



Deepblue Absorption Product

Cases

Continental Hope Group
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Website:
<http://www.slhvac.com>

COMPANY PROFILE

Hope Deepblue Air Conditioning Manufacture Corp.,Ltd (Deepblue) was founded with an investment of RMB 160 million in 1997. Deepblue is located in national high tech zone Chengdu, China, covering an area of 170 acres, which is the largest air conditioning equipment manufacturer based in Western China. Deepblue is engaged in the fields of refrigeration and air conditioning product R&D, manufacture, sales, service, and providing one-stop energy system solutions to customers.

Deepblue products include LiBr absorption chiller, absorption heat pump, central vacuum hot water boiler, water source heat pump and screw chiller, which have been exported to many countries and regions. In 2002, Deepblue developed Deepblue Green Energy Center project (DGEC),which was the first CCHP project with independent intellectual property right in China. DGEC has been operating stably since 2003, which is known as the longest running-time distributed energy project in China.

With strong technology and manufacture ability, Deepblue has established marketing and service network in China,involved in thousands projects and been well known as expert of heat recovery. Now Deepblue is paying more and more attention to developing oversea market and open to cooperate with partners all over the world.

Deepblue possesses a number of technology patents, National Industrial Production Permit,as well as many certifications, such as ISO9001 international certification, ISO140001 environmental system certification, CE certification, CRAA certification, CSC energy saving certification, etc.



Deepblue airconditioning unit

Cases

Shenzhen Nanshan Thermal Power Plant

Overview

Project name: Shenzhen Nanshan Thermal Power Plant CCHP project (first phase)
Project location: Nanshan District, Shenzhen
Investor: Shenzhen Nanshan Thermal Power Limited liability Company
Equipment selection: Two unit 4100kw steam LiBr absorption chiller
Main feature: Using CCHP system to supply cooling to the surrounding buildings



Introduction:

Established in April 1990, Shenzhen Nanshan Thermal Power Limited liability Company became an A&B shared listed joint venture company in Nov. 1994. It was rated as " the top ten enterprise in developing the first Shenzhen circular economy" and was awarded the "energy cascade recycling enterprise". Thanks to its obvious location advantages, Shenzhen Nanshan Thermal Power Plant is the center point of that area, which covers all government agencies, hospitals, hotels, large commercial buildings, subway station and residential complex in south peninsula area within 10-15km radius.

With the rapid development of economy, the contradiction between power supply and demand is more and more prominent, especially the popularity of urbanization and air-conditioning, which not only worsened the peak-valley difference of power grid, but also seriously restricts the safe and efficient operation of grid. Development and utilization of power plant waste exhaust, low grade hot water and steam to supply cooling directly can not only improve the disposable energy utilization rate, stabilize the air-conditioning peak electricity, but also diminish industrial production peak power, thereby reducing the pollution caused by air-conditioning, which can benefit the nation and people. This project drew a great attention from Nanshan district government. Shenzhen municipal development and reform bureau said that: Using the steam and exhaust heat produced by the natural gas generator in the power plant, through the heat pipe to provide surrounding buildings with cooling can realize the energy cascade utilization of summer air-conditioning load, optimize the power system to replace the existing fuel oil boiler. That's to say, this project has a good effect on decreasing pollutant emission and is an important measure of in energy-saving and circular economy development. This project has been appointed as the national second batch of circular economy pilot, which is one of the only two pilot projects in power field, by National Development and Reform Commission and other six ministries.

Highlights:

According to the calculation did by some relative professional institutions, if the Nanshan power co-generation project can meet the designed load, it can meet the cooling needs of 1,900,000 m2 area; it can save 33.41MW power for Shenzhen grid, which is equivalent to saving 0.242 billion Yuan power plant and power grid investment. This part of grid can create GDP output about 1.57 billion Yuan for Shenzhen. Saving power can reduce 189,700 ton CO2 and 1595 ton SO2 emission separately with remarkable social and environmental benefits. Thanks to this project, a great contribution has been made in energy-saving, emission reduction and circular economy as well as the green GDP in shenzhen city.



India APL Power Plant

Overview

Project name: India APL power plant (the third and fourth phase 5*660MW)
Project location: Tunda, Murdra, Kutch, Gujarat, India.
Investor: Adani Electric Power company, affiliated to India Adani Group
Equipment selection: Two unit 1050kw and two units 814kw steam LiBr absorption chiller
Main feature: Supply cooling to the A/C equipment in the main factory control room.

Introduction

Adani Electric Power company is affiliated to India Adani Group (with total asset up to 4.6billion), which did many large-scale thermal power projects to meet the gradually increasing power demand. 5*660MW coal-fired power plant is located in Tunda, Murdra, Kutch, Gujarat, India.

Highlights:

Chiller used in power plant
 As for 0.8MPa steam fired absorption chiller, because the steam resource is overheated with the temp more than 250°C, all electric components were designed based on the voltage 415V±15%, in order to adapt to the grid condition in India.

Qian'an JiuJiang Coking Project



Overview:

Project name: Qian'an JiuJiang Coking Project

Project location: Qian'an city, Hebei

Investor: Qian'an JiuJiang Coal Transportation Co.Ltd.

Equipment selection: Three unit 9670kw steam
LiBr absorption chiller

Main feature: Supply cooling to coking production process.

Introduction:

Qian'an JiuJiang Coal Transportation Co.Ltd is affiliated to Qian'an JiuJiang Company, which is a large private enterprise established in January 1996, with 0.3 billion registered capital and 10 billion fixed assets. Qian'an JiuJiang Coal Transportation Co.Ltd was established in February 2005. Based on present and look to the future, Qian'an JiuJiang Coal Transportation Co.Ltd provide large scale matching equipment for the highway wire rod production which got 4 million ton annual output in 2007 and got 6 million ton annual output in 2007. It started new coking project (4*65 holes, 5m HXDK50-06) to produce 2million ton coal in 2008.

