Printing Chiller

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The printing industry produces a wide variety of products, from newspapers and magazines to postcards and packaged goods. During the printing process, heat is generated by many processes. Toner printing requires heat to fuse the toner with the paper. UV ink printing works by using UV light that generates considerable heat to cure the ink. The friction of the continuously running printing material on the drum also generates heat. To avoid damage or downtime, temperature regulation is crucial. Using a print cooler during the printing process ensures that the equipment reaches its full capabilities and operates more efficiently. Print chillers protect products and machines from the inevitable risk of overheating - saving you time, money and frustration.

1.What is A Printing Chiller?

Printer chillers are designed to operate in tandem with your current industrial printing process. They primarily use a water/glycol mixture to absorb heat from the printer rollers, other parts of the printer, and the paper and ink itself. This will allow you to operate your printer longer with less downtime for the printer to cool down, thus saving you time and money from worn out equipment that overheats.

Printing Chiller

2.Why Does Printing Process Need A Chiller Unit?

High temperatures have adverse effects on printing and paper

One major factor that must be controlled when printing is humidity. Paper has a moisture content between 4.0% and 6.0%, which means water makes up 4% to 6% of the total weight of the paper. The high temperature of the environment dries the paper before printing. If the printer is careful and stores the paper in a controlled environment, moisture loss will not be a problem before printing. However, once the paper comes into contact with the printing press, the natural friction that occurs creates heat that affects the paper, ink, rollers, and other equipment. This is why temperature control is an important part of printing.

The heat that industrial printers must withstand can sometimes be quite high. We may not realize it, but there‘s a lot going on here about how industrial printers generate heat. Printer heat comes from various sources such as：

- Friction caused by paper passing through the roller at high speed

- Toner requires a certain amount of heat to adhere to the paper
- UV ink needs to be cured with high temperature UV light
- Some heat generated by the printer itself when operating is normal

Add to this the fact that these printers are housed in a fairly hot environment, and as you can see, industrial printers must be able to withstand high temperatures. But what happens when these things mentioned above are combined with a lot of ambient heat for an extended period of time? That's right, you have some printer downtime, and that's going to cost you a fortune。

3.What's the Difference Between Air-cooled & Water-cooled Printing Chillers?

There are two types of Printing chiller: one is **air-cooled Printing chiller** ,the other is **water-cooled** Printing **chiller** ;

Air-cooled Printing chillers use ambient air to dissipate heat from the brewing processes. They are energy-efficient, space-saving, and less maintenance that helps save money.

Water-cooled Printing chillers use water from an external water cooling tower to dissipate heat from the brewing processes. These systems are longer lifespan, Relatively quiet, and more consistent cooling performance than the air-cooled Printing chiller.

Should you choose an air-cooled or water-cooled Printing chiller? *Contact Us* for help determining the best solution for you.

4.What Are the Differences Between Printing Scroll Chiller and Printing Screw Chiller?

Printing Scroll Chiller	**Printing Screw Chiller**
▪1/2 HP-60HP(2KW-170KW)	Above 60HP(Above 170KW)
▪Danfoss/Panasonic Scroll Compressor	Hanbell/Bitzer Screw compressor
▪Built with water tank and water pump	Without water tank and water pump

Air-cooled Printing Scroll Chiller

Air-cooled Printing Screw Chiller

Water-cooled Printing Scroll Chiller

Water-cooled Printing Screw Chiller

5.What Are The Main Components of Printing Chillers?

5.1 Compressor

The compressor is the key mover in water chiller because it produces pressure variations to stir the refrigerant around.

From 1/2HP(1/2 Ton) to 60HP(5oTon) Printing chiller , which is with **Panasonic** or **Danfoss brand Scroll compressor** ,

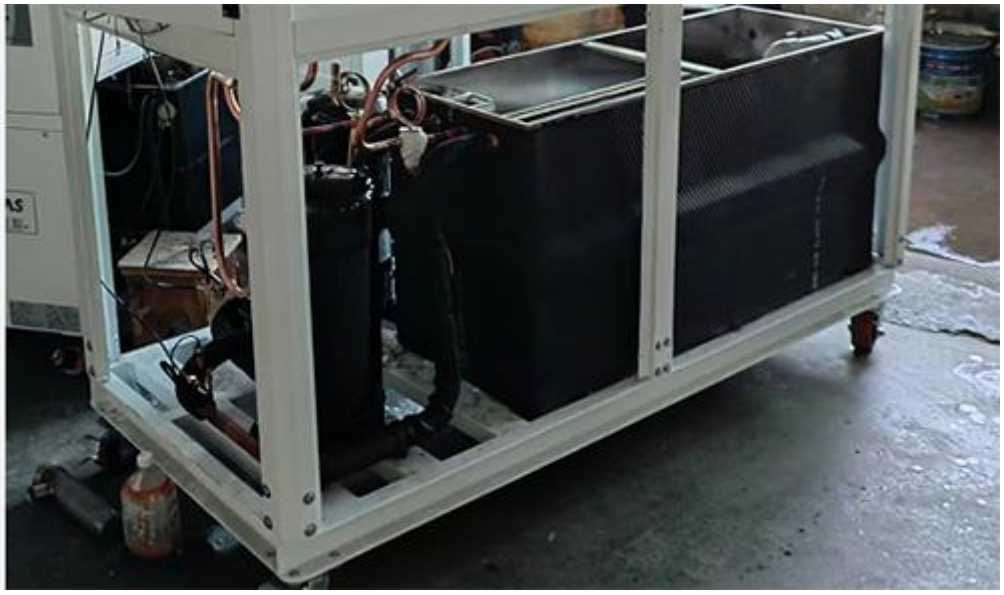
Above 60HP Printing chiller,which is with **Hanbell** or **Bitzer screw compressor**;

