

New Design of Water Collection and Drainage Device of Cold bed Spray Cooling System

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Abstract: The cold bed spray cooling system water collection and drainage device collects water in the cooling tower by setting a water outlet on the water collection tray at the bottom of the cooling tower, and setting a water outlet above the water outlet, and then by setting a row of outlets below the water outlet, and setting a row of outlets above the outlet, which is also provided with a water collection component, the water in the cooling tower is collected into the water collection component. The cooling tower is discharged through the outlet of the water collecting component. Through the method described above, the water in the cooling tower is collected into the water collection part and discharged outside the cooling tower through the outlet of the water collection part ^[1]. The water collecting component can effectively collect the water in the cooling tower, and can discharge the water outside the cooling tower.

Keywords: Cold bed spray cooling system; Water collection and drainage device; Device design

Introduction

In the traditional cold bed spray cooling system, since the cooling medium passes the water in the cooling tower from the water collection pan at the bottom of the cooling tower, and the water is collected from the cooling tower to the outside of the cooling tower, in order to avoid the water in the cooling tower to be discharged into the rainwater pipe, and at the same time, in order to make the collected water can be effectively discharged into the rainwater pipe. When the cooling medium passes through the water tray at the bottom of the cooling tower, the water is usually discharged directly from the water tray to the outside of the cooling tower ^[2]. Although this can effectively avoid the problem of water when the collected water passes through the cooling tower, there are also the following two problems: First of all, when the cooling medium passes through the water collection tray at the bottom of the cooling tower, the cooling medium will produce condensation when it passes through the water collection tray because the cooling medium is higher than the internal temperature of the cooling tower, so that the cooling medium will produce condensation when it passes through the water collection tray; Secondly, when the collected water is discharged into the rainwater pipe, the temperature of the cooling medium during cooling is higher than the internal temperature of the cooling tower, and the collected water will condense when passing through the cooling tower ^[3]. In order to solve the above two problems, a new type of water collection and drainage device for cold bed spray cooling system is proposed in this paper. The device provides a water outlet on the water collection tray at the bottom of the cooling tower and a water outlet above the water outlet, and also provides a row of outlets below the water outlet and a row of outlets above the outlet. The device exhausts the cooling tower by discharging the collected water from the cooling tower into the storm pipe.

1. Background Technology

The application of the cold bed spray cooling system makes the water mist formed inside the cooling tower, which can cool the cooling air, so that the air temperature can be reduced, the air temperature can be reduced, and the cooling effect can be increased while reducing the air temperature. In addition, the cold bed spray cooling system can also improve product quality and improve product performance ^[4]. However, the cooling tower will produce a lot of water during operation, and when cleaning the cooling tower, it will lead to too much water in the cooling tower due to insufficient cleaning time, which affects the quality of the product. Moreover, when there is too much water in the cooling tower, a large number of harmful substances such as bacteria will be produced, causing certain

pollution to the product. In order to reduce the generation of water in the cooling tower, it is necessary to design a water collection and drainage device for the cooling tower [5]. However, the traditional cooling tower water collection and drainage device has the following problems: 1, the water collection and drainage device is large in volume and occupies a large area; 2, the traditional cooling tower water collection and drainage device has low efficiency.