When producing coke, high temp coke oven gas was produced, which contained a large number of high-valued by-products, such as coal tar, naphthalene. The high temp coke oven gas must be cooled stably, then the high-valued coal tar and naphthalene will be separated. So that the chiller's performance and stability should be high enough to meet the cooling temp. If not, it will cause decreased output of the high-valued coal tar and naphthalene and also the decreased quality of high temp coke oven gas. The coal tar and naphthalene, which was not separated from the coke oven gas, will stick in the inner wall, and coagulation will be caused if the temp is lower, which will cause the blocking of the running piping, then coagulation will be caused in the burner, which will damage the burner. So the chiller's stable operation and better performance are the decisive factors in coking process. Once some faults occur on the chiller, enormous economic loss will be caused for the user. AS 830×10^4 kcal/h steam LiBr absorption chiller, the customer has stricter demand for the chiller manufacture in machine's stability and performance.

Highlights:

Ultra-large chiller for coking process

The unit cooling capacity is 9670kw, with the layout of the absorber and evaporator left and right. A large number of high efficient copper tubes have been adopted, the chiller's total weight is over 64 tons.

Shanxi Coking Coal Group Yilong Coking Project

Overview

Project name: Shangxi Coking Coal Group Yilong Coking Project

Project location: Saltern park, Jiexiu city, Shanxi

Investor: Shangxi Coking Coal Group Yilong Coking Ltd.

Equipment selection: Three unit 3500kw steam LiBr absorption chiller for Coking field

Main feature: Supply cooling to industrial coking production process.

Introduction

Shangxi Coking Coal Group Yilong Coking Project was invested with 0.3 billion, with the annual output 1 million tons coke. When producing coke, high temp coke oven gas was produced, which contained a large number of high-valued by-products, such as coal tar, naphthalene. The high temp coke oven gas must be cooled stably, then the high-valued coal tar and naphthalene will be separated. So that the chiller's performance and stability should be high enough to meet the cooling temp. If not, it will cause decreased output of the high-valued coal tar and naphthalene and also the decreased quality of high temp coke oven gas. The coal tar and naphthalene, which was not separated from the coke oven gas, will stick in the inner wall, and coagulation will be caused if the temp is lower, which will cause the blocking of the running piping, then coagulation will be caused in the burner, which will damage the burner. So the chiller's stable operation and better performance are the decisive factors in coking process. Once some faults occur on the chiller, enormous economic loss will be caused for the user.

Thanks to durable, stable and energy-saving LiBr absorption chiller, Deepblue AC got strong competitive advantages in Coking industrial. Since the three 300×10^4 kcal/h steam LiBr absorption chiller have been put into use, the chillers operated stably with efficient cooling performance, winning the good reputation among customer. Meanwhile the branch office in Shangxi of Deepblue will conduct the inspect and maintenance regularly to make sure the chillers can keep stable, durable and high-efficient operation.



Lingbao Huaxin Copper Foil Project

Overview

Project name: Two tons copper foil
Project location: No. 131, south Huanghe road, Lingbao city, Henan
Investor: Lingbao Huaxin Copper Foil Co., Ltd.
Equipment selection: Three unit 700kw steam LiBr absorption chiller
 Two unit 2600kw steam LiBr absorption chiller
Main feature: Supply cooling to industrial process.



Introduction

Lingbao Huaxin Copper Foil Co., Ltd. was the wholly-owned subsidiaries to Lingbao Gold limited liability company (HongKong Stock Exchange Listing Company), which was the only one high-tech enterprise producing the electrolytic copper foil, and was awarded as the key protection project high -tech enterprise, high-tech products, “three high “ enterprise in Henan province. The second phase of million tons of high-grade copper foil project was designed by the NFC Technology co., using low temp molten copper process of international advanced energy-saving, foil system using high titanium cathode roller, roller diameter, the anode plate, and a high current continuous electrode position process. Surface treatment system adopts automatic tension control, automatic correction ans automatic detection technology. The estimated investment is 0.708 billion Yuan, covering an area of 60 acres, the electrolytic copper foil production scale will reach 13000 tons/year, realizing sales income 15 billion Yuan. In 2007, Huaxin cooper foil replaced the damaged chillers with Deepblue brand chiller. Since chillers have been put into use, the chillers operated stably with efficient cooling performance, winning the good reputation among customer. Therefore, 4 unit LiBr absorption chillers were also applied in the second phase of this project.



Baotou Haipingmian Polymer Project

Overview

Project name: Baotou Haipingmian Polymer
Project location: Rare Earth High-tech Development Zone, Baotou city, Inner Mongolia Autonomous Region
Investor: Baotou Haipingmian Polymer BSQT
Equipment selection: Three unit 4650kw steam LiBr absorption chiller
Main feature: Recycling the 0.13Mpa waste lower saturated steam produced by synthetic tower to get 6.1°C chilled water for the industrial process cooling.



Introduction

The plant is located in Rare Earth High-tech Development Zone, Baotou city, Inner Mongolia. After the operation of this project, the annual output will get 0.4 million ton PVC and caustic soda. With 3.5 billion Yuan investment, this project was begun to build in April 2008 and was completed in October 2010. The project conformed to the big gap of domestic PVC products market and the demand trend of rapid growth, effectively promoting the rapid development of the economy.

Highlights:

Chiller used for Recovery of Waste Heat
 The heat resource is the 0.13Mpa waste lower saturated steam produced by synthetic tower to get 6.1°C chilled water for the industrial process cooling. The temp difference of cooling water is large (28-38°C), and require that the chiller can operate even though the cooling water temp is lower that 15°C, and also need to adapt the more than 4 times cooling water. When the chilled water is break, the chiller still need have the anti-freezing function without stop cooling water pump.

Henan Shuanghui Food Project

Overview

Project name: Henan Shuanghui Food Processing and Energy-saving

Project location: Henan Luohe

Investor: Henan Shuanghui Investment Development Co., Ltd.

Equipment selection: 1450kw steam LiBr absorption chiller
1450kw hot water LiBr absorption chiller

Main feature: Recycling the high-temp steam condensing water produced during the food sterilization to supply cooling for production process and factory room.



