, 32×5×5m segmented desk type computer-controlled heat treatment furnace and double R booster tube bending automatic line, etc.. Its annual production capacity has reached 28000 tons of boiler headers and 35000 tons of high temperature heating surface coils. It is also capable of manufacturing heavy petrochemical vessels, towers, various high pressure and super high pressure vessels, high pressure autoclaves, military products and nuclear island equipment for nuclear power station in batches.

1 核电常规岛集箱部件

2 重容车间生产现场

3 蛇形管管屏涂装生产线

1 Nuclear Power Conventional Island Header

2 Production Field of Heavy Vessels Workshop

3 Painting Line of Coil Tube Panel

## EXCELLENT CAPABILITIES



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## DEYANG MANUFACTURING BASE 德阳制造基地

德阳制造基地自1996年10月建设以来，已形成36万平方米的占地面积，拥有三轴数控深孔钻床、大型液压四辊卷板机、等离子数控切割机、单台20头MPM组焊生产线、水冷壁自动生产线、350吨吊车、100吨变位机、8×6米带数字化智能控制自动跟踪的伊莎窄间隙焊操作机、41米热处理炉、9兆加速器探伤室等国内领先、国际先进的生产设备，并批量生产各型燃烧器、汽轮机辅机、锅炉辅机、核电核岛设备、核电常规岛设备、大型气化炉及内件、化工容器、锅炉膜式水冷壁产品的大型高效清洁设备制造基地。

Deyang manufacturing base, whose construction was initiated in October 1996, which has a building area of 360,000m<sup>2</sup> and is equipped with advanced facilities such as three-spindle CNC deep hole drilling machine, large hydraulic four-roller plate bender, CNC plasma cutter, 20-torch MPM production line, waterwall automatic production line, 350t hoist, 100t positioner, 8×6m automatic tracking ESAB narrow gap welding machine with digital and intelligent control, 41m heat treatment furnace and 9 mega accelerator, etc.. It is capable of manufacturing boiler membrane waterwalls, various burners, steam turbine auxiliaries, boiler auxiliaries, nuclear power conventional island equipment and nuclear island equipment, large gasification equipment and chemical vessels in batches.

EXCELLENT  
CAPABILITIES

- 1 德阳联六厂房
  - 2 8×6米带数字化智能控制自动跟踪的伊莎窄间隙焊操作机
  - 3 100吨变位机
- 1 Deyang No.6 Workshop
  - 2 8×6m Automatic Tracking ESAB Narrow Gap Welding Machine with Digital and Intelligent Control
  - 3 100t Positioner





# DIVERSIFIED PRODUCTS

## 多元产品



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## 电站锅炉 BOILER PRODUCTS

东方锅炉拥有中压、高压、超高压、亚临界、超临界、超超临界等压力，适合多燃料、多种燃烧方式的系列锅炉产品。研制的300~1300MW等级超临界、超超临界锅炉、高效超超临界、超临界二次再热锅炉；660MW等级及以下亚临界自然循环锅炉；300~660MW等级亚临界和超临界循环流化床锅炉；50~250MW各种容量参数的循环流化床锅炉；300~660MW等级亚临界和超临界“W”型火焰锅炉；6E、9E、9F、9H等级余热锅炉等产品。截至2016年12月底，累计制造完成电站锅炉容量超过3.26亿千瓦。

DBC has possessed serial products of medium-pressure, high-pressure, superhigh-pressure, subcritical, supercritical and ultra-supercritical boilers, which are suitable for different kinds of coal and various combustion modes. DBC's main products include 300~1300MW class supercritical boilers, ultra-supercritical boilers, highly-efficient ultra-supercritical boilers and supercritical double-reheat boilers, 660MW class and below subcritical natural circulation boilers, 300~660MW class subcritical and supercritical CFB boilers, 50~250MW class CFB boilers, 300~660MW class subcritical and supercritical double arch furnace boilers, 6E, 9E, 9F and 9H class HRSGs. Up to the end of December, 2016, DBC's accumulated output of utility boilers had reached over 326 million kilowatts.



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- 1 委内瑞拉燃油燃气1×600MW锅炉
  - 2 发明专利“一种旋流粉煤燃烧器”
  - 3 “超临界600MW火电机组成套设备研制与工程应用”获得2008年度国家科技进步一等奖
  - 4 集箱部件
  - 5 低NOx旋流燃烧器
  - 6 公司清洁高效1000MW等级630℃二次再热锅炉主机技术方案通过国家级评审
- 1 600MW Oil-fired or Gas-fired Boiler for Venezuela
  - 2 Patented Swirl Pulverized Coal Burner
  - 3 The project “R&D and Application of Complete Set Equipment of 600MW Supercritical Thermal Power Unit” won the first prize of National Science and Technology Progress Award in 2008.
  - 4 Component of Header
  - 5 Low NOx Swirl Burner
  - 6 The R&D Scheme of 1000MW Clean and Efficient 630℃ Second Reheat Boiler have passed the National Appraisal.





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## 亚临界、超临界、超超临界机组锅炉

### Subcritical, Supercritical and Ultra supercritical boilers

东方锅炉设计制造的各等级亚临界常规煤粉锅炉、亚临界“W”型火焰锅炉、超临界“W”型火焰锅炉、超临界及超超临界锅炉等产品融汇了东方锅炉在电站锅炉领域几十年的设计、制造、安装以及运行经验。

根据燃料特性、燃烧组织方式及再热器汽温调节方式等特点，主要炉型有：300MW等级四角切圆煤粉锅炉、300~660MW等级“W”火焰锅炉、350~1300MW等级对冲燃烧煤粉锅炉、50~660MW等级对冲燃烧油气锅炉等。

Relying on its own decades of rich experience in the design, manufacture, installation and operation of large boilers, DBC can provide clients with various classes of subcritical conventional pulverized coal boilers, subcritical and supercritical double arch furnace boilers and supercritical and ultra-supercritical boilers having advanced technologies and excellent performances.

In accordance with fuel characteristics, combustion mode and reheat steam temperature control mode, DBC has such basic types as 300MW class tangentially-fired pulverized coal boilers, 300~660MW class double arch furnace boilers, 350~1300MW class opposed wall-fired pulverized coal boilers and 50~660MW class opposed wall-fired oil/gas boilers.



