



**宝丰传热**  
SPL COMPANY



**食品、冷链、石油、化工、多晶硅**

FOOD, COLD CHAIN, PETROLEUM, POWER, POLYSILICON



**上海宝丰机械制造有限公司**

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DOMESTIC MARKETING CENTER

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精细化工工程解决方案  
提供商**

**GLOBAL HEAT TRANSFER  
TECHNOLOGY AND FINE CHEMICAL  
ENGINEERING SOLUTIONS  
PROVIDER**



# 专注 专业 引领行业新发展 Special Professional Lead the industry new development

## 企业愿景

专注于传热领域，持续改进，优质服务，聚焦成为传热领域领先的品牌供应商。

## Vision

Focus on the field of heat transfer, Sustainable Innovation, Best service, Become a leading manufacturer of heat transfer.

## 企业使命

专注传热领域，持续创新，提升人类绿色生活。

## Duty

Devote to heat transfer Rely to continuous innovation Ascend to green life.

## 专注 实现多方共赢

专注于传热设备的研发、设计、制造、销售及工程项目服务；  
与上海交通大学、华南理工大学、华东理工大学、建立了紧密协作关系；  
国家发明专利 2 项，实用新型专利 30 余项；是华南理工大学的传热强化与过程节能技术科研基地；  
参与制定上海地方标准 6 项：《蒸发式冷凝器能效限定值及能效等级》、《冷库单位产品耗电量限定值及能源效率等级》、《企业能源管理标准体系》、《氨冷库安全生产规范》、《闭式冷却塔能效标准》、《挤拉工艺成型轴流风机能效限定值和节能评价》；  
参与全国制冷标准化技术委员会《远置式机械通风蒸发式制冷剂冷凝器试验室试验方法》的行业标准制定。  
参与制定《制冷系统蒸发式冷凝器循环冷却水电化学处理技术规程》  
参与制定中国通用机械工业协会团体标准《蒸发式冷凝器》

## Special Achieve multi-win-win

Focus on the development, design, manufacturing, sales and project services of heat transfer equipment;  
Establish close cooperative relations with Shanghai Jiao tong University, South China University of Technology, East China University Of Science and Technology.  
Owns one national invention patent and 22 utility model patents;  
Be the technology and research base of South China University of Technology in enhanced heat transfer and energy-saving;  
Participate in the formulation of 6 local standards as:  
"Evaporative condensers energy efficiency limit value and energy efficiency rating"  
"Cold storage power consumption per unit limited value and energy efficiency rating"  
"Enterprise energy management standard system"  
"Ammonia cold storage production safety norms"  
"Closed cooling tower energy efficiency standards"  
"pulsation molding process axial fan energy efficiency and energy-saving evaluation limit values"  
Participation in the standard "Far-mounted mechanical ventilation evaporative refrigerant condenser laboratory test methods" formulation for National Refrigeration Standardization Technical Committee.

## 专业 值得托付

拥有一批几十年专业经验的优秀研发人才及制造人才；  
拥有国内外先进的自动焊接中心、数控冲床、数控折弯机、冲击试验机等一批生产、检测设备；拥有国内最先进的全自动制管、弯管生产线。获得 D1、D2 级压力容器设计及制造许可证；通过了 ISO9001:2008 质量管理体系认证；通过了美国冷却协会 CTI 认证；取得了 GC2 级压力管道安装资质；  
与上海海洋大学共同开发“蒸发式冷凝器分析软件 V1.0”并获国家版权局计算机软件著作权登记证书；  
上海市科技小巨人培育企业；  
上海市高新技术企业；  
上海市技术发明奖二等奖；  
上海市科技进步奖三等奖；  
上海市合同信用等级 AAA 单位；  
上海市节能协会理事单位；  
上海科技企业联合会理事单位；  
上海市科技成果转化促进会会员单位。  
紧凑型蒸发冷被评为上海市节能产品称号

## Professional Trusted

Own a number of excellent R&D and manufacturing personnel with decades of experience;  
Own a number of product and testing equipment such as advanced automatic welding center and impact testing machine etc.  
Own the most advanced automated pipe product line  
Own D1, D2 Pressure vessel Design and Manufacture license  
Acquire ISO9001-2008 quality management system certification  
Passed CTI certification  
Achieve GC2 pressure pipe installation qualification  
Develop evaporative condenser analysis software with Shanghai Ocean University, and be awarded the computer software registration certificate from NCAC  
Shanghai Technology Little Giant Cultivating Enterprise  
Shanghai High-tech Enterprise  
Shanghai Science and Technology Invention second prize  
Shanghai Science and Technology Progress third prize  
Shanghai contract credit rating of AAA  
Shanghai Energy Conservation Association Member  
Shanghai Science and Technology Enterprises Association governing member  
Shanghai Association for the Advancement of Science and Technology Achievements Transformation member

## 引领行业新发展

国内首例中海油天然气蒸发式冷却装置项目；  
国内首例西部矿业二氧化硫冷凝回收装置项目；  
国内首例鑫富生化乙酸乙酯冷凝装置项目；

## Leading the industry new development

The first case of CNOC Natural gas evaporative cooling device project  
The first case of Western Mining SO2 condensate recovery device project  
The first case of Xin Fu biochemical ethyl condensing device project



上海市高新技术企业  
Shanghai City High-tech  
Technology enterprise



中国石化一级  
供应网络成员单位  
Sinopec level  
Supply network  
member units



美国 CTI 冷却塔  
学会团体会员  
The United States of  
America CTI cooling tower  
Institute of group members



SPAT  
上海科技企业  
联合会理事单位  
Shanghai Municipal Science  
and technology achievement  
transformation of group  
members



上海市质量  
协会团体会员  
The quality of  
Shanghai City  
Association of group  
members



上海市制冷  
学会团体会员  
Shanghai City  
Refrigeration  
Institute of group  
members



上海市节能  
协会团体会员  
Shanghai energy  
conservation  
Association of group  
members



中国国家  
知识产权局  
Chinese national  
Intellectual Property  
Office



倡导低碳经济—节水 节电 高效 环保

Dedicating to Low-carbon, Water Saving, Power Saving,  
Highly Efficiency, Environmental Protection



国内首例天然气装置用复合型蒸发式空冷器（变频型）  
China' s First Natural Gas Plant with a Combination Evaporative Air Cooler(Frequency Conversion Type)

目录/List

企业简介Company Introduction.....5-6

    资质证书Certificates.....7

    荣誉证书Honor.....8

多方合作院校Multilateral Cooperation.....9

技术研发与产品创新Technology Development and Product Innovation.....10

    核心专利技术Essential Patented technology.....11

        蒸发式冷凝器 Evaporative Condenser.....12-13

        混合式蒸发式冷却器Hybrid Cooler.....14

        闭式冷却塔Closed Loop Cooling Tower.....15-16

        钢制开式冷却塔 Steel Open-loop Cooling Tower.....17

        一体式蒸发式冷凝器Packaged All-in-one Machine.....18

        空冷器 Dry-type Air Cooler.....19

        风冷冷凝器Air-cooled Condenser.....20

        冰蓄冷空调 Ice-storage System Conditioner.....21

        制冷辅机Auxiliary Equipment of Refrigeration System.....22-24

        先进的加工能力Advanced Processing Capability.....25

全自动制管弯管生产线Automatic piping and bending production line.....26

严格的质量检验Strict Quality Control.....27

    工程实例展示Project Case.....28-29

        合作伙伴Our Customers.....30



上海宝丰机械制造有限公司是专业从事集制冷设备研究、开发、制造、安装的知名企业。是联化科技股份有限公司（证券代码：002250）的全资子公司。主要生产蒸发式冷凝器、各类制冷装置用辅助设备、组合型蒸发式空冷器、闭式冷却塔、空冷器、复叠式深冷机组、热虹吸蒸发器、冰蓄冷装置和D1、D2类压力容器等产品，共有三十余种类五百多种规格的主导产品，广泛应用于石油、化工、甲醇、二甲醚、医药、电力、冶金等工业制冷及啤酒、饮料、食品的低温加工、冷藏，建筑空调制冷等领域。

公司坐落于上海宝山城市工业园区，紧靠外环线，距上海虹桥国际机场13公里，距上海火车站12公里，交通方便。公司占地面积27000平方米，主厂房18000平方米。公司获得D1、D2级压力容器制造许可证及设计证，并通过ISO9001：2000质量管理体系认证，是上海市质量协会团体会员，是上海市《蒸发式空冷器能效限定值及能效等级》的主编单位。产品被浙江省制冷协会评为“浙江市场节能环保智能型制冷产品”，并荣获三十多项国家专利。