Introduction

Shuanghui group is a large food group mainly handling the meat process, whose headquarter is located in Luohe, Henan province(a well-known food city). At present, Shuanghui group is the largest processing base for meat in China with whole capital 7 billion and 45000 staff. In 2008, it got 35 billion Yuan sales revenue. Shuanghui group adhere to developing modern meat industry with new method, bringing in advanced technical equipment to form a industry group, which focuses on slaughter and meat processing, with feeding industry, slaughter, meat processing, chemical packing, logistics, foreign trade and so on to support.

This project adopts to high temperature sterilization water as driving heat resource for hot water absorption chiller. The temperature and flow of the high temperature sterilization water are instable; the range of flow rate 20-100m³/h, the range of temperature is 105-115°C, the range of temperature of circulating hot water tank is 95-99°C, and the flow rate is 140m³/h. To ensure the stable cooling capacity of hot water chiller, the driving heat resource should be taken from the circulating hot water tank, adopting indirect heat exchange mode.

1# heat exchanger technology parameter:
The first time inlet/outlet temp: 97/87°C
The first time flow rate:100m³/h
The second time inlet/outlet:78/87°C
The second time flow rate:111m³/h
87°C hot water from the 1# panel heat exchanger back to the hot water tank.

In order to improve the inlet temperature of the hot water absorption chiller, the second time 1 #heat exchanger outlet temperature 87°C should be increased to 92.4°C, 2# heat exchanger technology parameter:
The first time inlet/outlet temp: 110/95°C
The first time flow rate: 40m³/h
The second time inlet/outlet:87/92.4°C
The second time flow rate:111m³/h
95°C outlet water from 2# panel heat exchanger back to the hot water tank.
92.4°C outlet water from 2# panel heat exchanger will drive the hot water chiller.

Highlights

Chiller used for Recovery of Waste Heat Using High temp condensing water produced in food sterilization process as the driving power, the hot water LiBr absorption chillers were used to supply cooling to processing and factory. Although the heat resource inlet/outlet temperature is 90/75°C, two stage hot water chillers are used to ensure the unit COP is high to 0.85, with obvious energy saving effect.

Xiamen Hongxin Special Fiber Project

Overview

Project name: Xiamen Hongxin Special Fiber Co., Ltd Production Technical Improvement

Project location: North Industrial Park, Xiang'an Xiangbei, Xiamen city

Investor: Xiamen Hongxin Special Fiber Co., Ltd

Equipment selection: 2300kw LiBr absorption chiller especially for chemical Industry;
1745kw single effect steam LiBr absorption chiller

Main feature: Using ultra-low pressure to supply cooling to production process

Introduction

Covers an area of 150 mu, Xiamen Hongxin Special Fiber Co., Ltd. specializes in providing high quality fiber to domestic synthetic leather company, which is the biggest production base for composite ultra-fine difference fiber. This company is affiliated to Singapore Main Board Listing Fiber technology Group. The main products include figured island composite ultra-fine stable fiber. Polyester filament, polyester/polyamide font composite ultra-fine fiber and figured island super fiber leather.

Highlights

This project uses ultra-low pressure (0.06Mpa) to supply cooling to production process. Moreover, these chillers are applied in fiber production factory, so the steam used for chiller induce large corrosive components. In order to ensure the normal and stable operation of the chiller, Deepblue technical department spend much more time to improve the chiller's inner structure and materials.



Chongqing Unisplendour Chemical Project

Overview

Project name: Chongqing unisplendour chemical Improvement

Project location: Yongchuan district, Chongqing

Investor: Chongqing unisplendour chemical Co., LTD.

Equipment selection: Two unit 2035kw steam LiBr absorption chiller especially for chemical industry

Main feature: Supplying cooling to production process

Introduction

The main business of Chongqing unisplendour chemical company include hydrocyanic acid and t6he R&D, production and sale of its derivatives, whose main products include aniline acetonitrile, imino two acetonitrile and the other chemical products. The company headquarter is located in Yongchuan district. After seven year's development, a industrial was been formed (Yongchuan, Fengdu, Changshou). Until now, it has become the largest, the leading, sustainable competitive natural gas fine chemical production base. To ensure the normal and stable operation of the chiller during the chemical product manufacturing, strict demand has been made for the chiller's stability and reliability. Two Deepblue unit 175*10⁴kcal/h steam LiBr absorption chiller were used in this project.



Highlights

The chiller in this project are applied in a chemical production factory, so that both the chilled water and cooling water contain some corrosive materials. To ensure the normal and stable operation of the chiller, stainless steel tubes are adopted, which overcomes some bad effects caused by the environment.



Fujian Dongxin Petrochemical Project

Overview

Project name: Fujisn Dongxin Petrochemical

Project location: Quangang district, Quanzhou city, Fujian

Investor: Fujisn Dongxin Petrochemical company affiliated to HongKong dongYuan (international)trading company

Equipment selection: 4070kw steam LiBr absorption chiller

Main feature: Supplying cooling to production process

Introduction

Fujisn Dongxin Petrochemical company is a joint-stock enterprise, which is affiliated to HongKong dongYuan (international)trading company, with total investment capital 0.3 billion Yuan, company area of 175mu, 6 ton output of cyclohexanone and sales revenue 0.9 billion. Located at Quangang district, Quanzhou city, Quangang district industrial park was named as " Petrochemical industrial park of China", was approved for the second pilot unit for national circular economy, and became the first pilot industrial park . With the completion of the more than 50 billion Yuan refined and integrated joint venture projects, the second phase of sinope 12 million ton oil refine, and following up of Taiwan petrochemical project, this park has become one of the nine refining bases. The nearest province, such as Guangdong, Jiangxi, Guangxi, Hainan, Fujian and Taiwan are the main market for cyclohexanone.