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## DIVERSIFIED PRODUCTS

- 1 华能沁北电厂4×600MW超临界机组锅炉和2×1000MW超超临界机组锅炉
- 2 华电国际邹县电厂2×1000MW超超临界机组锅炉
- 3 国电宁波北仑港电厂2×1000MW超超临界机组锅炉
- 4 华电珙县电厂2×600MW超临界机组“W”型火焰锅炉
- 5 华能海门电厂4×1000MW超超临界机组锅炉及脱硝工程
- 6 神华神皖安庆电厂2×1000MW高效超超临界机组锅炉
- 7 神华神东电力重庆万州电厂2×1050MW高效超超临界锅炉

- 1 4×600MW Supercritical Boilers and 2×1000MW Ultra Supercritical Boilers for Huaneng Qinbei Power Plant
- 2 Huadian International Zouxian Power Plant 2×1000MW Ultra Supercritical Boilers
- 3 Guodian Ningbo Beilungang Power Plant 2×1000MW Ultra Supercritical Boilers
- 4 Huadian Gongxian Power Plant 2×600MW Supercritical Double Arch Furnace Boilers
- 5 Huaneng Haimen Power Plant 4×1000MW Ultra Supercritical Boilers and DeNOx Equipment
- 6 Shenwan Anqing Power Plant 2×1000MW Highly-efficient Ultra Supercritical Boilers
- 7 Shenhua Shendong Power Chongqing Wanzhou 2×1050MW Highly-efficient Ultra Supercritical Boilers



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## 50MW ~ 660MW 循环流化床锅炉 50MW ~ 660MW CFB Boilers

东方锅炉自上世纪70年代初开始研究流态化燃烧技术至今，已经形成了中压、次高压、高压、超高压带中间再热、亚临界带中间再热及超临界带中间再热等系列循环流化床锅炉产品，具有提供50~660MW循环流化床锅炉和非标产品的技术和制造实力，取得了良好的业绩，受到广大用户的欢迎。研制的世界首台最大容量超临界循环流化床锅炉（四川白马示范电站600MW机组锅炉）得到客户广泛好评。

DBC has been engaged in researches of fluidized combustion technology since 1970s and has developed a series of medium pressure, sub-high pressure and high pressure CFB boilers as well as super high pressure, subcritical pressure and supercritical pressure CFB boilers with medium reheat. DBC can provide clients with 50~660MW CFB boilers and customized CFB boilers with special parameters, and DBC has reached good marketing achievements and earned a high reputation. The world's first maximum capacity supercritical CFB boiler developed and manufactured by DBC for Sichuan Baima CFB Demonstration Power Plant has won widespread praise.



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## DIVERSIFIED PRODUCTS

- 1 获得土耳其专利局专利授权
- 2 土耳其BIGA电厂2×135MW循环流化床锅炉
- 3 “600MW超临界循环流化床锅炉研制”项目荣获中国机械工业科学技术一等奖
- 4 “600MW循环流化床锅炉”荣获“中国能源装备十大卓越性能产品”奖
- 5 设计的罗马尼亚600MW超临界CFB褐煤锅炉方案通过国家级评审
- 6 600MW超临界循环流化床锅炉技术开发、研制与工程示范科技成果通过国家级鉴定
- 7 山西国金电厂2×350MW超临界循环流化床锅炉
- 8 四川白马电厂1×600MW超临界循环流化床锅炉

- 1 Patent Granted by Turkey Patent Office
- 2 Turkey BIGA Power Plant 2×135MW CFB Boilers
- 3 The project “R&D of 600MW Supercritical CFB Boilers” won the first prize of China Machinery Industry Science and Technology Award.
- 4 The project “600MW CFB Boilers” won the Award of National Energy Equipment Top Ten Excellent Products.
- 5 The Design Scheme of Romania 600MW Supercritical CFB Boiler has Passed the National Appraisal.
- 6 The Scientific and Technological Achievements of Technological Research, Development and Project Demonstration of 600MW Supercritical CFB Boiler have passed the National Appraisal.
- 7 Shanxi Guojin Power Plant 2×350MW Supercritical CFB Boiler
- 8 Sichuan Baima Power Plant 600MW Supercritical CFB Boiler



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## 燃气蒸汽联合循环余热锅炉等特种锅炉

### Special Boilers including Gas-Steam Combined Cycle HRSG

东方菱日锅炉有限公司(MHDB), 原名东方日立锅炉有限公司(BHDB), 是由东方锅炉(DBC, 50%股份)、三菱日立电力系统株式会社(MHPS, 45%股份)和日本国伊藤忠商事会社(ITC, 5%股份)三方共同投资的一个以经营、设计、制造锅炉和环保设备的中外合资企业。

东方菱日锅炉有限公司(MHDB)拥有MHPS燃气轮机联合循环余热锅炉(HRSG)及锅炉岛的设计、制造、检查、安装、调试等全套技术, 并致力于开拓联合循环余热锅炉市场。公司设计、制造的余热锅炉(HRSG)具备配套 $\geq 25\text{MW}$ (ISO工况)的各类燃机(GT)的能力, 包括9F、9H等级燃机。公司产品销售地域范围包含中国及亚洲40多个国家和地区。截止2016年12月底, 东方菱日锅炉获得了66台套余热锅炉项目, 处于国内领先水平。

MHPS Dongfang Boiler Co., Ltd. (MHDB), formerly known as Babcock-Hitachi Dongfang Boiler Co., Ltd. (BHDB), is a sino-foreign joint venture invested by DBC (holding 50% of the shares), Mitsubishi Hitachi Power Systems, Ltd. (MHPS; holding 45% of the shares) and Itochu Corporation (holding 5% of the shares). MHDB is specialized in marketing, designing and manufacturing of boilers and environmental protection equipment.