公司拥有一批几十年专业经验的优秀研发人才及制造人才，一直致力于高品质制冷产品的开发，其中高级工程师6人、工程师17人，助理工程师24人，技术员60人。并与上海交通大学、华东理工大学、华南理工大学、上海海洋大学、哈尔滨商业大学等高校合作交流，共同开发新产品，把新技术、新材料引用到现有产品，提升科学水平，增强企业竞争力。同时公司拥有国内外先进的自动焊接中心、X光机、超声波机、冲击试验机、抗拉试验机等一批生产、检测设备，公司充分吸收国内外最新技术，集各家之长，以精湛的加工技术及一流的加工工艺，以确保产品在同行业中的领先地位。

我们以“开拓创新、追求完美，不断改善产品质量，创一流名牌，建一流企业”为质量方针，“产品质量合格率100%”为质量目标。宝丰人以真诚的态度，雄厚的技术力量，严谨的管理为客户提供满意的产品并细心聆听用户的每一个意见，不断完善我们的产品。在争雄逐鹿的市场经济大潮中，我们这支训练有素，技术过硬，真诚热情的队伍一直活跃在大潮的最前沿，经过我们不懈的努力，我公司的蒸发式冷凝器在国内享有较高知名度，产品性能指标已达到进口水准，国内市场占有率名列前茅，覆盖全国各地并远销东南亚国家；并通过吸收、消化国际先进技术，生产出国内第一套二氧化硫回收冷凝装置和国内首例液化天然气冷凝项目。

与时俱进的我们秉承着“诚信、质量、责任、共赢”的经营理念，为每一位客户提供最优化的方案、最优质的产品、最优秀的服务。上海宝丰机械制造有限公司正以不可阻挡的步伐跻身于国内同行的领先地位。

Shanghai Baofeng Machinery Manufacturing Co., Ltd (SPL) is specialized in Design, Development, Sales and Service of Projects in the field of Food, Chemical, HVAC Energy Efficient Equipment. The high-tech enterprise is a wholly owned company of Lianhe Chemical Technology Co., Ltd. (Share code 002250). Our main products are Evaporative Condenser, Hybrid Cooler, Petrification Air Cooler, Turbine Exhaust Steam Air cooler, Air cooler, Closed Loop Cooling tower, Refrigerating auxiliary equipment, Thermal Ice Storage and pressure vessel of Grade D1 and D2. There are more than 30 series and 500 types products that are widely used in Petrification, Chemical industry, Methanol, Dimethyl ether, Metallurgy, and Power industries.

SPL is located in Baoshan City industry park in Shanghai, with very convenient traffic, close neighbored to the outer ring of Shanghai, and 13km away to Hongqiao international airport, and 12km away to Shanghai Railway Station. The area of SPL is 27,000m<sup>2</sup>, including main building area 18,000m<sup>2</sup>. We have gained the manufacturing permission and the design license of ASME Stamped Pressure vessel Grade D1 and D2. The company works for ISO9001:2000 management system, it is member of Shanghai Quality Association, and editor of Evaporative air cooler's limited value and grade of energy efficiency. The products are named by Zhejiang Refrigerating Association as Energy saving, Environmental protection and Intelligent refrigerating products in Zhejiang market, and have won more than 10 national Patents.

SPL has a team of Highly Qualified and dedicated Engineers personnel is dedicated to provide High-Tech, Sustainable and Reliable Solution. With decades of experience on R&D and Manufacturing. The team includes 6 Senior Engineers, 17 Engineers, 24 Assistant Engineers, and 60 Technicians. The company owns many advanced manufacturing facilities and inspection instruments from home and abroad, such as Automatic welding center, X-Ray machine, Ultrasonic machine, Shock testing machine, Tension testing machine. SPL's industry leading position is guaranteed by introducing latest technology for home and abroad, taking the Advantages, and adopting Advanced and Latest Manufacturing technique and skill.

We adhere to the quality principle of "in pursuit of innovation and perfectness by keeping improving the product quality so as to create a first-class brand and company", and the quality objective of "achieving 100% pass rate of products", with sincere attitude, strong technological strength, the strict management, we try to meet the demand of our clients, and give ear to each of them, thus improve our product and service constantly.

SPL holds business idea of "Honesty, High-quality, Responsibility and Win-win", is striving to provide the most optimized solution, the best-quality products, and the most excellent service to our customers.

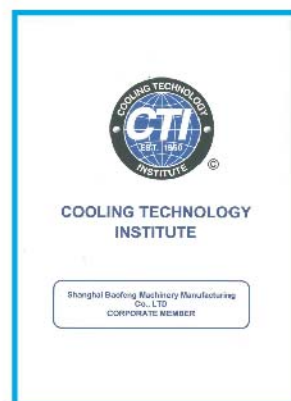
## 公司简介 COMPANY PROFILE





# 资质证书 CERTIFICATES

发展的每一阶段，都有我们成长的印记！  
Every Stage of Development has the mark of our Growth!



2007年通过了ISO: 2015质量管理体系认证  
Passed ISO:2015 Quality Management System Certificate in 2007

2007年取得了压力容器制造许可证  
Acquired pressure vessel manufacture license in 2007

2009年取得了压力容器设计许可证  
Acquired pressure vessel design license in 2009

2011年开始，每一年通过CTI认证  
From 2011, acquire CTI certificate every year

2017年取得ASME资质证书和NB资质证书  
Acquired ASME AND NB certificate in 2017

# 荣誉证书/Honor

一份耕耘，一份收获。No pain, no Gain.



上海宝丰机械制造有限公司始终专注于传热设备的研发、设计、制造销售技术工程项目服务。  
We always focus on heat transfer equipment research and development, design, manufacturing, sales, technical and engineering project services.



## 多方合作院校 Multilateral Cooperation



上海宝丰机械制造有限公司在上海华东理工大学内建立了不同管型的冷却塔测试平台，校企合作，将国内外最先进的科研理论应用于公司产品上，用最好的设备，最新的技术不断引领着市场潮流，参与制定上海地方标准6项，行业标准一项。

We established cooling tower test platforms with different kinds of tube in Shanghai East China university of science and technology university, we do enterprise cooperation to apply the most advanced scientific theory both home and abroad to the products of the company. We continues to lead the market trend with the best equipment, the latest technology. We have participated in six draft Shanghai local standard and one industry standard.

## 技术研发与产品创新 Technology R&D and Product Innovation

“倡导低碳经济、节水、节电、高效、环保”是我们技术研发和产品创新的宗旨。我们始终把客户需求放在第一位。

Our technology, R&D and Product innovation is dedicated to Low-carbon foot print, Economy- Water Saving, Power Saving, High Efficiency, Environmental Protection Products



公司内建立了多个不同形式的蒸发式冷凝器测试平台。对公司产品进行严格的测试和不断的改进，保证出厂设备的高品质、高性能。We build different types of test platform for Evaporative condensers , to ensure high quality and high performance of outgoing product.



创一流企业，做一流产品。公司每年还邀请美国CTI协会到厂内对新产品性能进行测试，设备性能已为国内领先水平。We are dedicated to build First-class enterprises, make first-class products. CTI (Cooling Technology Institute) from USA certified our Cooling Towers every year, our product performance has given us the leading position in China.



我们成功研发出了国内首套大风沙干旱地区用多晶硅项目复合型空冷器，更加的节水节能。独特的进风结构能有效防止沙尘随风进入设备，极大降低循环水的飘逸。全变频型风机，做到精细的温度控制，节省每一度电。加强型设备结构，一次投资，经久耐用，封闭式的布水系统配合科学的喷淋装置，节约每一滴水。

We successfully developed the first set combination air cooler for poly-silicon project located in sandstorm arid area of China, More water and Energy saving. Special designed air inlet structure can prevent sand and dust into the equipment with the wind, also it greatly reduces the circulating water loss. Full frequency conversion fan, achieve fine temperature control, better on saving electricity. Reinforced equipment structure, investment once, use very long time, closed water distribution system with scientific spray device, better on saving water.

