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SHANGHAI BAOFENG MACHINERY MANUFACTURING CO.,LTD.



SPL Evaporative Condensers

Table of contents

SPL Features 3

SPL Series Evaporative Condensers 7

SPL Evaporative Condensers Selection Criteria 9

SPL Evaporative Condensers Drawing/Technical Data 11

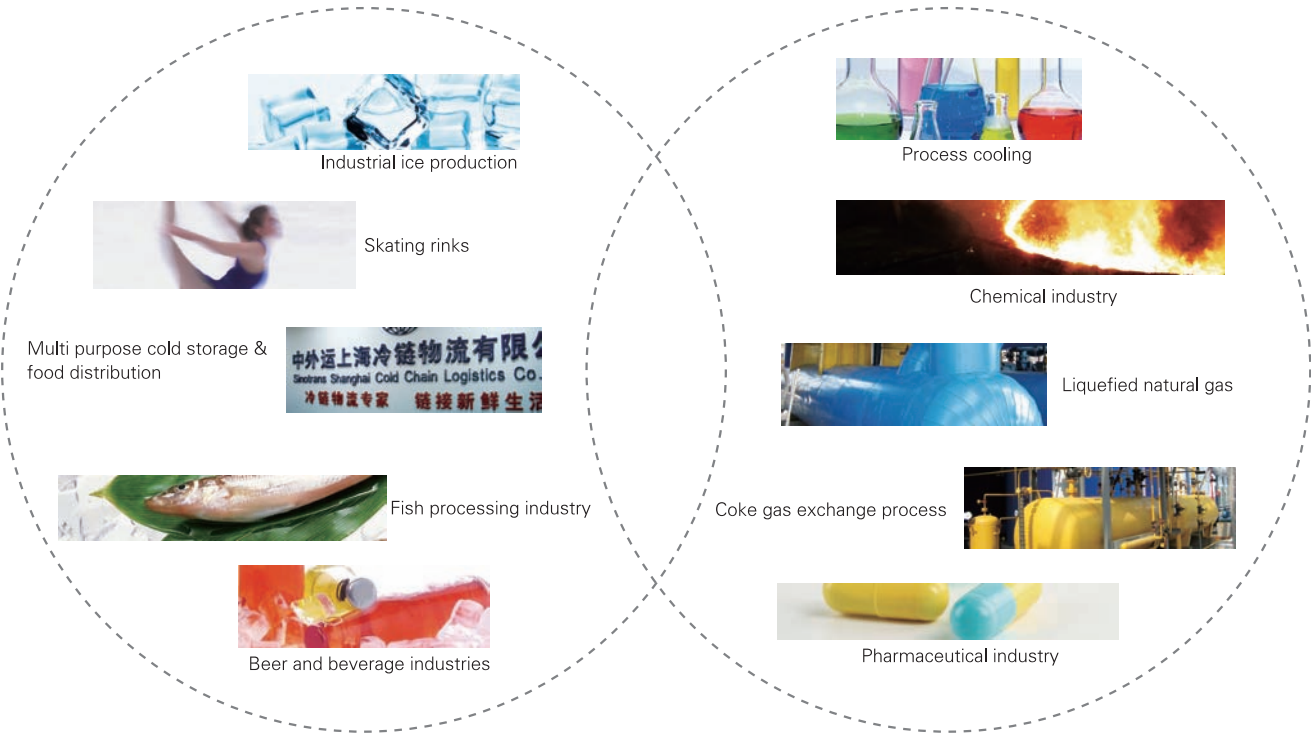
Company Introduction

SPL is 100% owned by listed company Lianhe Group with national resources and solutions for worldwide heat transfer application located in Shanghai China. SPL is dedicated to designing and manufacturing the highest quality products for the evaporative cooling and industrial refrigeration markets around the globe. Since its founding in 2001, SPL Incorporated has become an industry leader in the engineering and manufacturing of quality heat transfer products in China.

Industry Sectors

The SPL range of condensers are suitable for applications in a variety of industries from the Food Industry to the Petrochemical industry. Their range includes both counter flow and combined flow technologies.

SPL’s powerful combination of financial strength and technical expertise has established the company as a recognized manufacture of market leading products on a nationwide basis. SPL is also recognized for the superior technology of their environmentally friendly products, innovation in sound reduction and water management. SPL has a strong emphasis on research and development and modern manufacturing plants.