MHDB has the design, manufacture, inspection, installation and debugging technologies of MHPS gas turbine combined cycle HRSGs and boiler islands, and is committed to exploiting the market of combined cycle HRSGs. MHDB can design and manufacture HRSGs whose matching gas turbines (including 9F/9H class GT) have the capacity range of  $\geq 25\text{MW}$  (ISO Condition). The sales region covers China and 40 other countries and regions in Asia. By the end of December, 2016, MHDB has contracted 66 sets of HRSG projects, which is in the domestic leading level.



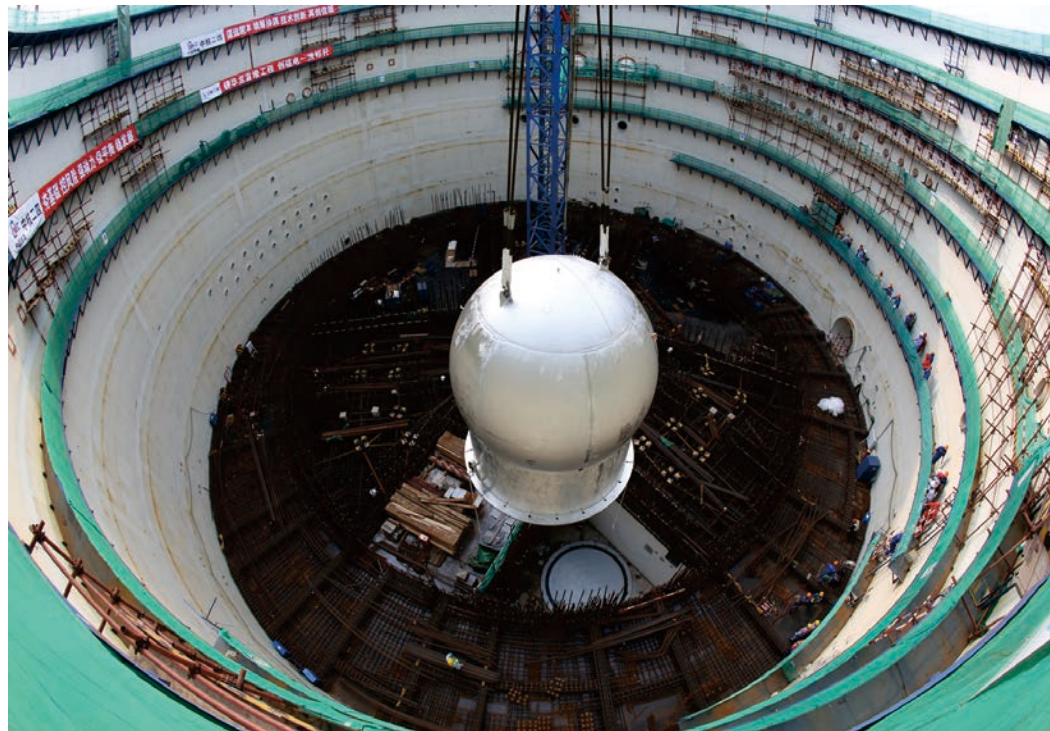
- 1 白俄罗斯明斯克能源公司1×9F等级联合循环机组
- 2 中山嘉明电力有限公司2×9F等级联合循环机组
- 3 北京京丰燃气发电有限公司1×9F等级联合循环机组
- 4 深圳福华德电厂1×9E等级联合循环机组
- 5 余热锅炉模块焊接

- 1 9F Class Gas-Steam Combined Cycle Power Generation for Belarus Minsk Energy Company
- 2 2×9F Class Gas-Steam Combined Cycle Power Generation Unit for Guangdong Zhongshan Jiaming Electricity Limited Company Hengmen Power Plant
- 3 9F Class Gas-Steam Combined Cycle Power Generation Unit for Beijing Jingfeng Gas Power Generation Limited Company
- 4 9E Class Gas-Steam Combined Cycle Power Generation Unit for Shenzhen Fuhuade Power Plant
- 5 Welding of HRSG Module

DIVERSIFIED  
PRODUCTS



## 核电产品 NUCLEAR POWER PRODUCTS



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东方锅炉于上世纪70年代末制造了高通量试验反应堆压力壳和主热交换器，上世纪90年代中期，与法国法马通公司合作承接了广东岭澳核电站一期工程核岛主设备的分包制造任务，投资新建了起重能力达350吨的重型容器装配车间和德阳核电容器车间，引进了先进的ESAB窄间隙焊接工作站（配带极堆焊头、100吨变位器）、亚洲最大的四辊卷板机等先进设备。通过岭澳一、二期1000MW压水堆核电站核岛主设备及浙江三门、山东海阳等第3代核电AP1000自主化项目中核电设备的自主制造，东方锅炉的技术和设备已具备批量制造1000MW压水堆稳压器、安注箱、硼注射器、重型支撑、蒸发器内件等核岛主设备的能力，同时具备了制造核岛及BOP容器及换热器、常规岛容器及换热器、常规岛主蒸汽管道和取样探头等设备的能力。

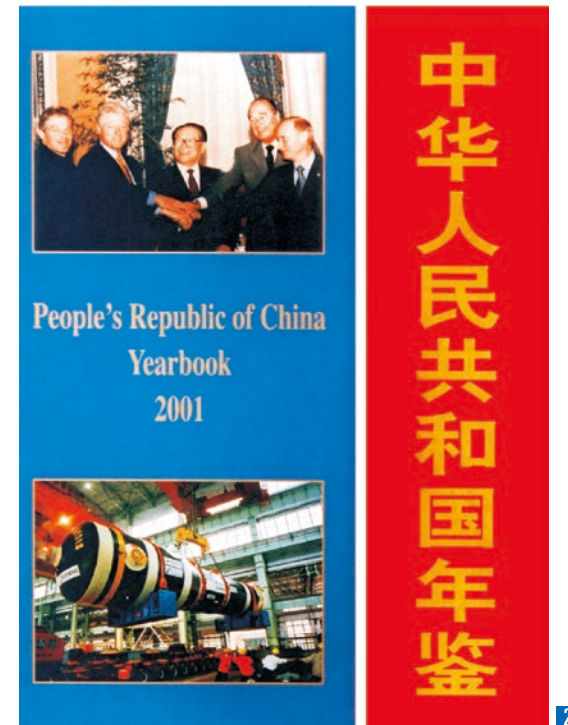
DBC manufactured high flux test reactor pressure vessel and main heat exchanger at the end of 1970s. In the middle of 1990s, DBC cooperated in subcontracting part of nuclear island main equipment for Guangdong Ling'ao Nuclear Power Station Phase I with Framatome Company in France. DBC has set up a new heavy pressure vessel assembly shop with 350t lifting capacity and Deyang Nuclear Power Pressure Vessel Branch and introduced such advanced production facilities as ESAB narrow gap welding machine (equipped with strip surfacing welding head and 100t positioner) and four-roll plate bending machine from abroad. Especially, through independent fabrication of nuclear island main equipment for Ling'ao 1000MW PWR Nuclear Power Station Phase I & II and independent fabrication of nuclear power equipment for Zhejiang Sanmen Nuclear Power Station and Shandong Haiyang Nuclear Power Station (localization projects of the third generation nuclear power technology AP1000), now DBC has possessed the batch fabrication capability of nuclear island main equipment such as pressurizer, accumulator, boron injection tank, heavy supports and steam generator internals, etc.. DBC is also capable of manufacturing such equipment as nuclear island/BOP vessel and heat exchanger, conventional island vessel and heat exchanger, conventional island main steam piping and sampling probe, etc..