The high-temp steam produced during the petrochemical products manufacture is the driven heat resource for the absorption chiller to supply cooling to the production process. Petrochemical products manufacture process need high demand for the chiller's stability , otherwise, any fault caused by the chiller quality will result in huge economic losses. Thanks to more than 10 years experiences in this special field, professional technology, excellent manufacturing facilities, strong manufacturing ability. Perfect quality insurance as well as the comprehensive performance, Deepblue made a good impression on our customer, so that this project can be done successfully.

Highlights

This project adopts one single effect steam absorption chiller, by using 0.1-0.2MPa steam to get 7°C chilled water for the process cooling. A great number of high efficiency copper tubes are used, with evaporator on the left and absorber on the right, having compact structure, which all solve the problem caused by the limited space.

Kelun Pharmacy Project



Overview

Project name: Yili Chuanning Biotechnology Co., Ltd Antibiotic

Project location: Border economic cooperation zone in Yining

Investor: Sichuan Kelun Pharmacy Co., LTD

Equipment selection: Three unit 6980kw steam LiBr absorption chiller
One unit 1163kw steam LiBr absorption chiller
One unit 930kw hot water LiBr absorption chiller
Two unit 700kw hot water LiBr absorption chiller
Two unit 465kw hot water LiBr absorption chiller

Main feature: Supplying cooling to erythrocin production process

Introduction

Yili Chuanning Biotechnology Co., Ltd. is a wholly-owned subsidiary company established by Sichuan Kelun Pharmacy Co., LTD to produce thousands tom antibiotics. The total investment is up to 4.992 billion Yuan, including 2.7 billion Yuan for the first phase, building two erythrocin production line with 4 workshops. Using biological fermentation method to finish the synthesis of the erythrocin, concentrating the liquefaction process into refined salt, salt extraction of erythrocin---erythrocin thiocyanate products, with annual output 4800 ton sulfurerythrocin.

Fujian Fukang Pharmacy Project



Overview

Project name: Steam fired LiBr absorption chiller

Project location: Fuzhou, Fujian

Investor: Fujian Fukang Pharmacy Ltd.

Equipment selection: Two unit 4650kw steam LiBr absorption chiller

Main feature: Supplying cooling to production process

Introduction

Beside as the biggest pharmaceutical company in Fujian province, Fujian Fukang Pharmacy Ltd. Also belongs to national high-tech enterprise, one of top 100 pharmaceutical enterprise. The products contain upper, middle and downstream series. The main products include 7ACA intermediate Headspore types of sterile APIs, some other antibiotic raw material, preparation and feed additive in five categories. Fukang has already established long-term and stable business relationship with more than 40 countries and more than 100 companies. Fukang also get many certificate, such as national GMP certificate, FDA and COS certificate. In the second half of 2010, Fukang bought two steam absorption chiller from Deepblue, which adopt the steam and exhaust gas as the heat resource to produce chilled water for the pharmaceutical process. The whole system can increase the energy utilization rate, so that the company's environment also can be improved. The cooling capacity range of the whole system is 10%-100%. This project can save 4000Tce energy.



Shandong Weifang Huadong Rubber Ltd. Project



Overview

Project name: Shandong Weifang Huadong Rubber Ltd.
Technical improvement
Project location: Shouguang, Weifang, Shandong
Investor: Shandong Weifang Huadong Rubber Ltd.
Equipment selection: Two unit 3500kw steam LiBr absorption
chiller for rubber industrial
Main feature: Supplying cooling to rubber production process

Introduction

Established in 1991, Shandong Weifang Huadong Rubber Ltd is the earliest private enterprise to produce tires, which focus on producing car truck tires, light truck tires, agricultural tires, engineering tire, polypropylene non-woven fabric such as the five major series of products, with annual production capacity 600000 sets, as the largest rubber production enterprise. High-temp steam will be produced when manufacturing rubber, which can be used to supply cooling.to production process. In order to ensure the continuous and normal operation, customer has a high requirement for the whole steam absorption chiller system. That's the reason why so many foreign brand chillers are used in rubber industrial.



Xinjiang Alaer Qingsong Chemical Project



Overview

Project name: The first phase 100000ton/year of caustic soda
Project location: Industrial park 2
Investor: Xinjiang Alaer Qingsong Chemical Ltd.
Equipment selection: Two unit 4650kw steam LiBr absorption chiller
Main feature: Supplying cooling to production process

Introduction

Xinjiang Qingsong construction material and chemical(Group) is a quoted company, with 10 subsidiaries, 9 holding subsidiaries, 8 share-holding subsidiaries company, which is a comprehensive and integrated industrial enterprise, focusing on cement, construction material, chemical, and also handling generating, transportation and machinery processing. In order to accelerate the speed development, Qingsong company established the 300000 ton caustic soda project in industrial park2. It mainly produces caustic soda and PVC, with products such as caustic soda, liquid chlorine, hydrochloric acid, PVC, with total investment178000 Yuan.the output of the first phase is 0.42 billion Yuan, which is expected to put into operation by the end of 2011. The annual sales can increase to 2.26 billion Yuan, and the annual profit before tax will increase to 0.32 billion Yuan.
This project is one of the important project among construction material, chemical and new energy. This project's operation can stand for the new progress of Qingsong.
This project select two unit steam fired absorption chiller as the cooling supply equipment.

Henan Sanmenxia Yimei Group Project

Project overview

Project name: Yimei group village colliery distributed energy center
Project location: Sanmenxia city, Henan
Investor: Henan Sanmenxia Yimei group
Equipment selection: Two unit 1160kw hot water LiBr absorption chiller
Project area: 16000 M²
Main feature: Air conditioning for staff dormitory



Introduction

Henan Sanmenxia Yimei group is super-huge enterprise, which has formed four industrial chain, including coal power, coal for aluminum, coal for chemical industrial, coal for construction material. Until now some progress have been made when using the coal and gas. The buildup of the 4*500kw gas power plant made a big progress in gas drainage and plucking to the comprehensive utilization. After the 7 gas power plant been built in the first phase entirely, the exhaust heat can be used to supply heating and cooling. Coal and gas power plant of Yimei group is a kind of co-generation(CCHP) project.