We achieved  
国内首例中海油天然气蒸发式冷却项目  
China Fist natural gas evaporative cooling project in CNOOC  
国内首例西部矿业二氧化硫冷凝回收装置项目  
China Fist sulfur dioxide condensation recovery plant project in West Mining  
国内首例鑫福生化乙酸乙酯冷凝装置项目  
China Fist Ethyl acetate condensation plant project in Xinfu Bio.



## 专利证书 Patents

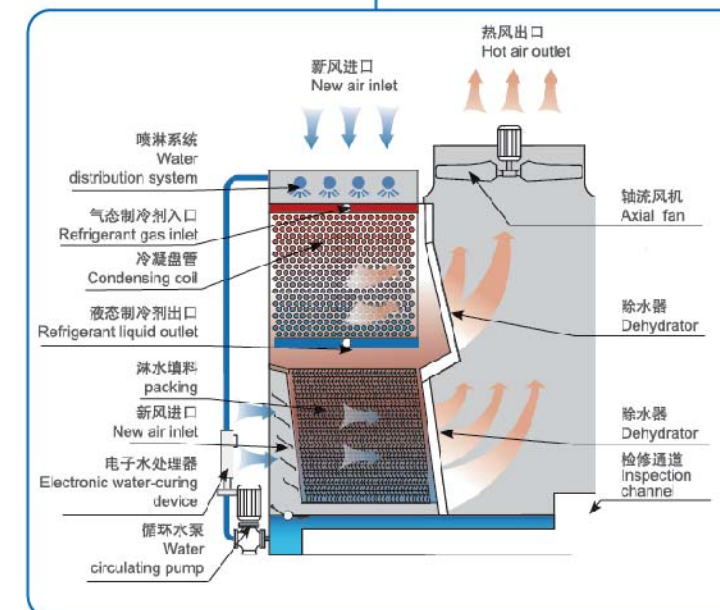


创新是企业发展的核心，上海宝丰机械制造有限公司自创立之初即注重企业的创新精神，历经多年的研究，公司已拥有三十余项技术专利，掌握多个核心工艺技术，获得了越来越广阔的市场！  
Innovation is the core of enterprise development. Eighteen years passed, Baofeng own more than thirty technology patents, hold numbers of core process technology, earn many satisfied customers.

## 蒸发式冷凝器 Evaporative Condenser (Cross-Flow)

### 顺流式蒸发式冷凝器

#### SPL-S CLOSED CIRCUIT CROSS FLOW EVAPORATIVE CONDENSER



#### 产品特点:

- 1、先进的换热机理和自主知识产权。
- 2、高效节能，环保。
- 3、外形紧凑，安装简单。
- 4、操作方便，安全可靠。
- 5、防腐能力强，使用寿命长。
- 6、系统洁净度高。

#### SPL-S SERIES PRODUCTS Special :

- 1、Advanced heat exchange principles and proprietary intellectual property rights
- 2、High efficiency, energy saving and environmental protection
- 3、Compact shape, easy installation
- 4、Reliable, Simple Operation and Maintenance
- 5、Strong anti-corrosion ability, long service life
- 6、High cleanliness

顺流型蒸发式冷凝器内设有：喷淋水装置、蛇形冷凝盘管、填料热交换层、除水器、底部设集水盘。箱体外部设循环水泵、电子水处理仪、冷凝盘管侧面顶部装有轴流通风机。工作运行时，冷却水由水泵送至冷凝盘管上面的喷嘴，均匀地喷淋在冷凝盘管的外表面，形成很薄的一层水膜。经过轴流通风机的引风，空气由盘管的上方和填料的侧面进入设备内部（由于部分空气是由盘管上方进入的，和喷淋水的方向一致，所以称为顺流式）。强化了空气流动，形成箱内负压，促使水的蒸发温度降低，促进水膜蒸发，强化了冷凝盘管的放热。高温制冷剂蒸汽从蛇形冷凝盘管的上部集管进入，被管外的冷却水冷凝的液体从冷凝盘管下部集管流出。水吸收了制冷剂的热量以后，一部分蒸发变成水蒸气被轴流通风机吸走排入大气，没有被蒸发的冷却水流过高效PVC 散热片填料时被空气冷却，冷却了的水滴落在下部的集水盘内，供水泵循环使用。

SPL-S series Closed Circuit Cross Flow Evaporative Condenser is equipped with: spray water distribution, coils, fills as heat exchange layer, drift eliminator, water collection basin at the bottom. Outside the base there is a circulating water pump, an electronic de-scaling, and a direct drive axial fan on the side top of the condensing coil.

When working, the cooling water is pumped to the nozzle above the condensing coil and sprayed evenly on the outer surface of the condensing coil, forming a very thin water film. After the axial fan induced air, air from the top of the coil and the side of the fills go into the equipment inside. It enhanced air flow and the formation of negative pressure in the case, promote to lower water evaporation temperature and water film evaporation, strengthen the heat release of the condensation coil. The high-temperature refrigerant vapor enters from the upper of coils, and the condensing liquid of the cooling water outside coils flows out from the lower of coils.

A small portion of the water is evaporated which removes the heat. The warm moist air is drawn sidewise also by the fan and is discharged to the atmosphere. The remaining water is cooled again by passing the PVC fills, then falls to the sump at the bottom of the condenser where it is recirculated by the pump up through the water distribution system and back down over the coils.



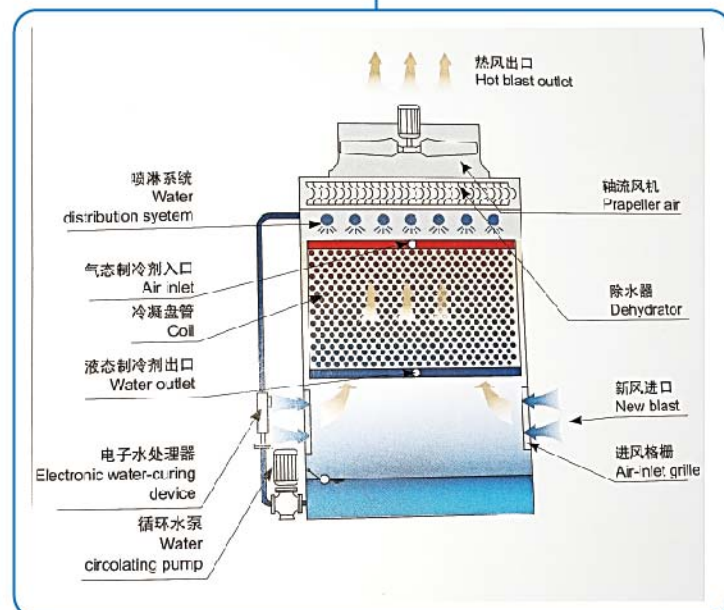
## 蒸发式冷凝器 Evaporative Condenser (Counter-Flow)

### 逆流式蒸发式冷凝器

#### SPL- N series Closed Circuit Counter Flow Evaporative Condenser

逆流式蒸发式冷凝器内设有：喷淋水装置、蛇形冷凝盘管、除水器、底部设集水盘。箱体外部设循环水泵、电子水处理仪、冷凝盘管顶部装有轴流通风机。工作运行时，冷却水由水泵送至冷凝盘管上面的喷嘴，均匀地喷淋在冷凝盘管的外表面，形成很薄的一层水膜。经过轴流通风机的引风，空气由箱体下部侧面进入设备内部（由于空气是由箱体下部进入，顶部出来。空气流和喷淋水的方向相反，所以称为逆流式）。强化了空气流动，形成箱内负压，促使水的蒸发温度降低，促进水膜蒸发，强化了冷凝盘管的放热。高温制冷剂蒸汽从蛇形冷凝盘管的上部集管进入，被管外的冷却水冷凝的液体从冷凝盘管下部集管流出。水吸收了制冷剂的热量以后，一部分蒸发变成水蒸气被轴流通风机吸走排入大气，没有被蒸发的冷却水和引进的新风换热后滴落在下部的集水盘内，供水泵循环使用。

The SPL- N series Closed Circuit Counter Flow Evaporative Condenser is equipped with: water distribution system, snake-shaped condensing coils, drift eliminator, water collection basin at the bottom. Outside the basin there is a circulating water pump, an electronic de-scaling, and an axial fan at the top of the condensing coil. When working, the cooling water is pumped to the nozzle above the condensing coil and sprayed evenly on the outer surface of the condensing coil, forming a very thin water film. After the axial fan leads the air, the air enters into the equipment from the lower side of the equipment. It enhanced air flow and the formation of negative pressure in the case, promote to lower water evaporation temperature and water film evaporation, strengthen the heat release of the condensation coil. The high-temperature refrigerant gas enters from the upper of coils, and becomes gas flows out from the lower of coils after cooled by the outside water. The water is evaporated which removes the heat. Parts of it become the moist air is drawn also by the fan and is discharged to the atmosphere. The remaining water falls to the sump at the bottom of the condenser where it is recirculated by the pump up through the water distribution system and back down over the coils.