## DIVERSIFIED PRODUCTS



- 1 “华龙一号”福清项目安注箱
- 2 岭澳一期1000MW核电站蒸汽发生器  
(2001年中华人民共和国年鉴)
- 3 1000MW汽水分离再热器
- 4 首台自主制造岭澳二期1000MW稳压器

- 1 Accumulator of Hualong One Unit for Fuqing Nuclear Power Plant
- 2 1000MW Nuclear Power Station Steam Generator  
(The Cover of People's Republic of China Yearbook 2001)
- 3 1000MW Steam/water Separator Reheater
- 4 First 1000MW Pressurizer Independently Manufactured by DBC for Ling'ao Nuclear Power Station Phase II



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# 环保产品 ENVIRONMENTAL PROTECTION PRODUCTS



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东方锅炉在为我国电力行业提供能源设备的同时,积极推进电站锅炉的烟气净化与烟气治理。如今,已全面掌握了选择性催化还原 (SCR) 烟气脱硝,非催化还原 (SNCR) 脱硝、石灰石-石膏湿法烟气脱硫 (FGD)、半干法脱硫、海水烟气脱硫、湿法电除尘等技术,具备100~1000MW电站锅炉烟气脱硫、脱硝、除尘设备成套供应能力,工程总承包能力和电站环保改造能力,已累计签订合同190余套。东方锅炉为了更好地服务于用户,实现脱硝蜂窝式催化剂的国产化,建成了国内首家脱硝催化剂供应商东方凯特瑞,已为国内外多个项目提供了蜂窝式脱硝催化剂产品,年产电站烟气脱硝专用催化剂超15000立方米,产能位居国内前茅。目前东方锅炉已形成电站烟气脱硫、脱硝、除尘、余热利用等一体化解决方案。

DBC not only provides energy equipment for the power industry, but also actively boosts the flue gas cleaning and treatment activities for utility boilers. At present, DBC has fully mastered SCR flue gas DeNO<sub>x</sub>, SNCR flue gas DeNO<sub>x</sub>, wet limestone gypsum flue gas desulfurization (FGD), semi-dry desulfurization, seawater FGD and wet electric dedusting technologies. DBC is able to supply DeSO<sub>2</sub>/DeNO<sub>x</sub> and dedusting facilities for 100~1000MW class utility boilers and has general contracting capability for DeSO<sub>2</sub>, DeNO<sub>x</sub> and environmental protection projects. DBC has contracted more than 190 sets of environmental protection facilities. In order to serve the customers better and realize the domestication of denitrification honeycomb catalysts, DBC set up the first domestic denitrification catalyst supplier Dongfang KWH Environmental Protection Catalysts Co., Ltd. (DKC). DKC has supplied honeycomb denitrification catalysts for multiple projects at home and abroad. Its annual production capacity of catalysts has reached 15,000 cubic meters, which ranks highest in the domestic market. Now DBC has formed integral solutions for power plant flue gas desulfurization, denitrification, dedusting and waste-heat utilization, etc.



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- 1 公司《大型电站机组海水烟气脱硫设备》被列入2014年度国家重点新产品计划并荣获证书
- 2 “电站燃煤锅炉烟气脱硝处理用混合装置”获2014年中国专利优秀奖
- 3 环保产品技术鉴定会
- 4 河北恒兴4<sup>#</sup>机组湿式电除尘
- 5 “电站环保一体化解决方案”荣获第四届中国能源装备十大年度创新产品称号
- 6 平顶山电厂2×1000MW机组脱硝 (SCR)
- 7 嵩屿电厂4×300MW机组海水脱硫
- 8 孟津电厂2×600MW机组脱硝 (SCR)
- 9 徐塘电厂2×300MW机组石灰石膏湿法烟气脱硫