Yimei group Gen village coal mine built the gas power plant with coal. In order to improve the energy utilization rate and solve the air-conditioning problem of the six single dormitory, Deepblue's absorption chilled have been adopted. It was designed by Deepblue. Using 120/80oC hot water LiBr absorption chiller (large temp difference), and fan coil units have been adopted at the terminal, without fresh air system.

Highlights

Waste material recovery, comprehensive utilization of energy, acquisition of coal mine gas into gas power plant and the whole system design realized this co-generation project.

Sinopec Jiangnan Salt and Chemical Project



Overview:

Project name: Sinopec Jiangnan Salt and Chemical central factory energy conservation
Project location: Qianjiang city Hubei
Investor: Sinopec Jiangnan Salt and Chemical central factory
Equipment selection: 810kw steam LiBr absorption chiller
Main feature: Supplying cooling to production process

Project introduction:

Sinopec Jiangnan Salt and Chemical central factory is a comprehensive chemical enterprise, which is a subsidiary company of Sinopec. It was consisted of Glauber's salt plant, chlor-alkali plant, bleaching powder production branch factories, chemical plant, power plant etc. In recent year, Jiangnan improved energy-saving technology to promote the equipment stable operation . The energy improvement of the chlorine compression and liquidation system will consume 1056000 kw/year and save coal 129.8 tons/year. With the introduction of graphite hydrochloric acid synthetic furnace technology, more than 8000ton steam will be produced as the byproduct. Adopting LiBr absorption chiller to replace the screw unit, which has a higher operating cost, can save annual electricity cost 146000 Yuan and save 7300ton steam. The "isolated network operation" , non-impact network and grid have been realized in power system, which can avoid the losses caused by device shutdown.



Zarand Coking Plant

Overview:

Project Name: Iran Zarand Coking Plant
Project Location: Iran
Investor: Iran Zarand Steel
Equipment Selection: 3 units of 4MW steam fired absorption chiller
Major Function: Industrial process cooling

Introduction:

The Zarand Coking plant is constructed by cooperation of China Third Metallurgical Group Co., Ltd and Iran Zarand Steel Co., Ltd, which has a capacity of 800,000 ton/year. Three 4MW steam fired chillers from Hope Deepblue are installed.



Kaixiang Chemical BDO phase III

Overview

Project Name: Kaixiang Chemical DOD phase III
Project Location: Yima City, Henan Province, China
Investor: Henan Kaixiang Chemical Co.,Ltd
Equipment Selection: Two units 840kW explosion proof hot water fired chiller
Major Function: Industrial process cooling

Introduction

KaiXiang Chemical Co.,Ltd is a Sino-foreign joint venture with 276 million RMB investment, which was founded in December of 2004. The BDO is project to produce butanediol by world class level technology, which is one of the key projects of Hunan province in 2011 and 2012. The project enable KaiXiang Chemical to enlarge product line and product is widely used in chemical industry, textile, automobile industry, pharmacy. There are 3 phases in total for whole project and the phase III has installed Hope Deepblue hot water fired absorption chiller for their process cooling.



Nantun Coal Mine Bath System

Overview

Project Name: Nantun Coal Mine Bath System
Project Location: Zoucheng, Shandong province
Investor: Shandong Huaju Energy Co.,Ltd
Equipment Selection: two unit 1.4MW steam fired heat pump
Main Function: Using waste heat to produce bath water with high efficiency.



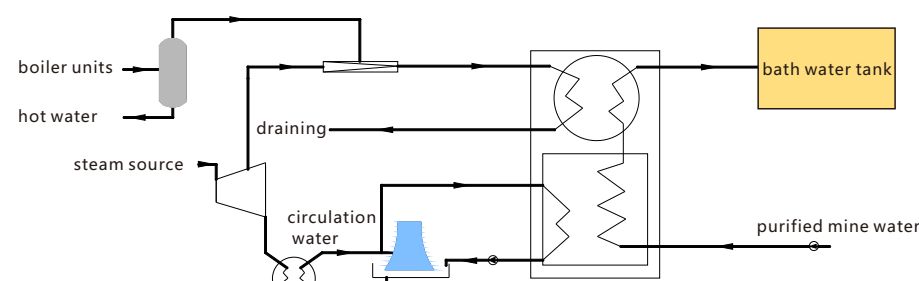
Introduction

Shandong Huajun Energy Co.,Ltd is set up by Yunkuang group, consist of six power plants with more than 20 years experience. Nantun Coal Mine power plant locate in southwest of Nantun Coal Mine, covering an area of 112,600 m² and investment is 10 million USD.

High temperature sewage from power plant enter into boiler and flash to steam, then mixing with steam from steam turbine, which drive the steam fired LiBr absorption heat pump and recycle heat from cooling water of turbine to heat up purified water to 65 deg C. The hot water is used for bathing with capacity of 1500m³/day and available in 24 hours.

Highlights

1. Extend the power plant control system (DCS) with waste heat regulation function to make sure high efficiency of whole system and main equipment. The major research is control technology to keep stability of steam pressure and temperature after mixing steam from boiler and turbine, as well as the regulation and control of circulating water pump. The new system not only to make sure normal operation of power plant but also to supply bath water in 24 hours and heating water in winter.
2. Modify water level regulation device in sewage tank to realize auto-regulation according to pressure and water level, meanwhile send the signal to control room. Normally, power plant use sewage tank to recycle waste heat and working medium, however in the actual operation, the steam pressure and water level in sewage tank wave wildly and not easy to control. So after the modification, the pressure and water level is controlled well, increasing stability and saving water by making use of the condensate water as refilling to central heating system in winter.
3. High efficient and low cost absorption heat pump is developed by professional manufacturer to recycle waste from mixing steam from boiler and turbine. The pressure and temperature of driven steam is stable after mixing steam from turbine by unique technology, from where heat pump is able to capture and make full use of waste heat.