#### 主要应用场合:

- 1、各类氟利昂制冷系统
- 2、氨制冷系统
- 3、碳氢类制冷系统
- 4、其它制冷剂或物料的冷凝

#### Mainly used for:

- 1、Freon refrigeration systems
- 2、ammonia refrigeration system
- 3、Hydrocarbon refrigeration system
- 4、Condensation of other refrigerants or materials

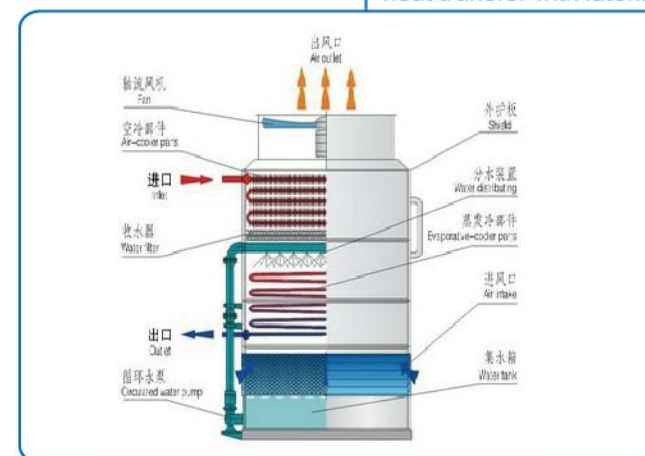
南方地区推荐使用顺流型蒸发式冷凝器，  
北方地区使用逆流型蒸发式冷凝器

SPL-S is suggested to be used in South of China;  
SPL-N is suggested to be used in North of China.

## 混合式蒸发式冷却器 Hybrid Cooler

在国内换热设备市场上，填补甲醇（合成氨）等生产系统使用成套节能装置的空白，拓展了潜热换热替代显热换热的新思路。

It fills the blank of using complete sets of energy saving devices in production systems such as methanol (synthetic ammonia) and expand the new idea of replacing sensible heat transfer with latent heat transfer.



#### 产品特点:

- 1、先进的换热机理和自主知识产权。
- 2、高效节能，环保。
- 3、外形紧凑，安装简单。
- 4、冬季干运行。
- 5、消白雾、降低水飘逸率、节水、节电。
- 6、多流程通道，消除热应力和振动引起的损坏
- 7、二元复式结构，高效换热，减缓结垢
- 8、现场管路布置简单，管内污垢清理方便易行
- 9、理想的节能环保型冷换设备之一

#### SPL-N SERIES PRODUCTS Special :

- 1、Advance heat exchange principles and proprietary intellectual property rights
- 2、High efficiency, energy saving and environmental protection
- 3、Compact shape, easy installation .
- 4、Dry run in winter.
- Eliminate fog, reduce water escape
- 6、multi- flow channel, Eliminate damage caused by thermal stress and vibration
- 7、combined structure, efficient heat transfer, slow down scaling
- 8、Site piping layout is simple, easy to clean inside the pipe
- 9、One of the ideal energy - saving and environmental - friendly heat exchange equipment

#### 主要应用场合:

- 1、甲醇/合成氨压缩机级间冷却
- 2、合成气冷却冷凝
- 3、甲醇精馏工序冷却冷凝
- 4、天然气或焦炉煤气转化工序气体冷却
- 5、净化工序冷却
- 6、尿素的尾气回收
- 7、汽轮机蒸汽冷凝等
- 8、炼油项目催化裂化装置、柴油加氢、原料预处理等装置
- 9、有机硅、多晶硅项目精馏、合成、歧化等装置

#### Main Applications:

- 1、Interstage cooling of methanol/synthetic ammonia compressor
- 2、Syngas cooling condensers
- 3、Methanol rectification process cooling and condensing
- 4、Gas cooling in natural gas or coke oven gas conversion process
- 5、Purification process cooling
- 6、Urea tail gas recovery
- 7、steam turbine Steam condensing
- 8、Catalytic cracking unit, diesel hydrogenation, raw material pretreatment unit, etc
- 9、Organic silicon, polycrystalline silicon project distillation, synthesis, and so on

复合型蒸发式冷却器内设有：空冷管束、喷淋水装置、蛇形冷凝盘管、除水器、底部设集水盘。箱体外部设循环水泵、电子水处理仪、冷凝盘管顶部装有轴流通风机。工作运行时，冷却水由水泵送至冷凝盘管上面的喷嘴，均匀地喷淋在冷凝盘管的外表面，形成很薄的一层水膜。经过轴流通风机的引风，空气由箱体下部侧面进入设备内部（由于空气是由箱体下部进入，顶部出来。空气流和喷淋水的方向相反，所以称为逆流式）。强化了空气流动，形成箱内负压，促使水的蒸发温度降低，促进水膜蒸发，强化了冷凝盘管的放热。高温介质先通过翅片管束预冷，再从蛇形冷凝盘管的上部集管进入，被管外的冷却水冷凝的液体从冷凝盘管下部集管流出。水吸收了制冷剂的热量以后，一部分蒸发变成水蒸气被轴流通风机吸走排入大气，没有被蒸发的冷却水和引进的新风换热后滴落在下部的集水盘内，供水泵循环使用。

The Combination Evaporative Cooler is equipped with: tube bundles, spray water distribution device, snake-shaped coils, drift eliminator and water basin at the bottom. Outside casing there is a circulating water pump, an electronic descaling device, and an axial flow fan at the top of the condensing coil. When working, the cooling water is sent to the nozzle above the condensing coil by the pump and sprayed evenly on the outer surface of the condensing coil, forming a very thin water film. After the axial flow fan leads the air, the air enters the equipment from the lower side of the case (since the air enters from the lower part, and comes from the top, air flow and spray water are running in the opposite direction, so called counter flow). This type of flow enhanced air flow, form a negative pressure inside, promote lower water evaporation temperature, promote water film to evaporate, strengthen the heat release of the condensation coil. The high-temperature liquid is precooled through the finned tube bundle, and then enters into from the upper collecting tube of the snake-shaped condensing coil, and the condensed liquid of the cooling water outside the pipe flows out from the lower collecting tube of the condensing coil. After the water absorbs the heat of the refrigerant, part of it evaporates into water vapor, which is absorbed and discharged into the atmosphere by the axial flow fan. The cooling water that has not been evaporated and the introduced fresh air is exchanged for heat, and then drips onto the lower water collection tray for circulation use by the water pump.



## 闭式冷却塔

## Closed Circuit Cooling Tower

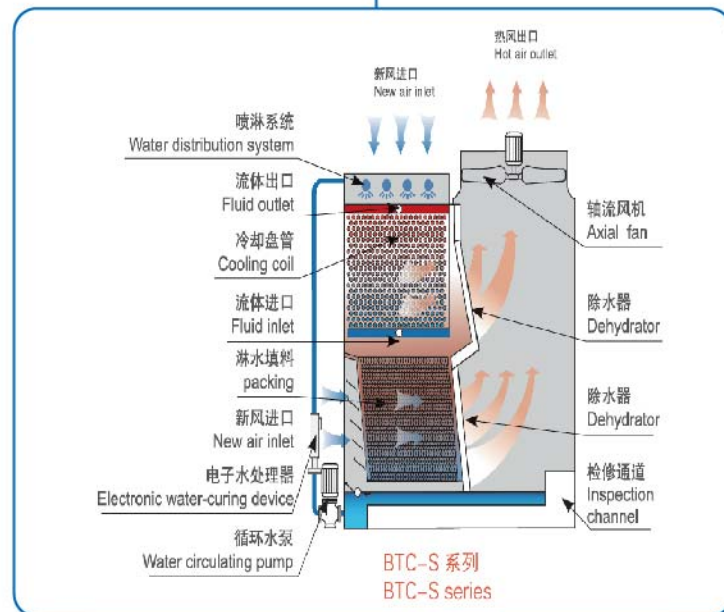
### 顺流式闭式冷却塔

#### BTC-S series Closed Circuit Cooling Tower

冷却水由水泵送至冷却盘管上面的喷嘴，均匀地喷淋在冷却盘管的外表面，形成很薄的一层水膜。经过轴流通风机的引风，空气由盘管的上方和填料的侧面进入设备内部（由于部分空气是由盘管上方进入的，和喷淋水的方向一致，所以称为顺流式）。强化了空气流动，形成箱内负压，促使水的蒸发温度降低，促进水膜蒸发，强化了冷却盘管的放热。高温循环水从蛇形冷却盘管的上部集管进入，被管外的冷却水冷却后从冷却盘管下部集管流出。喷淋水吸收了热量后，一部分蒸发变成水蒸气被轴流风机吸走排入大气，没有被蒸发的冷却水经过高效PVC 散热片填料时被空气冷却，冷却了的水滴落在下部的集水盘内，供水泵循环使用。