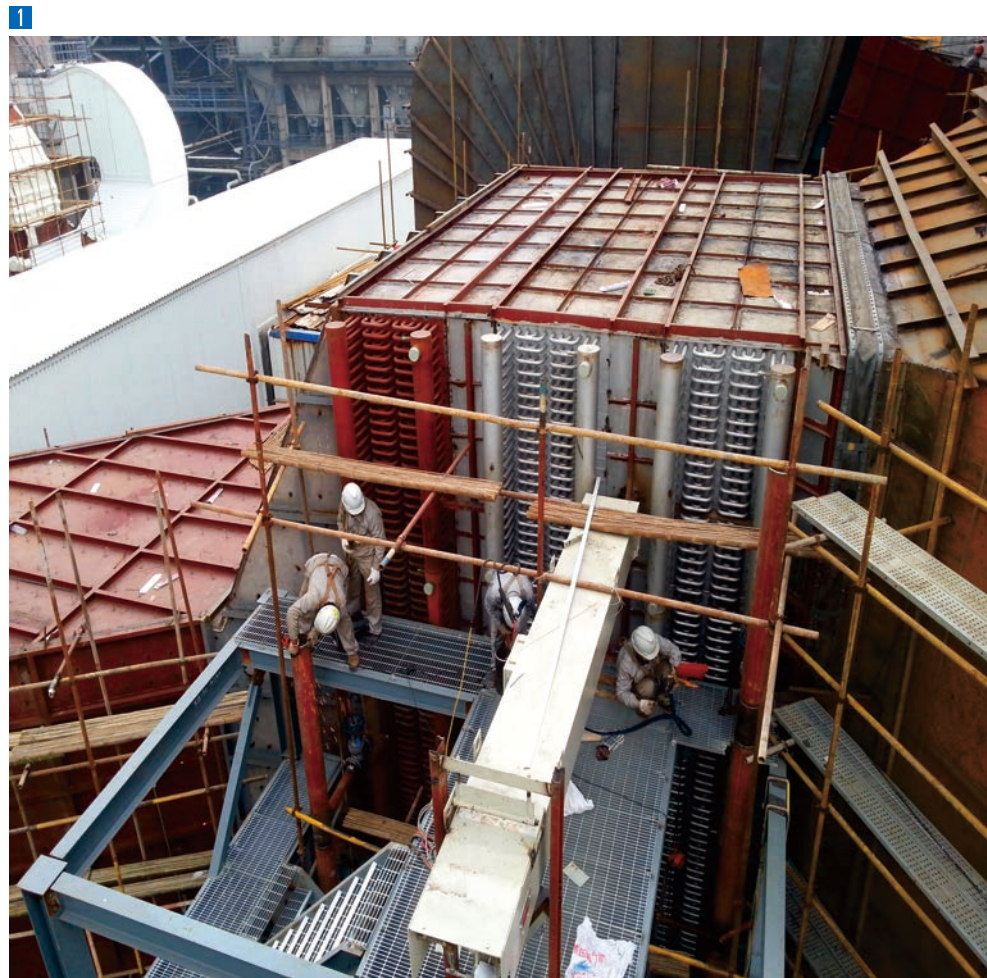
- 1 Large-scale Power Plant Unit Seawater Flue Gas Desulfurization Equipment developed by DBC was listed in 2014 National Key New Product Program.
- 2 “Mixing Device for Power Plant Coal-fired Boiler Flue Gas denitrification Process” won the China Patent Excellence Award in 2014.
- 3 Environmental Protection Product Technology Appraisal Meeting
- 4 Hebei Hengxing 4<sup>#</sup> unit WESP
- 5 The solution for Plant Environmental Integration won the fourth China's Ten Annual Energy Equipment Innovation Products.
- 6 SCR DeNO<sub>x</sub> Facility for Pingdingshan Power Plant 2×1000MW Power Generation Unit
- 7 Seawater DeSO<sub>2</sub> Facility for Songyu Power Plant 4×300MW Power Generation Unit
- 8 SCR DeNO<sub>x</sub> Facility for Mengjin Power Plant 2×600MW Power Generation Unit
- 9 Wet Limestone Gypsum FGD Facility for Xutang Power Plant 2×300MW Power Generation Unit



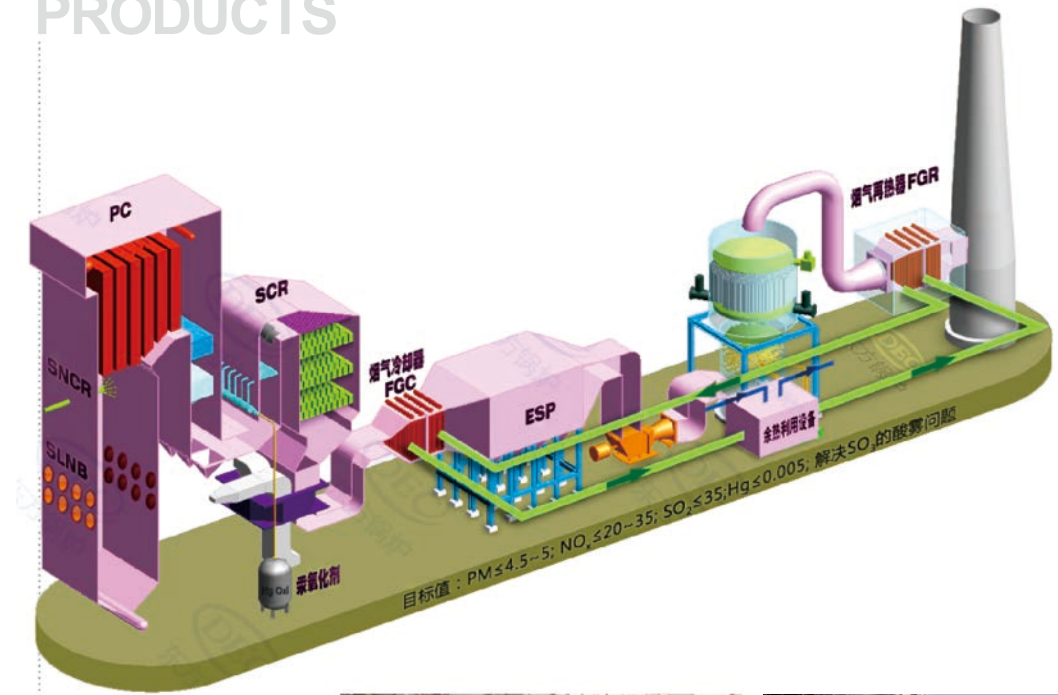
## 电站服务 POWER PLANT SERVICES

东方锅炉拥有领先的高效低NO<sub>x</sub>燃烧、非催化还原和选择性催化还原技术与产品，可确保实现氮氧化物达标；拥有烟气余热利用、热媒水式烟气-烟气换热器、湿式静电除尘器等具有业内领先的技术，可为燃煤电厂提供和实施全面的节能减排、性能提升的综合解决方案。

DBC has advanced low NO<sub>x</sub> combustion, SNCR denitrification and SCR denitrification technologies and products, ensuring that the power plants' emission of nitrogen oxides meets the standard. And DBC also has advanced flue gas waste-heat utilization, MGGH and WESP technologies, enabling itself to provide and implement comprehensive solutions for super-low emission and performance improvement of coal-fired power plants.