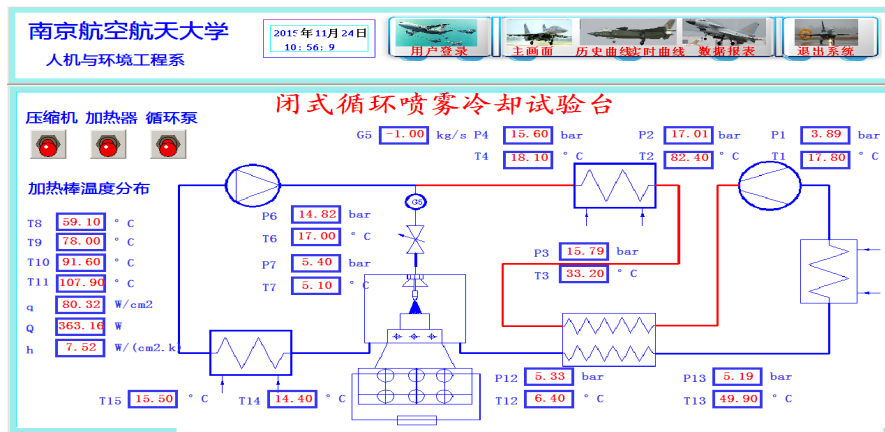
2. Invention content

The invention relates to a cold bed spray cooling system, which comprises a water collecting tray, a water outlet arranged above a water outlet, a water collecting component, and a drainage hose connecting a water outlet arranged below a water outlet on a water collecting component with a water outlet on a water collecting component. A water outlet is also arranged between the water collecting tray and the water outlet, and a water collecting component is also arranged above the water outlet. A water collecting component is also provided on the water collecting component, a water outlet is also provided above the water outlet, and a row of outlets is also provided below the water outlet [6]. The purpose of the invention is to make a water collection and drainage device of a cold bed spray cooling system have the following characteristics:

2.1 The invention adopts a new design, and a new design is adopted between the designed cooling tower water collection pan and the water outlet, which is composed of two water outlets and a water collection component. A water collection component is arranged above the water outlet, and the water in the cooling tower is collected into the water collection component through the water collection component. And the water outside the cooling tower is discharged outside the cooling tower through the outlet of the water collection component.

2.2 The invention makes use of the new design between the water collecting tray and the water outlet, which can effectively collect the water in the cooling tower and discharge the water outside the cooling tower.

2.3 The invention has the advantages of simple structure, convenient installation and easy maintenance.



3. Specific implementation methods

Specific implementation methods are as follows:

3.1 A water outlet is arranged on the water collection tray at the bottom of the cooling tower, and a water outlet is arranged above the water outlet;

3.2 A row of exits is provided under the water outlet, and a row of exits is provided above the outlet, on which a water collection component is also provided, and a number of water collection holes are provided;

3.3 The water in the cooling tower is discharged to the outside of the cooling tower through the water collection parts;

3.4 Drain the water outside the cooling tower into the water collection component through the water collection hole, and connect the outlet of the water collection component to the water collection tray at the bottom of the cooling tower.

In the above embodiments, a row of small holes is arranged above the water outlet to prevent the outflow of water in the cooling tower; In order to prevent the water in the cooling tower from flowing out, a row of small holes are arranged under the water outlet. In order to prevent the water outside the cooling tower from flowing out, a row of small holes is set above the outlet; In order to prevent the outflow of water in the cooling tower, a row of small holes is set under the water outlet.

4. Illustrations are attached

The distance between the water outlet on the bottom of the cooling tower and the water outlet on the bottom of the cooling tower is greater than or equal to the size of the bottom of the cooling tower; The water in the cooling tower is discharged through the drainage

outlet, and the cooling tower is discharged through a row of outlets arranged under the drainage outlet.



Closing remarks

Through the design of the water collection and drainage device of the cold bed spray cooling system, a water collection and drainage device is installed at the bottom of the cooling tower, and the water inside the cooling tower can be discharged in time through the water collection and drainage device, which not only improves the working efficiency of the cooling system, but also improves the working efficiency of the cooling tower, greatly reduces the labor intensity of workers, and has good promotion and application value^[7]. However, in the design of the water collection and drainage device of the cold bed spray cooling system, the following points should also be paid attention to: according to the water accumulation inside the cooling tower, determine the reasonable structure size of the water collection and drainage device, and improve the drainage efficiency as far as possible under the premise of ensuring the reasonable structure size of the water collection and drainage device. The flow direction of water in the cooling tower should be considered in the design, and the collection and drainage device should be considered to play a certain guiding role in the flow direction of water in the cooling tower^[8].

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