Panasonic Compressor

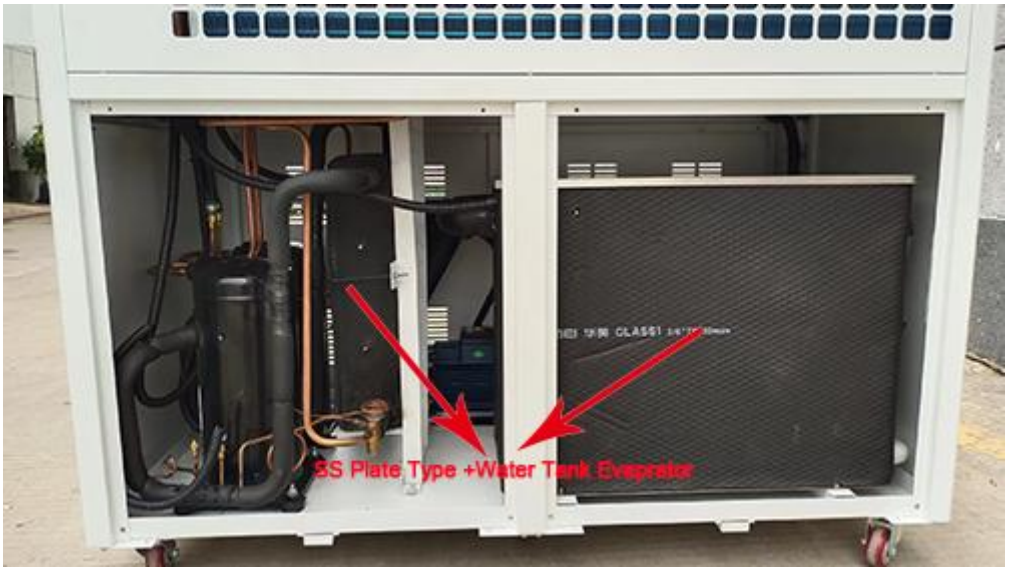
Danfoss Compressor

5.2 Evaporator

The evaporator is a crucial component of air-cooled water chiller, as it is responsible for extracting heat from the liquid being cooled,it is located between the compressor and the expansion valve. There are three types of evaporators : **coil in water tank evaporator , shell and tube evaporator, 304SS stainless steel plate type evaporator.**