## DIVERSIFIED PRODUCTS



- 1 MGGH烟气再热器安装
- 2 电站服务范围示意图
- 3 低NO<sub>x</sub>燃烧器改造施工
- 4 江苏常熟电厂SCR脱硝改造项目

- 1 Installation of MGGH Gas Reheater
- 2 Diagram of Power Plant Service Scope
- 3 Modification Construction for Low NO<sub>x</sub> Burner
- 4 Jiangsu Changshu Power Plant SCR DeNO<sub>x</sub> Retrofit Project





## 辅机产品 POWER PLANT AUXILIARIES

东方锅炉拥有专业的辅机制造基地，装备了大型卷板机、三轴数控深孔钻床、管孔自动密封焊机、液压胀管机、氦检漏仪等专业设备，具备50~1200MW机组高加、低加和除氧器研发及制造能力，为国内外众多火电和核电站提供了辅机产品。

DBC has a special base for manufacturing auxiliary equipment for power plants, which is equipped with large plate bending machine, triaxial numeral control drilling machine, automatic seal welding machine, hydraulic tube expanding machine and helium leakage detector, etc.. This base is capable of developing and producing HP and LP heaters and deaerators for 50~1200MW power units and has provided auxiliary equipment for many thermal power plants and nuclear power plants at home and abroad.



## DIVERSIFIED PRODUCTS

- 1 1000MW单列高压加热器
- 2 1000MW双列高压加热器
- 3 1000MW超超临界机组高压加热器
- 4 出口沙特660MW亚临界机组锅炉除氧器
- 5 1000MW核电高压加热器

- 1 1000MW Single-row HP Heater
- 2 1000MW Double-row HP Heater
- 3 1000MW Ultra Supercritical HP Heater
- 4 660MW Subcritical Boiler Deaerator Exported to Saudi Arabia
- 5 1000MW Nuclear Power HP Heater



## 容器产品 VESSEL PRODUCTS

东方锅炉具有重型容器、轻型容器、特种容器设计、制造能力，装备有大型卷板机、4MeV直线加速器、三轴数控深孔钻床、ESAB双丝窄间隙焊机、带极堆焊机、4000吨水压机及350吨吊车等先进的生产设备。公司为石油化工、核能、机械、航天等部门生产了各种高、中、低压容器、真空容器和换热器、蓄势器。

DBC has design and manufacturing capabilities of heavy pressure vessels, light pressure vessels and special pressure vessels, which is equipped with such advanced production facilities as large plate bending machine, 4MeV linear accelerator, three-spindle CNC deep hole drilling machine, ESAB double wire narrow gap welder, strip surfacing welding machine, 4000t hydraulic press and 350t crane. DBC has manufactured a variety of HP, MP and LP vessels, vacuum vessels, heat exchangers and accumulators for petrochemical industry, nuclear power industry, machinery industry and space industry.