SPL Series Features

Advanced Technology

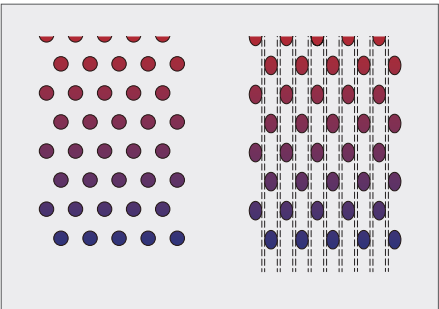
SPL’s exclusive condensing coils are manufactured at SPL from high quality steel tubing following the most stringent quality control procedures. Each circuit is inspected to assure the highest material quality.

All SPL coils are formed in one continuous piece using a unique automatic coil production line, this process limits welding slag, increases production efficiency and factory lead times.

The coils are hydrologically tested 3 times during the manufacturing process to 2.5Mpa to ensure they are leak free.

To protect the coil against corrosion, coils are placed in a heavy steel frame and then the entire assembly is dipped in molten zinc (hot-dip galvanized) at a temp of 427°C. The tubes are pitched in the direction of fluid flow to provide good liquid drainage.

Advanced Technology-Elliptical Coil



Super Galum Wall Structure

Super Galum is the brand name for 55% aluminum-zinc coated steel sheet. Super Galum is highly heat and corrosion resistant, combining the properties of aluminum which renders increased durability, excellent heat resistance, formability, and those of zinc which offers high heat resistance and excellent corrosion protection. Super Galum is three to six times more corrosion resistant than regular zinc coated steel sheet.

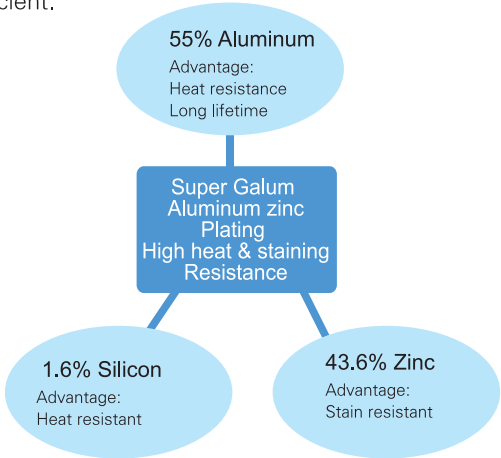
PERFORMANCE EFFICIENCY UP



SPL-S Coil Technology

SPL’s standard coils offer the most effective performance of heat transfer with the coil technology and fill combination to avoid the dry spot and dirt forming on the coils.

SPL’s coils feature an exclusive design which assures maximum cooling capacity. The airflow through the coil is parallel to the fluid flow, providing the most efficient heat transfer process. A special coil design is utilized to reduce the air pressure drop through the unit while maximizing tube surface area and increasing its heat transfer capabilities. The uniquely shaped tubes of the coil are staggered in the direction of airflow to obtain a high film coefficient.



SPL Series Features

Advanced Technology-De-scaling cleaner

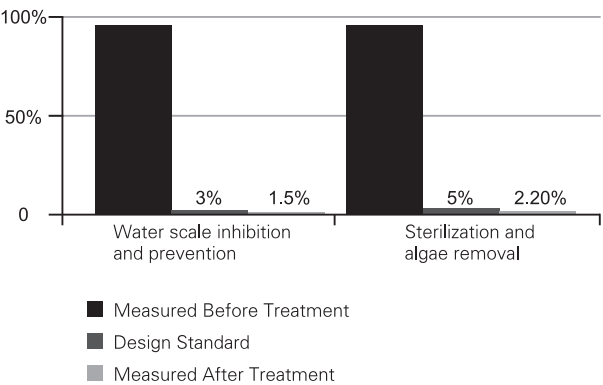
The electronic De-scaling cleaner offers 98% increased effectiveness over of water scale inhibition and over 95% increased sterilization & algae removal over high-frequency electronic technology. Designed especially for closed loop cooling towers and evaporative condensers with low power consumption.



Patented Air Inlet Louver

With the SPL two pass louver system, the water droplets are captured on the inward sloping pass, minimizing splash-out problems. SPL’s unique louver design for all SPL’s N lines completely encloses the basin area. Direct sunlight is blocked from the water inside the condenser and cooling tower, thereby reducing the potential of algae formation. Water treatment and maintenance costs are substantially reduced. While effectively containing the recirculating water and blocking sunlight, the louver design has a low pressure drop. The low pressure drop results in lower fan energy consumption, which reduces the operating costs of the cooling tower.

PERFORMANCE EFFICIENCY UP



Patented Fill Technology

SPL fill design used in the S line evaporative condensers and cooling towers and is specially designed to induce highly turbulent mixing of the air and water for superior heat transfer. Special drainage tips allow high water loadings without excessive pressure drop. The fill is constructed of inert polyvinyl chloride, (PVC). It will not rot or decay and is formulated to withstand water temperatures of 54.4°C. Due to the unique way the cross-fluted sheets are bonded together in the honeycomb structure of the fill and the bottom support of the fill section, the structural integrity of the fill is greatly enhanced, making the fill usable as a working platform. The fill selected for the condenser and cooling tower has excellent fire resistant qualities.