Hongpailou Plaza

Overview

Project Name: Hongpailou Plaza
Project Location: Wuhou district, Chengdu, China
Investor: Sichuan Yonghe Co.,Ltd
Equipment Selection: two units 3 MW direct fired absorption chiller;
two units 1.5 MW direct fired absorption chiller.
Main Function: Supply chilled water and heating water for air conditioning of the Plaza.

Introduction

Hongpailou Plaza is located in business Zone of Wuhou district, where is the entrance for west motor city, Wuhou industrial zone and Wuhou logistic center. The project is close nearby second ring road of Chengdu and intend to be sub-CBD of Chengdu and center of business, which is a complex consist of residential houses, five star cinema, hotel, office building, super market etc. The total construction area is approx. 350,000 m² including 140,000 m² business area and 20,000 m² hotel area.



Jiangnan Mall Shopping Square

Overview

Project Name: Jiangnan Mall Shopping Square
Project Location: Jaingxing, Zhejiang Province
Investor: Jintaiyang Real Estate Co.,Ltd
Equipment Selection: two units 4MW direct fired absorption chiller;
two units 1.7 MW direct fired absorption chiller.
Main Function: Supply chilled water and heating water for air conditioning
of the shipping mall.



项目实景图



Introduction

Jiangnan Mall is located in Jiaying City of Zhejiang province with total construction area 200,000 m² and investment 500 million RMB. It is well known in Jiaying as "an aircraft carrier of business". The aim of this project is using most advanced business mode of shopping mall all over the world. The mall consist of three zones including east zone, middle green area, west zone, which is a one -step complex mall with shopping, restaurant, entertainment, business and culture. Many world famous brands like Walmart have settled in the mall.

Runhua International Building

Overview

Project Name: Runhua International Building
Project Location: Wuxi, Jiangsu Province
Investor: Rundili Real Estate Development Co.,Ltd
Equipment Selection: two units 2 MW direct fired absorption chiller.
Main Function: Supply chilled water and heating water for air conditioning of the office building.



Introduction

Runhua International Building is a CBD elite business platform, which is developed by Rundili Group. Runhua building is the first "L" shape skyscraper with height of 258 meters. It is located nearby new Sport Center of Wuxi city and beside Taihu lake. The construction area of this project is 1500000 m², and consist of by 55 -floors A tower, 45-floors B tower and 6-floors podium. It is a super tall building with complex function of business, 5-star hotel, apartment, conference, sport and entertainment. This project was awarded as " The Most Appreciation Potential Office Building of Asia in 2006" at the Asian Real Estate Summit in 2006 and then awarded as " National Environmental Human Habit Project" in 2007.

Homeland Hotel Green Energy Center



Overview

Project Name: Homeland Hotel Green Energy Center
Project Location: Chengdu, Sichuan, Province
Equipment Selection: one unit 1.8MW multi-energy fired chiller
Main Function: Tri-generation system to supply heating water, chilled water, and power to hotel

Introduction:

Homeland hotel is a 5 star hotel with 228 sets of luxury suites and 37 sets of villas, which is the first villa-type 5 star hotel in China.

The designed air conditioning load for hotel is 7500kW. If adopt compress air conditioning system, the power demand of chiller is 1500kW and the whole system is 2440kW, while power demand of lighting system is 2000kW. The total installed capacity is 5500KVA. As to common design, 5 star hotel must adopt dual power supply system and set up emergency power supply, the total investment is extremely high.

After adopting the tri-generation system, all of the electricity power is supplied from the system. Since unit heat price of natural gas is much lower than diesel, natural gas fired generators are selected as the main generators while diesel fired generator was set as the back up in case of lacking of natural gas. The energy center is dual fuel fired and multiple generators operate parallel, the power supply is table and total installed capacity is 6800kW(including 2800kW back up diesel fired generator). In addition, the cooling is supplied by recycling waste heat from generator, the power consumption of air conditioning system has been reduced greatly. The actual power load of whole hotel is only around 3000kW.

There are eight units natural gas fired generator with unit capacity 500kW, and four units diesel fired generator, which has taken the consideration the emergency power supply if some generators stop. The general design of energy center is completed at one time and installed step by step according to actual operation.

The yearly power consumption of homeland hotel is 9 million Kwh and natural gas consumption is 2.9 million m³. Energy cost is 2.7 million RMB and maintenance cost is 0.32 million, total operation cost is 3.02 million. Meanwhile, the system has supplied 74,000m³ hot water by recycling waste heat, which save natural gas by 528,570m³ and cost by 0.5 million RMB

Highlights

High Efficient

The total energy efficiency reaches to more than 80% by the step utilization of energy.

Environment Friendly

Because natural gas is used as the main fuel for the system, harmful gas emissions has been reduced. SO2 and solid waste emission is nearly zero and CO2 emission is reduced by at least 50%.

Peaking Regulation

The consumption of natural gas in summer is less but much more in winter. While for tri-generation system, the natural gas consumption is more in summer and less in winter. So the system realizes peak load shifting.



Modern City Shopping Square

Overview

Project Name: Modern City Shopping Square
Project Location: Yinchuan, Ningxia Province
Investor: Yichuan Jianfa Group
Equipment Selection: Six units 2600 kW direct fired absorption chillers.
Main Function: Supply chilled water and heating water for air conditioning of the buildings.



Introduction:

The Modern City is a super large commercial project, which was invested by Jianfa Group. It is a landmark project in Ningxia province and well known as the "NO.1 building of Ningxia". Modern City is also the classic case of urban redevelopment project. The total construction area is 133000 m² including 50000 m² shopping mall, 66000m² hotel and office building, and 17000 parking lot. The height of tallest building is 130 meters.