The cooling water is pumped to the nozzle above the condensing coil and sprayed evenly on the outer surface of the condensing coil, forming a very thin water film. After the axial fan induced air, air from the top of the coil and the side of the fills go into the equipment inside. It enhanced air flow and the formation of negative pressure in the case, promote to lower water evaporation temperature and water film evaporation, strengthen the heat release of the condensation coil. The high-temperature water enters from the upper of coils, and flows out from the lower of coils after cooled by the outside water.

A small portion of the water is evaporated which removes the heat. The warm moist air is drawn sidewise also by the fan and is discharged to the atmosphere. The remaining water is cooled again by passing the pvc fills, then falls to the sump at the bottom of the condenser where it is recirculated by the pump up through the water distribution system and back down over the coils.



#### 产品特点:

- 1、先进的换热机理和自主知识产权。
- 2、高效节能，环保。
- 3、外形紧凑，安装简单。
- 4、操作方便，安全可靠。
- 5、防腐能力强，使用寿命长。
- 6、系统洁净度高，确保工艺流体不受污染
- 7、降低结垢可能性，将系统效率提高到最大的程度
- 8、确保设备全年可靠和高效的运行
- 9、降低系统的维护成本
- 10、降低系统能耗成本

#### SPL-S SERIES PRODUCTS Special :

- 1、Advanced heat exchange principles and proprietary intellectual property rights
- 2、High efficiency, energy saving and environmental protection
- 3、Compact shape, easy installation .
- 4、Reliable, Simple Operation and Maintenance
- 5、Strong anti-corrosion ability, long service life .
- 6、High cleanliness to guarantee processing liquid not be polluted
- 7、Reduce the possibility of scaling and increase the system efficiency to the maximum extent
- 8、Ensure reliable and efficient operation throughout the year
- 9、Reduce maintenance costs
- 10、Reduce energy cost

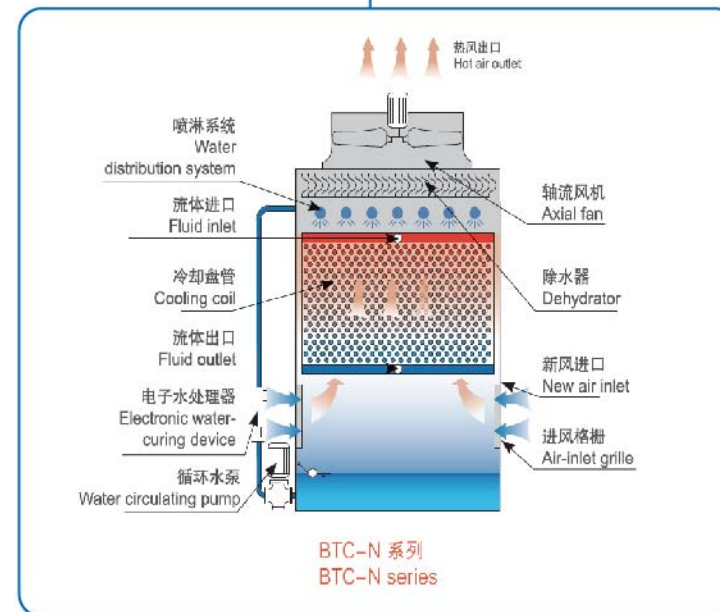
### 逆流式闭式冷却塔

#### BTC-N series Closed Circuit Cooling Tower

冷却水由水泵送至冷却盘管上面的喷嘴，均匀地喷淋在冷却盘管的外表面，形成很薄的一层水膜。经过轴流通风机的引风，空气由箱体下部侧面进入设备内部（由于空气是由箱体下部进入，顶部出来。空气流和喷淋水的方向相反，所以称为逆流式）。强化了空气流动，形成箱内负压，促使水的蒸发温度降低，促进水膜蒸发，强化了冷却盘管的放热。高温循环水从蛇形冷却盘管的上部集管进入，被管外的冷却水冷却后从冷却盘管下部集管流出。喷淋水吸收了热量以后，一部分蒸发变成水蒸气被轴流风机吸走排入大气，没有被蒸发的冷却水和引进的新风换热后滴落在下部的集水盘内，供水泵循环使用。

The cooling water is pumped to the nozzle above the condensing coil and sprayed evenly on the outer surface of the condensing coil, forming a very thin water film. After the axial fan induced air, air from the top of the coil and the side of the fills go into the equipment inside. It enhanced air flow and the formation of negative pressure in the case, promote to lower water evaporation temperature and water film evaporation, strengthen the heat release of the condensation coil. The high-temperature water enters from the upper of coils, and flows out from the lower of coils after cooled by the outside water.

The water is evaporated which removes the heat. Parts of it become the moist air is drawn also by the fan and is discharged to the atmosphere. The remaining water falls to the sump at the bottom of the condenser where it is recirculated by the pump up through the water distribution system and back down over the coils.



#### 主要应用场合:

- 1、空调系统  
水源热泵系统  
机房空调系统  
辅助供冷系统
- 2、工业制造  
变压器水套冷却  
变压器冷却  
注塑机模具冷却  
发电机水套冷却  
数据处理中心冷却  
数控加工中心等
- 3、冶金、钢铁及铸造  
轧钢机冷却  
感应炉冷却  
淬火槽冷却  
铸造工艺冷却
- 4、流体冷却  
压缩机冷却  
反应釜夹套冷却  
电镀溶液冷却  
单台冷却设备对多类流体进行集中冷却
- 5、工业循环水冷却装置

#### Main Application:

- 1、Air conditioning system  
water source heat pump system  
computer-room air conditioning system  
Auxiliary cooling system
- 2、Industrial Manufacturing  
Transformer water jacket cooling  
transformer cooling  
Injection molding machine mold cooling  
Generator jacket cooling Data processing center cooling  
CNC machining center, etc
- 3、Metallurgy, steel and casting  
Mill cooling  
Induction furnace cooling  
Quench tank cooling  
Casting process cooling
- 4、Fluid cooling  
Compressor cooling  
Reactor jacket cooling  
Plating solution cooling  
A single cooling unit provides centralized cooling for a variety of fluids
5. Industrial circulating water cooling device

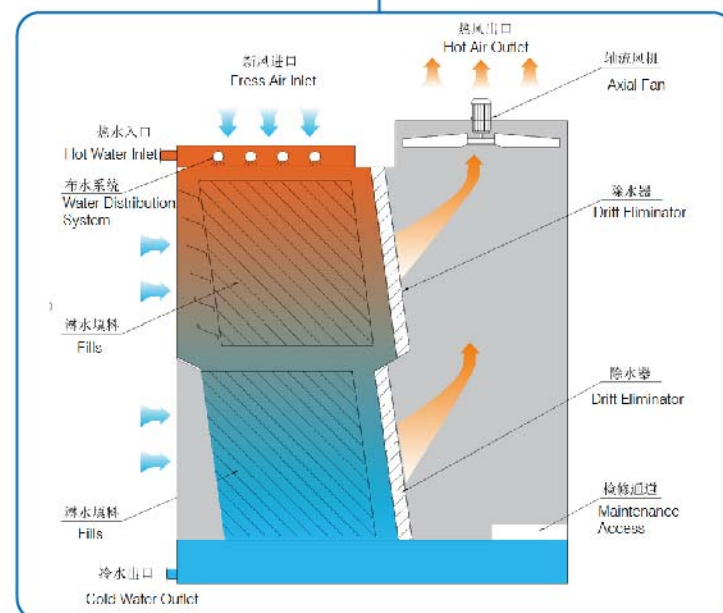


## 钢制开式冷却塔

## Steel Open-loop Cooling Tower

开式冷却塔内设有：喷淋水装置、填料热交换层、除水器、底部设集水盘，侧面顶部装有轴流通风机。工作运行时，高温的工作流体由布水系统的喷嘴均匀地喷淋在填料上，经过轴流通风机的引风，空气由上填料的顶部和下填料的侧面进入设备内部。填料强化了空气流动，增大了介质与空气的换热面积从而提高对流换热。高温的工作流体从设备顶部集管进入，经填料区与空气换热后由水盘底部集管流出。吸收了高温的工作流体的热量且夹带着部分液滴的空气流过高效除水器时，空气中夹带的液滴经除水器收集后汇集到设备底部的水盘内