SPL Series Features

Patented Drift Eliminator

SPL's detachable drift eliminator is made from specially designed non-corroding PVC material. The patented eliminators comply with AS/NZS 3666, 1:20116 with a maximum drift loss of 0.001%.

Eliminators are designed for ease of maintenance making them extremely easy to clean.



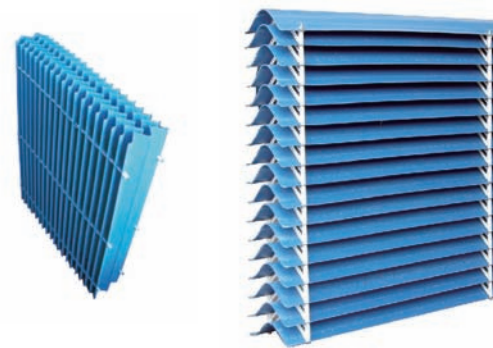
Patented Metal Air Deflector

With the SPL adjustable air deflector system, the water droplets are captured on the inward sloping pass, minimizing splash-out problems. SPL's unique design for all SPL's S lines completely encloses the basin area.

Adjustable function keeps direct sunlight away from the water inside the condenser and cooling tower, thereby reducing the potential of algae formation. Water treatment and maintenance costs are substantially reduced.

While effectively containing the recirculating water and blocking sunlight, the louver design has a low pressure drop. The low pressure drop results in lower fan energy consumption, which reduces the operating costs of the cooling tower.

PERFORMANCE EFFICIENCY UP



Pressurized Water Distribution System

SPL's exclusive patented maintenance free spray nozzle remains clog-free while providing even and constant water distribution for reliable, scale-free evaporative cooling under all operating conditions. Furthermore, the nozzles are mounted in the corrosion-free water distribution pipes and have threaded end caps.

Together, these elements combine to provide unequalled coil coverage and scale prevention, which makes them industry's best performing non-corrosive, maintenance-free water distribution system.



SPL Series Features

Direct Drive Axial Fans

SPL direct drive fans offer following advantages over belt driven fans used by most competitors;

Low failure rate
Easy maintenance
Low noise
Low transmission loss

The axial fan of SPL lines use specific carbon fiber blades forward curved fan, this offers, high air volume, low noise, perfect performance with high efficiency.



Containerized Design for Low Shipping Cost

The SPL-Series products are designed to be shipped in kit form that fits in 20ft and 40ft containers.

A complete 2.11M x 2.41M unit will fit in a 20' shipping container.

A complete 2.21M x 5.92M unit will fit in a 40' HQ shipping container.

PERFORMANCE EFFICIENCY UP



Low Maintenance

The SPL series of evaporative condensers have several key features.

Sloping Basin

The slope of basin bottom to drain pipe makes for convenient cleaning and removal of debris.

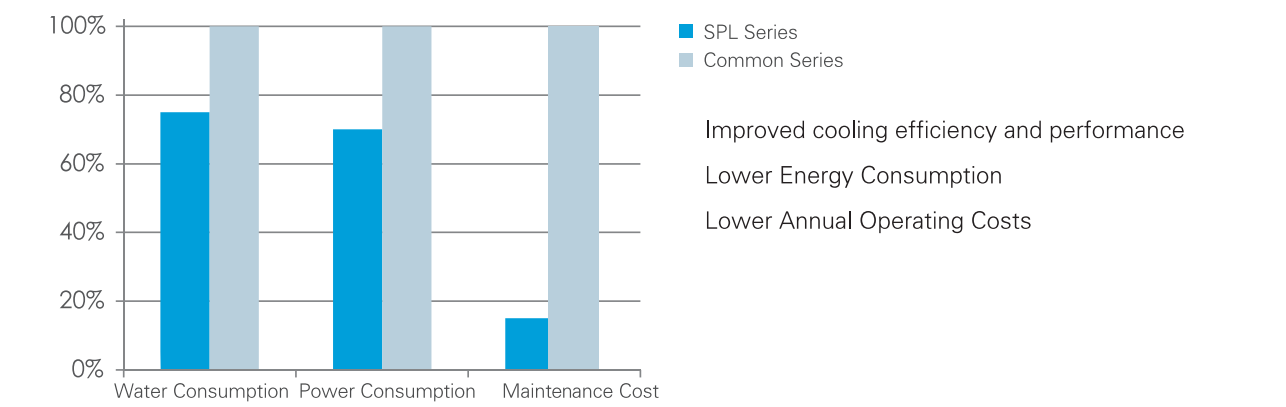
Large Access Doors

Large access doors and generous inner chamber makes for convenient examination and repair.