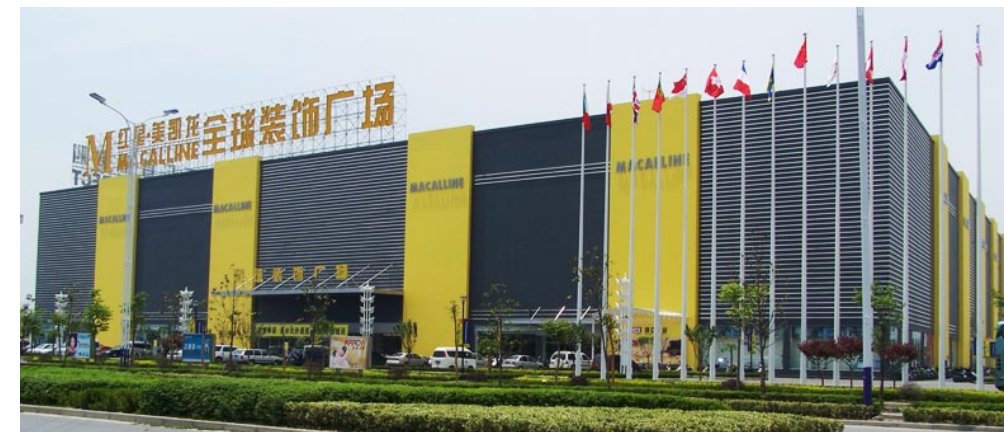
Macalline Furniture Center

Overview

Project Name: Macalline Furniture Center
Project Location: Bengbu, Anhui Province
Investor: Bengbu Real Estate Development Co., Ltd
Equipment Selection: Nine units 4070 kW direct fired absorption chillers.
Main Function: Supply chilled water and heating water to shopping mall.

Introduction:

Macalline is a famous brand for furniture shopping mall in China, which is a chain store group established by Red Star Furniture Group. Since 1986, there are 39 Macalline shipping malls was set up in 22 cities all over China. The total shopping area is 3 million m², and sales amount 15 billion RMB in 2007, which is NO.1 furniture chain store brand in China. Bengbu Macline Mall covers an area of 70000m², which is the largest furniture shopping center in Bengbu city.



Danish SONDERBORG District Heating Project

Overview

Project Name: The Danish SONDERBORG district heating project
Project Location: SONDERBORG
Investor: Clean Air Technologies AB
Equipment Selection: 1 set of 2.8MW LiBr absorption heat pump
 1 set of 5.0MW LiBr absorption heat pump
 1 set of 11.2MW LiBr absorption heat pump
 1 set of 16MW LiBr absorption heat pump



Introduction:

Denmark is a western industrially advanced country as well as one of the 8 Europe economic countries. Due to the want of the natural resources, Denmark just possesses rare mineral resources except for the petroleum and natural gas. That's why all their coal resources are imported from other countries. Owing to the former reason (lack of natural resources), a strong sense of energy saving has been rooted in their people's mind. Denmark is the first country that proposed the idea of "fossil fuel independent". During the last 30 years, Denmark's economy increased 78%, but meanwhile the energy consumption basically remained constant.

Hope Deepblue provided one of the Danish thermal power station with 4 unit absorption heat pumps. The maximum single unit heating capacity is up to 16MW. This central heating system is geothermal energy heat pump, using 47°C low-temp geothermal energy and high-temp hot water which produced by burning the timber and household waste as the heat resource to multistage recover the exhaust heat discharged by boiler, and exhaust emission adopted multistage wet scrubbing to de-dust, then the heat of the circulating water will be totally utilized.

In order to use the geothermal energy and heat from boiler efficiently, the temperature of each part should be precise to 0.1°C, and the temperature and flow rate should be regulated separately to realize maximum heat utilization as well as absorption heat pump efficiency.

The structure of this heat pump system is special. The absorber and condenser are separately controlled with respective hot water output. The flow chart of the pump is complicated with particular control mode.

Highlights

This heating system have 4 unit hot water fired absorption heat pump with each heating capacity 2.8MW, 5.0 MW, 11.2MW, 16MW and total heating capacity 35MW.

The circulating water in evaporator and geothermal hot water realized indirect heat exchange. The evaporator water system of 4 unit heat pumps operated in series, to cool the circulating water gradually, to make the geothermal water back to the tank after cooling from 47°C to 11.8°C by using the 35.2 °C temperature difference, and use some of low-temp water from evaporator to exchange with de-dusting water to recover the exhaust de-dusting heat. The absorber hot water system of 4 unit heat pumps operated in series, to heat from 43.8°C to 69.2°C gradually with total heating 25.4°C. The hot water produced by boiler exhaust secondary recovery and the absorber operated in parallel, to heat the circulating water form absorber to 80.3°C with total heating 11.1°C and system hot water heating 36.5°C. This system with 4 unit abortion heat pump operated in series and as well as in parallel. The total COP for the heat pump is 1.71.

Thanks to the multistage heat recovery, the plant use 20.5MW hot water boiler to realize 45.3MW heating output with the comprehensive heating efficiency up to 2.21.



Part of The Customer List

Coking industry



Inner Mongolia Limin Coal Co., Ltd.
Xuzhou Jiantao Energy Co. Ltd.
Modern coal in shanxi coking co., LTD
Shanxi Xiaoshan Industry Co., Ltd.
Modern coal in shanxi coking co., LTD
Zigong cemented carbide Co., Ltd.
Inner Mongolia Tianzhong red Coking Co., Ltd.
Ra Saiatetsuo Coking Co., Ltd.
Shanxi Hongdong Yuandong Coking Co. Ltd.
Shaanxi Huangzhai coal gasification Co., Ltd.
Shanxi three Sheng Jiexiu Coking Co., Ltd.
Shandong zibo city grand mining foundries
Laiwu Jiuyang welfare iron.
Shanxi Yongxin Coking Co., Ltd.
Lingbao Huaxin Copper Co., Ltd.
Shanxi Yilong coking Limited by Share Ltd
Shanxi Taiyue Coking Co., Ltd.
Shanxi Shengda Coking Co., Ltd.
Liulin County Haobo Coking Co. Ltd.
Jiangsu Engineering Co. Ltd.
HTC Zibo Coking Co. Ltd.
Xingtai Xuyang Coking Co., Ltd.