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1 普光气田大型加氢反应器出口冷却器

2 高压气瓶

3 合成氨塔

4 高压储气罐

5 石化容器

1 Outlet Cooler for Puguang Gas Field Large-scale Hydrogenation Reactor

2 HP Gas Cylinder

3 Ammonia Converter

4 HP Gas Storage Tank

5 Petrochemical Vessel

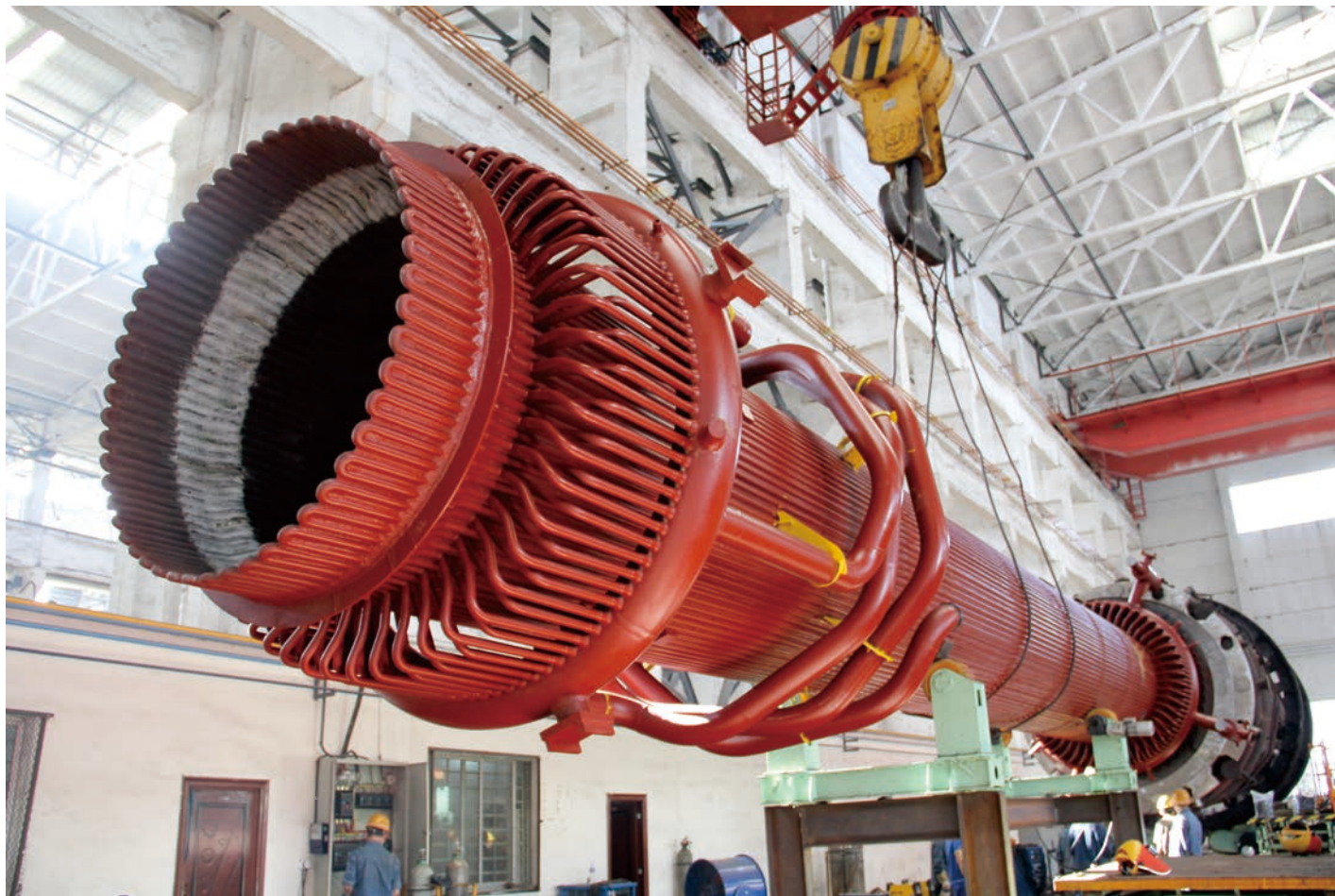
DIVERSIFIED  
PRODUCTS



## 煤气化设备 COAL GASIFICATION EQUIPMENT

东方锅炉凭借容器和水冷壁的制造优势和一流的管理水平，通过产能提升、装备升级，现已具备各种大型煤气化炉设备开发及专业化生产能力。

Relying on its manufacturing advantages of vessels and waterwalls and first-class management level, DBC has possessed the developing and manufacturing capabilities of various large coal gasification facilities after having upgraded its production capacity.



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## DIVERSIFIED PRODUCTS

- 1 潞安壳牌气化炉
- 2 未来能源气化炉
- 3 国内最大容量的多喷嘴对置式水煤浆气化炉（荣信项目）
- 4 金新化工壳牌下行水激冷气化炉
- 5 山西同煤气化炉精馏塔容器
- 6 康乃尔科林气化炉

- 1 Lu'an Shell Gasifier
- 2 Gasifier for Shaanxi Future Energy Chemical Corp.
- 3 Domestic Maximum Capacity Multi-nozzle Opposed CWS Gasifier (Rongxin Project)
- 4 Shell Downstream Water Quench Gasifier for Jinxin Chemical Co., Ltd.
- 5 Shanxi Tongmei Gasifier Distillation Column Vessel
- 6 Choren Gasifier for Cornell Project



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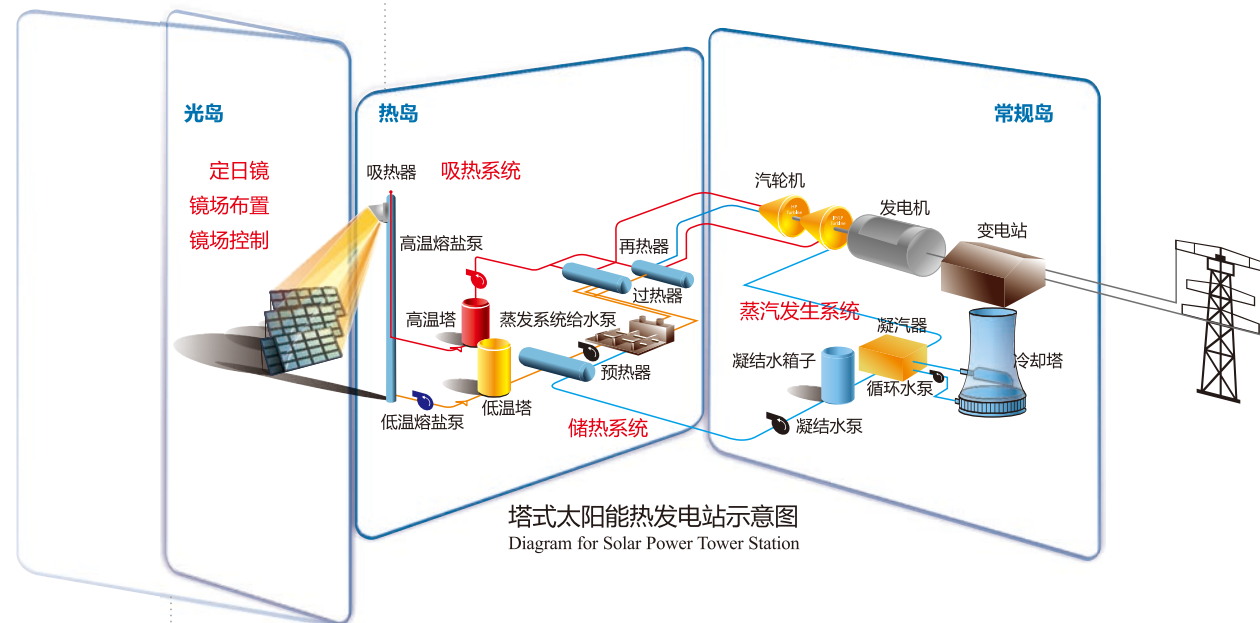
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## 太阳能光热产品 CONCENTRATED SOLAR POWER



东方锅炉2009年进入太阳能热发电领域，拥有数十项光岛、风光互补技术专利，是中国塔式太阳能热发电站设计规范标准编制单位之一，具有塔式太阳能热发电站聚光集热系统、储热和换热系统（盐/水）集成、蒸发系统及其核心设备设计、制造能力，具有槽式/菲涅尔式太阳能热发电站储热、换热、HTF系统（盐/油&油/水&盐/水）集成及其核心设备设计、制造能力，参与了多个示范项目研发。

Since DBC stepped into the field of concentrated solar power (CSP) in 2009, it has possessed dozens of patented technologies concerning solar system, thermal system, solar-coal complementation and wind-solar complementation. DBC is one of the enterprises establishing the design specifications of Chinese solar power tower plant, and is competent to provide the integration of collector system, the integration of receiver system, thermal storage system and steam generator system (molten salt/water) and the integration of conventional island for solar power tower stations and design and manufacture corresponding core equipment. Besides, DBC has the abilities to provide the integration of thermal storage system, heat exchange system and HTF system (molten salt/oil & oil/water & molten salt & water) and the integration of conventional island for trough/fresnel solar power plants and design and manufacture corresponding core equipment. DBC participated in the R&D of many solar power demonstration projects.