The ball cock and filter of SPL series can be examined and repaired without stopping the operation of the condenser due to the same direction for airflow and water flow. The nozzles and coils also can be examined and repaired



SPL has earned a reputation for technological innovation and superior product quality by featuring products that are designed to offer these operating advantages:



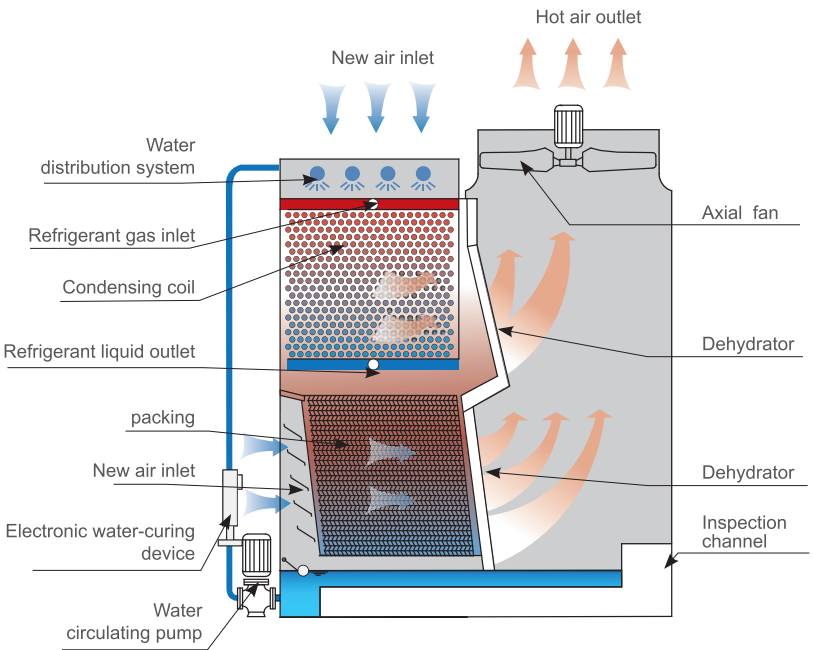
Principle of Operation for SPL-S Series

The SPL-S series use combined flow technology, combined flow technology improves the efficiency of evaporation and cooling while also reducing water wastage.

The refrigerant is circulated through the coil of the evaporative condenser. Heat from the refrigerant is dissipated through the coil tubes.

Water is sprayed in parallel with the fresh ambient air flowing over the outside of the condensing coil. Parallel air and water paths minimize scale producing dry spots that may be found on the bottom of the tubes in other conventional condensers. The condensing coil rejects heat through both evaporative cooling using the fresh air stream and, more significantly, through sensible cooling of the pre-cooled recirculating spray water. Reducing this evaporative cooling component from the coil section helps to minimize the formation scale on the coil surface. A portion of this evaporated heat is discharged sideways to atmosphere by the downward natural induced air.

The warm moist air is drawn sideways by the fan and is discharged to the atmosphere. The remaining water falls from the coil to the fill surface section where it is cooled by a second fresh air stream using evaporative heat transfer and eventually 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.



Unique Design Features—SPL-S



Direct Drive Axial Flow Fan
Carbon fiber blade, hot dip galvanized casting, high air flow rate, low noise, efficiency.



Patented Spray Nozzle
Anti clogging, Scale-free, non-corrosive, unequaled coil coverage, Maintenances free

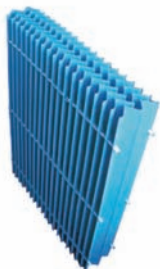
Super Galum Wall
55% Aluminum 43.4% Zinc 1.6% Silicon Coated sheet steel. Positive corrosion resistant, strong tolerance of heat, attractive and durable. 3-6 times more corrosion resistant than regular zinc coated steel sheet.



Condensing Coils
Unique design, high efficiency heat exchange process, single run coil reduces welds and leaks.



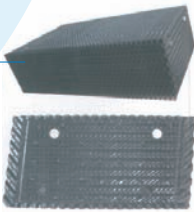
Electronic De-scaling
Anti-scaling, De-scaling, Sterilization & algae removal over 98% of water scale inhibition and prevention and over 95% of sterilization & algae removal.



Detachable Drift Eliminator
Non corrosive PVC. Patented design.



Electronic De-scaling
High efficiency Siemens drive motor.



Air Inlet Louver
Patented design corrosion-free PVC, minimizes splash out and reduces the potential for algae formation inside the condenser.