Coil in SS Water Tank Evaporator

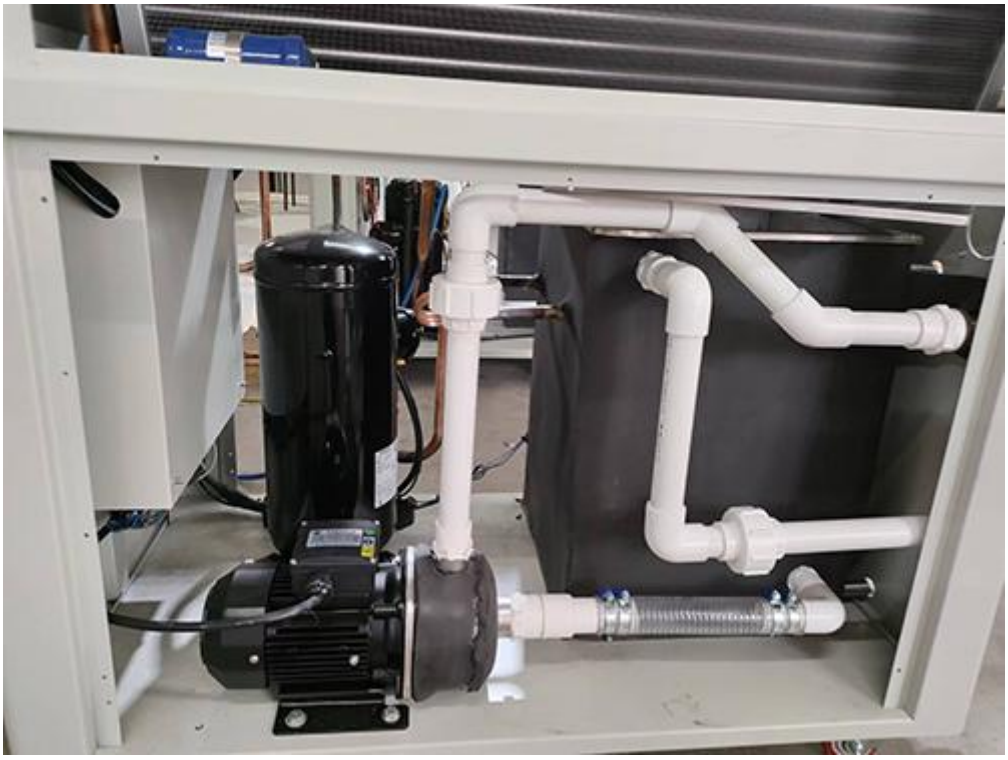


SS Plate Type+ Water Tank Evaporator

5.3 Water Pump

The water pump is designed to increase the pressure and the flow of the chilled water in a closed space.

Printing Chiller is used with 304 Stainless Steel Water pump.



Water Pump

5.4 Condenser

The condenser for air-cooled Printing cooler is equipped with efficient cross-seam fins and female threaded copper tubes for high heat exchange efficiency and good stability.Its function is to cool down the refrigerant steam released from the compressor into a liquid or gas-liquid mixture.

Aluminum fin+fan Condenser for air -cooled Printing chiller

The condenser for water-cooled Printing cooler is shell and tube ,with the internal copper tubes employing an outer thread embossing process.This design effectively enhances the heat exchange efficiency between the refrigerant and water during the process. Compared to traditional smooth copper tubes, the outer thread embossing process increases the surface area of the copper tubes, thereby expanding the contact area for heat exchange and improving the thermal conductivity of the condenser. This optimization design allows the condenser of the water-cooled chiller to transfer heat from the refrigerant to the water more rapidly and consistently, enabling the water to carry away the heat.

Shell and tube Condenser for water-cooled Printing chiller

5.5 Controller Panel

Water chillers use precision digital temperature controller, it RS485 communication port，which can do remote monitoring and control. Simple operation, low failure rate, high safety factor, easy installation.

Controller Panel

6. What are the Key Features of a Printing Chiller?

- Energy-efficient Panasonic/Danfoss/Hanbell/Bitzer compressor
- Chilled 0utlet water temperature control 7℃ to 25℃
- Precise temperature controller
- Environment-friendly refrigerant R407c/r410a
- PID temperature controller
- Easy installation ,operation and low cost of maintenance
- 304 Stainless Steel Coil in SS water tank /Shell And tube as evaporator

7.How to Choose Right Printing Chiller for Your Printing Process?

How to calculate right cooling capacity for your Printing chillers?

Choosing the right size of an printer chiller is crucial for ensuring optimal performance and efficiency in your Printing process. How to calculate the correct cooling capacity for your Printing chiller,pls see below:

- Tell Us you the heat of the printer;
- how many degree of outlet water temperature from the chiller you request ;

Types of Printingchiller system?

There are two types of chiller :**Air Cooled Printing Chiller** and **Water Cooled Printing Chiller**.

Water cooled chiller needs a separated water cooling tower and water cooling pump ,if you don‘t have exsiting water cooling tower,we suggest you use air cooled chiller; But if your ambiemt temperature is very high above 55℃ ,we suggest you use water cooled chiller , as it is easier to dissipate heat for water cooled chiller with water cooling tower.

But Most customers use air cooled Printingchiller ,which is more easily install and save space.

Whether chillers need built-in Tank or not?

In a chiller system, a tank is usually equipped to buffer the thermal load of the chiller.

But should we choose a built-in type of tank or an external type of tank?

A chiller with a built-in tank is easier to install and can be used simply by connecting a water pipe to your application.

But it has a limited capacity and is not suitable for applications with larger chilled water

demands.External tank's capacity can be customized according to specific needs.

It can buffer a larger heat load, store more chilled water, but the installation will be more troublesome.

If you don't have external water tank ,we suggest our chiller built-with water tank ,which is easy for you to install.

Cooling capacity unit conversion?

1 KW=860 kcal/h ;
1 TON=3.517 KW;
1 KW=3412 Btu/h;

8.Get a Quote on Industrial Printing Chillers Now

As a leading *industrial chiller manufacturer*,we engineer and produce high-quality process chillers compatible with a broad range of industrial processes.
Depending on your needs, we also offer *custom chillers* to ensure that each client receives the industrial chiller best suited to their unique process.
Request a quote now on our Printingwater chillers or learn about the other *air-cooled chillers* and *water-cooled chillers*.