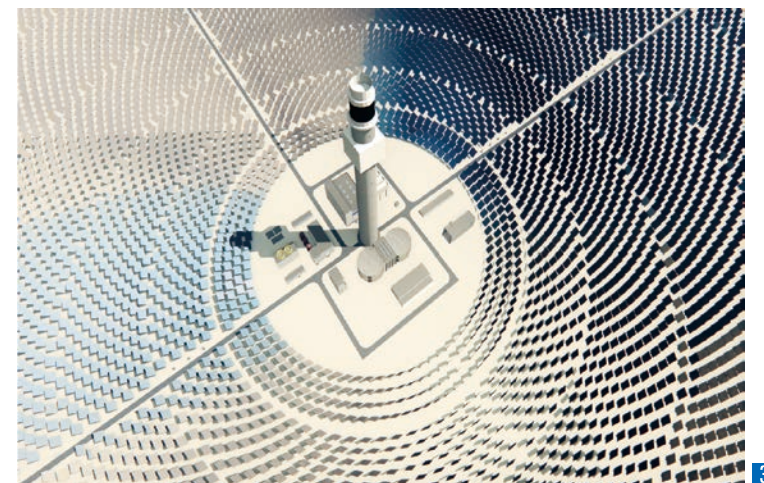


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## DIVERSIFIED PRODUCTS



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3

- 1 国金太阳能光煤互补示范项目
  - 2 中科院电工研究所延庆八达岭太阳能热发电实验电站
  - 3 塔式熔盐光热电站
- 1 Guojin Solar Power Solar-coal Complementation Demonstration Project
  - 2 Yanqing Badaling CSP Experimental Station of the Institute of Electrical Engineering of the Chinese Academy of Sciences (IEECAS)
  - 3 Molten Salt Tower Solar Plant

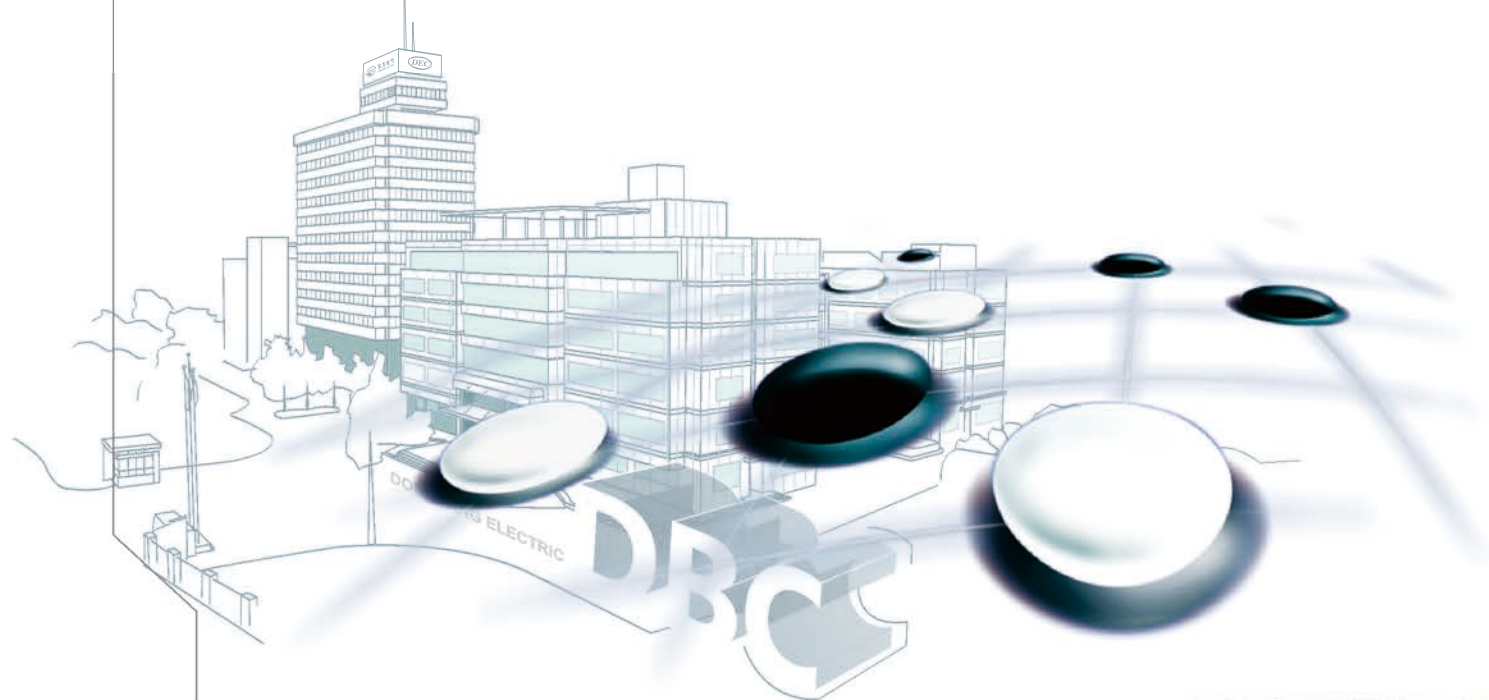






# COMPANY CULTURE

## 企业文化



志存高远 卓越领先



- 1 升国旗仪式
- 2 建厂50周年文艺演出
- 3 乒乓球比赛
- 4 首届女职工微型马拉松比赛
- 5 集团公司外部董事贺恭题字
- 6 “感动东锅·感动用户”十大人物颁奖暨事迹宣讲会
- 7 “相爱到永远 携手伴一生”第五届集体婚礼
- 8 定点帮扶
- 9 职工义务献血

- 1 Flag-raising Ceremony
- 2 Artistic Performance for Celebrating the 50th Anniversary of DBC
- 3 Table Tennis Competition
- 4 The First Mini Marathon for Female Workers
- 5 Inscription by He Gong, Outside Director of DEC
- 6 Award Ceremony for Top Ten Figures Moving DBC and Clients
- 7 Group Wedding Ceremony
- 8 Offering Targeted Assistance
- 9 Blood Donation by DBC's staff