The Open-loop Circuit Cooling Tower is equipped with: water distribution system, fills as heat exchange layer, drift eliminator, water collecting basin at the bottom, and axial fan at the top of the side. When working, the high-temperature working fluid is sprayed evenly on the packing by the nozzle of the water distribution system, and the air enters into the equipment from the top of the upper fills and the side of the lower fills after the air is induced by the axial fan. The fills enhances the air flow, increases the heat transfer area between the process fluid and the air, and improves the convection heat transfer. High-temperature working fluid enters into the top of the equipment and flows out at the bottom of the water basin after heat exchange. The hot air takes the heat from processing fluid and carries part of the droplets go through the drift eliminator, the droplets in the air are collected by the drift eliminator and collected into the basin at the bottom of the equipment.



### 产品特点:

- 1、先进的换热机理,汇集多项自主知识产权
- 2、高效节能, 环保
- 3、外形紧凑, 安装简单
- 4、操作方便, 安全可靠
- 5、防腐能力强, 使用寿命长
- 6、是目前最为理想的节能环保型冷换设备之一

### Product Special :

- 1、Advance heat exchange principles and proprietary intellectual property rights
- 2、High efficiency, energy saving and environmental protection
- 3、Compact shape, easy installation
- Easy to operate, safe and reliable
- 4、Strong anti-corrosion ability, long service life.
- 5、One of the ideal energy - saving and environmental - friendly heat exchange equipment

### 主要应用场合:

适用于空调系统、数据中心和工业循环水处理系统等对洁净度要求不高的各类流体的冷却

### Main Application:

It is suitable for air conditioning system, data center and industrial circulating water treatment system

## 一体式蒸发式冷凝器

## Evaporative Condenser for All-in-one Machine



为客户提供成套的制冷装置，现场只需通电、冷水管路连接即可运行，安装、使用、维护等均方便。满足于运输、降低运输成本；一次成形就位、无需现场安装节省了现场工人费用、保证系统清洁度，减少了现场的排污、吹扫打压、保压等环节。与主机的连接方式可以是上下结构 或左右结构，灵活组合，解决现场的种种问题。

We provide customers with a complete set of refrigeration equipment. Only power, cold water pipeline needed on user's site to run it. It is very convenient for installation, operation and maintenance. It reduces transportation cost and labor cost of installation, which keeps the cleanliness of the system for reducing blow down, and maintenance. The connection mode with the main machine can be up and down structure or left and right structure, flexible combination which reduces possibility of various problems on the site.

### 产品特点:

- 1、先进的换热机理,汇集多项自主知识产权。
- 2、高效节能, 环保。
- 3、外形紧凑, 安装简单。
- 4、操作方便, 安全可靠。
- 5、防腐能力强, 使用寿命长。
- 6、是目前最为理想的节能环保型冷换设备之一。
- 7、结构紧凑, 占地空间小, 排热量大。

### Product Special :

- 1、Advance heat exchange principles and proprietary intellectual property rights
- 2、High efficiency, energy saving and environmental protection
- 3、Compact shape, easy installation
- 4、Easy to operate, safe and reliable
- 5、Strong anti-corrosion ability, long service life.
- 6、One of the ideal energy - saving and environmental - friendly heat exchange equipment
- 7、Smaller occupation, large heat output

### 主要应用场合:

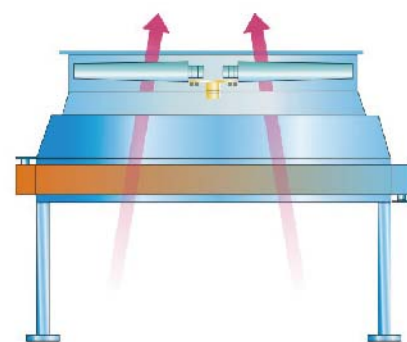
特别适用于地铁、采矿、数据中心等的使用制冷机组而且场地尺寸限制较大的场所，也可用于其它清洁流体的冷却冷凝。

### Main applications:

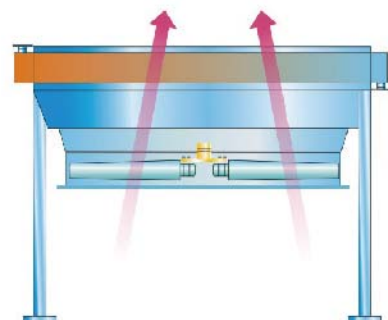
Especially suitable for use in metro, mining, data center, etc., where the site space is limited, it can also be used for cooling and condensation of other clean fluids.



## 空冷器 Air Cooler



引风式  
Induced



鼓风式  
Forced

空冷器是以环境空气作为冷却介质，依靠翅片管拓展传热面积强化管外传热，风机运行使空气横掠翅片管束后的空气温升带走管内介质热负荷，达到管内介质冷凝、冷却的目的，广泛应用于化工、石化、炼油、电站、垃圾焚烧发电厂及钢厂。

Air cooler use the ambient air as the cooling medium, relying on the finned tube to expand the heat transfer area and strengthen the heat transfer outside the tube, the running fans make the air temperature rise after the air flow through the finned tube bundle to take away the heat load of the medium inside the tube, to achieve the purpose of condensing and cooling the medium inside the tube. The Air cooler is widely used in chemical industry, petrochemical, Oil refining, Power stations, waste incineration power plants and steel mills.

管束位于风机的进风侧。  
风机对翅片管形成一个很好的保护可减少阳光、风、沙、雨、雪等对翅片管的影响，使引风式空冷器具有稳定的换热性能；同时它具有风量分配均匀、热循环少，低噪音的特性。  
管束位于风机的排风侧。  
适用于工艺介质温度较高的场合，便于清洗、检修、设备维护、能耗较低。

### Induced type Air Cooler

The bundle of tubes is located in the air inlet side of the fan. The fan can form a good protection to the finned tube to reduce the influence of sunlight, wind, sand, rain, snow and so on, so that the air-cooled appliance has stable heat transfer performance; At the same time, it can evenly distribute the air with less heat circulation and low noise.

### Forced type Air Cooler

The tube bundle is located in the air outlet side of the fan. It is suitable for high temperature process medium, easy to clean and repair, maintenance with low energy consumption.

空冷器使用空气做为冷却介质不仅是一种低投资成本、低运行成本的选择，也有利于节约宝贵的水资源，减少工业污水的排放，保护自然环境。

Air cooler using air as cooling medium is not only a choice of low investment cost and low operation cost, but also choice of saving limited water resources, reducing the discharge of industrial sewage and protecting the natural environment.

空冷器广泛应用于液化天然气、石油、电力、石化、化工、精细化工、钢铁及能源领域。

Air cooler is widely used in liquefied natural gas, petroleum, electric power, petrochemical, chemical, fine chemical, iron and steel and energy fields.

## 风冷冷凝器 Air-cooled Condenser

制冷剂蒸汽由进气管进入，分配到每路蛇形管，在蛇形管内逐渐冷却，其液体在重力作用下沿蛇形管向下流动，最后由出液集管排出。冷却介质（空气）在风机作用下被迫流过翅片管，将冷凝热量散发到环境空气中。

The refrigerant vapor enters from the inlet pipe and is distributed to each serpentine pipe. It gradually cools in the pipe, and the liquid flows down for gravity, and finally discharged from the liquid collection pipe. The cooling medium (air) is forced to flow through the finned tube by the fan, and the condensation heat is emitted into the ambient air.