Hebei Qian'an Hong Austrian industry and Trade Co. Ltd.
Hunan province Loudi city Lianyuan Steel Corp
Shandong Xinfu Aluminum Co., Ltd.
Shandong province Yuci banle alumina plant
Shanxi Hongdong County far in Coking Co. Ltd.
Hejin Longmen aluminum Coal Coking Co., Ltd.
Shanxi Oriental Resources Development Co., Ltd.
Shanxi County in Shanxi and Henan Province Coking Co. Ltd.
Shanxi province Xiangfen County Dragon Chemical Co. Ltd.
Linfen longshong smelting Co., Ltd.
Shanxi Xiyu Coal Chemical Industry Co., Ltd.
Taiyuan Jinmei electromechanical equipment factory
Zou Pingfan bird Chemical Gas Co. Ltd.
Qian'an Jiujiang Coal Transportation Co. Ltd.
Shanxi Oriental Resources Development Co., Ltd.
Shanxi Yuci Changxin Coking Co., Ltd.
Ancient county Lida Coking Co., Ltd.
Jiangsu Huaian Jinma Coking Co., Ltd.
Shanxi Asia-Pacific magnesium smelting Coking Co. Ltd.
Shanxi Tongli and the electromechanical device co., LTD
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Medical and chemical industry



Huaian farun Chemical Co., Ltd.
Zhejiang Cifu fibre Co. Ltd.
Chengdu Guangtai pharmaceutical company
Guangzhou Litai Pharmaceutical Co., Ltd.
Chengdu Tongde Pharmaceutical Co., Ltd.
Shandong Weifang Huadong Rubber Co., Ltd.
Xiamen Hong times special fibre material Co. Ltd.
Baotou sea Polymer Industry Co. Ltd.
Shanxi Xiang Heng Yu Xin Chemical Co., Ltd.
Sichuan Weiyuan Huaxia Composite Materials Co Ltd

Hunan Kelun Pharmaceutical Co., Ltd.
Shandong Hualu Pharmaceutical Co., Ltd.
Pengzhou City People's Hospital
Chongqing Yongchuan Ziguang Chemical Co. Ltd.
Qufu Jin Shi Li technology industry limited company
Shandong Fuyu Plastic Co., Ltd.
Dezhou Huamao Biotechnology Co., Ltd.
Henan Anyang continent Pharmaceutical Co. Ltd.

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Hotel

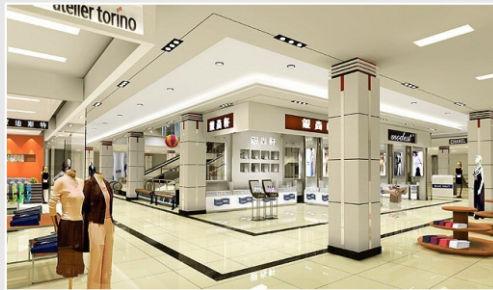


Chengdu Homeland Hotel
Ganzi Hotel in Chengdu
Chongqing Shouxing Hotel
Jintang Jin Yu Hotel
Hebei sky blue sea Holiday Inn
Chongqing Kaiyuan Building
Ya'an asbestos Hotel
Jiangxi Huatai Hotel
Xuzhou Jinshengyuan bath center
Zigong tanmulin Hotel

Shanxi Yuncheng diamond Times Hotel
Taiyuan gold apple Hotel
ChengduDazhou Hotel
Chengdu Tongle Restaurant
Nantong Hongqiao Hotel
Henan Ying Jun International Hotel
Treasure Holiday Hotel Nanjing
Xinyu Haitian Hotel
Hanzhoung Hanbao large building
Hebei Handan island Hotel

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Market

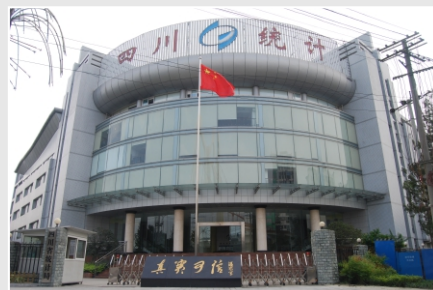


Zhejiang Yang Tae Estate Development Co., Ltd.
Chengdu City new ZTE brand commercial plaza
Yinchuan Construction Group Co., Ltd.
Ningxia Zhongwei Sheng Shopping Center
Taiyuan Saibo digital port
Luzhou Anfu, shopping mall

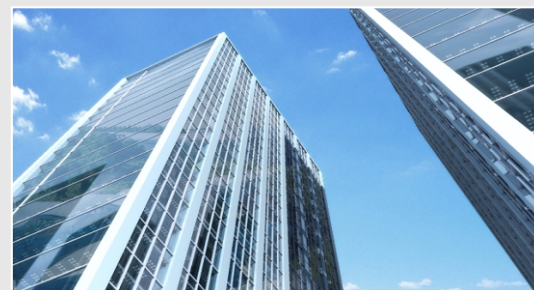


Times Square in Bazhong City
Taiyuan Tian Sen supermarket
Zhejiang juhao Macalline
Anhui into real estate Co. Ltd.
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Others



Comprehensive building of Sichuan Bureau of Statistics
Wuhan quality real estate co., LTD
Tongxiang city business real estate development co., LTD
Erdos Xinyuan Real Estate Development Co., Ltd.
Xi'an City Hua Sheng Technology Ltd.



Shanxi Yizhou Juchang Garment Co., Ltd.
Datong Haohai Trade Co., Ltd.
Taiyuan Jin Guang Trading Co. Ltd.
Shanxi hengda real estate co., LTD
Hunan province Yiyang Huamei Company
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Oversea Installations



Dhaka Textile Plant (Bangladesh)
APL Power Plant (India)
Torrington District Heating (Denmark)
Sonderborg District Heating(Denmark)
Zaharan Coking Plant (Iran)
Hospital CCHP (Turkey)

Tire factory (Indonesia)
Glass Chemical Plant (Indonesia)
Plastic factory CCHP (Czech Republic)
Rome Hospital (Italy)
Venice Supermarket(Italy)
Lomza Power Plant (Poland)

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Hope Deepblue —Waste Heat Utilization Expert