### 产品特点:

- 1、无需水资源，运行成本低
- 2、安装、使用方便，无需其他配套设备
- 3、环保无污染
- 4、适用于水资源匮乏地区

### 应用领域:

- 1、冷冻行业、冷库工程；
- 2、农业、食品、饭店、化工行业；
- 3、配套中央空调主机设备；

### Product Features:

- 1、Low cost to run without water
- 2、Easy to install and operate, without any supporting equipment.
- 3、Eco-friendly
- 4、Especially suitable for Water deficient area

### Application:

- 1、Refrigeration industry, cold storage engineering
- 2、Agriculture, food, hotel, chemical industry ;
- 3、Supporting central air-conditioning main equipment



## 冰蓄冷 Ice Storage



### 冰蓄冷空调优点:

- 1、节省整个空调系统的运行费用,使业主获得经济效益
- 2、减低整个空调系统的装机容量,减少相应的电力设备投资
- 3、能够提供更低的空调冷冻水,使大温差送水、低温送风等节能技术得以实现
- 4、对于那些安全性要求高的应用场所,冰蓄冷空调可以作为应急能源,在停电时可用很少的自备电力,仅运行融冰水泵向用户持续提供冷量,保障空调系统的安全性
- 5、减少制冷机组,水泵、冷却塔的容量和装机功率
- 6、具有很好的除湿能力
- 7、利用潜热,蓄冷能力大,占用空间少较小
- 8、可快速达到冷却效果
- 9、节省设备的后期维护成本

### 应用场合:

- 1、商业、民用等建筑工程
- 2、体育馆、展览馆、影剧院等大型区域的供冷工程
- 3、制药、啤酒等工业制冷
- 4、食品、奶制品加工
- 5、电力发电工程

冰蓄冷是指在夜间电网低谷时间,运行制冷机组制冰并由冰蓄冷设备将冷量以冰的形式储存起来,待白天电网高峰用电时间,再将冷量从冰中释放出来满足高峰空调负荷的需要。冰蓄冷空调在很多国家已得到了广泛应用,由于其具有平衡电网峰谷差的功效,因此可以减少新建调峰电厂的投资,提高现有发电设备和输变电设备的使用效率,有利于生态平衡,有利于整个社会的优化资源配置,完全响应了节能减排的国家号召,是正真落实可持续发展的一项利国利民的技术措施。同时,由于峰谷电价的差额,可以使用户的运行电费大幅下降。因此,冰蓄冷技术冰蓄冷技术无论是对国家还是对弃用电企业都是一项双赢的举措。

Ice Storage System use ice for thermal energy storage. At night, the system produces ice to store the cooling, and during the day they discharge the cooling to meet peak electricity demands.

A full storage system minimizes the cost of energy to run that system by entirely shutting off the chillers during peak load hours. The capital cost is higher, as such a system requires somewhat larger chillers than those from a partial storage system, and a larger ice storage system. Ice storage systems are inexpensive enough that full storage systems are often competitive with conventional air conditioning designs

A partial storage system minimizes capital investment by running the chillers nearly 24 hours a day. At night, they produce ice for storage and during the day they chill water for the air conditioning system. Water circulating through the melting ice augments their production. Such a system usually runs in ice-making mode for 16 to 18 hours a day and in ice-melting mode for six hours a day. Capital expenditures are minimized because the chillers can be just 40 - 50% of the size needed for a conventional design. Ice storage sufficient to store half a day's rejected heat is usually adequate.

### The advantages of Ice storage air condition system compared to conventional air condition system are as below:

Saving operation cost of the whole air condition system, benefit the owner  
Decrease the installed capacity of the whole air condition system, reduce the investment of electricity power equipment  
Provide lower temperature of water, to realize the large temperature difference water supply technology and low temperature wind supply technology  
For the application which has high safety requirement, the ice storage air condition can be the emergency cold resource, and when grid power off, only small needs from the self-owned power. It can only run ice-melting pump to provide cold to users.  
Reduce volume and installed power of refrigeration unit, pumps, cooling towers.  
Good dehumidification capability.  
Using latent heat, the storage capacity is large but occupy small space  
Fast cooling effect  
Saving maintenance cost

### Ice storage air-condition system applicable occasions:

Shopping malls, hotels, office buildings, hospitals like commercial buildings;  
Gymnasium, exhibition center, theaters and other large space;  
Pharmaceutical, food processing, beer industry, dairy products and other industrial refrigeration;  
Large district cooling projects.

## 制冷辅机

## Accessorial Equipment for Refrigeration System

### 空气分离器 Air Separator

空气分离器的作用是将制冷系统中不能在冷凝器内液化的不凝性气体(如空气等)或制冷设备中存留的不凝性气体通过本器得到良好的分离效果,使制冷系统经常维持正常的冷凝压力。

Air Separator is used to separate the air which can't be condensed in the condensers, and to make the refrigerating system keep normal condensing pressure.



### 立式低压循环贮液桶 Vertical Low-pressure Circulating Barrel

立式低压循环桶用于氨泵供液的制冷系统,它既是供给蒸发器低压氨液的贮液器,又是蒸发器多余氨液的回液器,同时还具有压缩机回气筒的功能。

The Vertical Low-pressure Circulating Barrel is a refrigerating system used in the process of ammonia pump's supply the evaporator of the low-pressure ammonia liquid, but also the machine used to scavenge the unnecessary ammonia liquid in the evaporator.



### 氨液循环泵组 Liquid Ammonia Circulating Pump Set

氨液循环泵组是由一个卧式低压循环贮液桶,氨泵及附属零部件(包括过滤器、止回阀、压差控制器、液位计、液位控制器、自动供液装置)组成,并安装在同一机架上,工艺管路、阀门、自控元件、电器元件均已装配齐全,构成桶泵一体化,本系列泵组具有自动供液、液位显示,高液位报警、氨泵自动保护、自动或手动操作的功能。产品为双出液结构,有一套备用管路,提高了产品可靠性。

Liquid Ammonia Liquid Circulating Pump Set is made up of a horizontal low pressure circulation liquid barrels, ammonia pump and accessory parts (including filters, check valve, differential pressure controller, level gauge, liquid level controller, automatic feed liquid device), and installed on the same frame, process piping, valves, control components, electrical components are complete assembled, a barrel pump integration, this series pump set is with automatic feed liquid, liquid level display, high liquid level alarm, ammonia pump automatic protection, automatic or manual operation. The product is double liquid outlet structure, it has spare pipeline which can improve the reliability of the product.



### 贮氨器 Ammonia Storage Tank

贮氨器用于贮存高压液态制冷剂,以适应工况变化的需要,同时起到液封作用。

The Ammonia Storage Tank is used to store high-pressure liquid cold-producing medium to meet the needs of different working conditions and to seal up the liquid as well.





## 制冷辅机

## Accessorial Equipment for Refrigeration System

### 辅助贮液器 Auxiliary Reservoir



压缩机排出的高温高压氨蒸汽经蒸发式冷凝器冷凝后变成液体，首先进入虹吸罐，在虹吸罐的液面达到溢流口进入贮液器而向蒸发器供液。而虹吸罐溢流口以下的液体经虹吸罐的出液口依靠重力流向螺杆压缩机的油冷却器，在油冷却器中吸收润滑油的热量后蒸发变成气体，经回气口回到虹吸罐，气体所携带的液体在虹吸罐中得到分离，干燥气体在压缩机排气所造成的虹吸作用的推动下而进入蒸发式冷凝器得到了冷凝，冷凝来的液体又进入了下一轮循环。

#### Auxiliary Reservoir

The high-temperature and high-pressure ammonia vapor discharged by the compressor is condensed by the evaporative condenser and then turns into liquid, which first enters into the siphon tank. When it reaches the overflow port, it enters the storage tank to supply liquid to the evaporator. And the liquid which below the overflow port goes from the liquid outlet of the tank by gravity to the oil cooler of the screw compressor, the oil cooler absorbs the heat of lubricating oil and the liquid evaporates into gas, through the port back to siphon tank, the liquid carried by the gas is separated in the siphon tank, dry gas driven by siphon effect into the evaporative condenser, and become liquid into the next round of cycle again.

### 氨油分离器 Ammonia Oil Separator



油分离器用来把压缩机后的氨气借油氨比重之不同，使混合气体经过直径较大的容器，减低其流速和改变其流动方向，使油从其中沉降后分离。

Ammonia Oil Separator is used for separating oil from ammonia gas according to their weight, to make mixture gas through a big vessel and decrease the speed and change the direction to make oil precipitation.

### 填料式氨油分离器 Fill-type Ammonia Oil Separator



本器装置在氨压缩机和冷凝器之间，使被压缩机排出的氨气在经过本器时由于气体流速的减少，气流方向的改变以及气体与组油层的接触达到氨气与润滑油分离的目的。

The ammonia oil separator is equipped between the ammonia compressor and condenser. When the ammonia air exhausted from the compressor goes through the machine, it can separate the ammonia air from the lubricating oil because of the reduction of the air flowing speed, the changing of the air flowing direction, and the contact of air and resistance layer of oil.

### 中间冷却器 Intercooler



中间冷凝器用以装置在双级氨制冷装置的低压和高压缸之间，使由低压缸排出的热气在经过本器时达到冷却的目的。同时使自贮氨器流经本器中盘管的氨液过冷以增加制冷效应。

The Intercooler is equipped between the low-pressure vat and the high-pressure vat. It is used to refrigerate the hot air exhausted from the low-pressure vat when the air goes through the machine. And it is used to get better refrigerating effect by making the ammonia liquid much colder when the liquid goes through the circling pipes of the machine.

## 制冷辅机

## Accessorial Equipment for Refrigeration System

### 氨液分离器（立式） Ammonia Liquid Separator (Vertical Type)

氨液分离器用以分离从蒸发系统中出来的蒸汽中的液滴，防止氨液进入压缩机发生湿压行程和液击现象。在经氨液分离器供液的系统中，它还会输入蒸发系统中的液体经节流而产生的闪发气体分离出来，以增加蒸发系统的传热效果。

The Ammonia Liquid Separator is used to separate the liquid drops from the ammonia evaporating system to avoid the ammonia liquid going into the compressor, otherwise there will be wet pressure and liquid dropping. In the supplying liquid system, this machine can also separate the air which will explode suddenly caused by adjusting the flowing amount of liquid in the evaporating system.



### 氨液分离器（卧式） Ammonia Liquid Separator (Horizontal Type)

氨液分离器用以分离从蒸发系统中出来的蒸汽中的液滴，防止氨液进入压缩机发生湿压行程和液击现象。在经氨液分离器供液的系统中，它还会输入蒸发系统中的液体经节流而产生的闪发气体分离出来，以增加蒸发系统的传热效果。

The ammonia liquid separator is used to separate the liquid drops from the ammonia evaporating system to avoid the ammonia liquid going into the compressor, otherwise there will be wet pressure and liquid dropping. In the supplying liquid system, this machine can also separate the air which will explode suddenly caused by adjusting the flowing amount of liquid in the evaporating system.



### 集油器 Oil Collecting Container

集油器是用来收集氨油分离器及其他设备内的润滑油，并在低压情况下将油放出，这样可以减少氨的损失并保证工作人员的安全。

注：JY - 500型内带加热蛇形管使用时将蛇形管通入蒸汽加热，使油中氨蒸发回收。

The oil collecting container in the refrigerating system is used to collect the lubricating oil from the ammonia oil separator or other equipment. It also releases the lubricating oil in low-pressure conditions. It is important to remove the ammonia left in the lubricating oil to keep safe and reduce the loss.





## 先进的加工能力 Advanced processing capability



管板自动焊 / Automatic pipe and sheet welding



剪板机 / plate shearing machine



焊接机器人 Welding Robot



数控车床 / CNC lathe



等离子数控切割机 / Plasma CNC cutting machine



数控折弯机器人 / CNC Bending Robot



数控铣床 / CNC milling machine



卷板机 / plate bending rolls



折弯机 / bending machine

随着工业4.0时代的到来，上海宝丰机械制造有限公司紧跟时代步伐，用最新的技术和设备，为客户提供最优质的产品。

- 1、零件加工的适应性强、灵活性好，能加工轮廓形状特别复杂或难以控制尺寸的零件，
- 2、加工精度高、加工质量稳定可靠，数控加工还避免了操作人员的操作失误；
- 3、生产自动化程度高，可以减轻操作者的劳动强度。有利于生产管理自动化；

With the coming of industry 4.0, Baofeng keeps up with the pace of The times and provides customers with the best quality products with the latest technology and equipment.

- 1) we can process the parts with particularly complex contour or difficult to size controlling.
- 2) The machining precision is high, the machining quality is stable and reliable, use the CNC machining to avoid the operation error by humen.
- 3) More production automation can reduce the labor cost and promote the whole production automation management.
- 4) With high production efficiency, to greatly shorten the production cycle, to improve quality at the same time and reduce the cost.



内角焊机 Welding Machine for Internal Angle

## 全自动制管弯管生产线

## Automatic piping and bending production line



无缝钢管全自动氩弧焊生产线



不锈钢无对接环缝生产线



椭圆管无对接环缝生产线

### 无缝对接：冷凝换热盘管由优质的碳钢或不锈钢制成，无对接环缝，最大程度减少漏点

无缝对接：冷凝换热盘管由优质的碳钢或不锈钢制成，无对接缝，最大程度减少漏点

盘管洁净：因管材通过自动制管弯管机制作成型，经探伤检测，一次封装成型，从而减少了管制氧化层的产生，并冲氮气封堵，保证盘管内部洁净度。

适应更广：特别适合轻氯氟烃（R22）及轻氟烃类（R134a）等对制冷系统洁净度要求高的制冷剂。

不同管型：盘管型式有圆管和椭圆管，能满足不同形式的蒸发式冷凝器和闭式冷却塔的需求。

Seamless butt joint: the condensing coils are made of high quality 08AL steel or stainless steel with no joint crack, minimize leakage point extremely

Coil cleaning: as the pipe is made by automatic pipe bending machine, it is sealed and shaped once through flaw detection, so as to reduce the generation of oxide layer inside the pipe, and also use flush nitrogen to seal which can ensure the internal cleanliness of the coil.

More widely applicable: especially suitable for light chlorofluorocarbons (R22) and light fluorocarbons (R134a) and other refrigerants with high requirements on the cleanliness of the refrigeration system.

Different pipe types: the coil type has the circular pipe and the ellipse pipe, can satisfy the different kinds of evaporative condenser and the closed cooling tower.



## 检测 Quality Control

责任重于泰山，质量高于一切！Responsibility and Quality upper to all



盐雾试验机 / Salt Spraying Tester



冲击试验机 / Impact Testing Machine



里氏硬度测试仪 / Richter Hardness Tester



万能试验机 / Universal Tester



X射线探伤机 / X-ray Defect Detector



涂镀层测厚仪 / Coating Thickness Tester



内窥镜 / Endoscope



数字超声波探伤仪  
Digital Ultrasonic Flaw Detector



磁粉探伤仪  
Magnetic defect detector



超声波测厚仪  
Ultrasonic Thickness Meter

上海宝丰机械制造有限公司自2006年取得ISO90001质量管理体系认证以来，始终坚守“只有100%的质量，才有100%的市场”的质量管理理念，从原材料到成品，细化分解产品生产工序，严格掌控每一个关键节点。用完善的质量管理体系，合理的工艺规范，保证出厂的每一台设备都记录有完整的制造流程记录。经过多年的总结改进公司现已建立了一套比国家标准更严格的企业规范，并在上海市质量技术监督局进行了备案登记。

Baofeng has always adhered to the quality management concept of "only 100% quality, only 100% market" since it got ISO90001 quality management system certification in 2006. With a sound quality management system and reasonable process specifications, we ensure that every outgoing product has a complete record of the manufacturing process. After years of summary and improvement, the company has established a set of more stringent enterprise standards than the national standards, and registered in the Shanghai bureau of quality and technical supervision.



300吨流量的检测平台  
Test Platform of 300 Tons Flow

## 工程实例 Project Case



多晶硅项目复合型蒸发式空冷器 / Polysilicon Project



炼油项目复合型蒸发式空冷器 / Oil Refining Project



天然气液化项目 / Natural Gas Liquefaction Project



甲醇冷凝项目Methanol Condensation Project



油气液化项目 / Oil and Gas Liquefaction Project



甲苯冷凝项目 / Toluene Condensation Project



## 工程实例 Project Case



中央空调闭式冷却塔 / Closed Circuit Cooling Tower used in central air conditioner



制冷行业组合式蒸发冷  
Evaporative Condenser used in Refrigeration Industry



合成氨尿素行业组合型蒸发式空冷器  
Combination Evaporative Air Cooler used in Synthetic Ammonia Urea Industry



食品冷冻项目 / Food Frozen Project



冷链物流 / Cold Chain Logistics

## 合作伙伴 Our Customers

