Blow Molding Chiller

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1.What Is Blow Molding Machine ?

Blow molding machine is a kind of plastic machine processing equipment, after the liquid plastic is sprayed out, the use of the wind blown out of the machine, the plastic body is blown to a certain shape of the mold cavity, made of products, plastic blow molding machine commonly used there are two kinds of extrusion blow molding machine and injection blow molding machine, the basic principle of the two kinds of equipment is basically similar, are the first resin added to the extruder, melted after blowing to obtain the finished product, The difference is that the process of extrusion blow molding machine is extrusion - stretch - blow molding, and the process of injection blow molding machine is injection - stretch - blow molding.

Blow molding machine blowing materials can choose polyethylene, polyvinyl chloride, polypropylene, polystyrene, linear polyester, polycarbonate, polyamide, cellulose acetate and polyacetal resin. The production capacity can range from a few litres to thousands of litres, and the production of high-density polyethylene products can be widely used in food, chemical and processing liquid packaging.

The PVC produced is used more in the makeup and washing industry because of its high transparency and air tightness, and is also used more in food containers and gas beverage packaging.

The advantage of the blow molding machine is that the plastic container processed by the blow molding machine has a high thickness, corrosion resistance and wear resistance, which can replace a part of the ceramic container, and the container of the blow molding product is lower in cost, low in processing difficulty and high in efficiency.

Blow Molding Machine

2.What Is Blow Molding Chiller?

A blow molding chiller is a specialized cooling machine used in the blow molding process, which is a manufacturing technique used to create hollow objects such as bottles, containers, and other plastic parts. This process involves heating a thermoplastic material (usually in the form of pellets or preforms) until it becomes pliable, then blowing air or other gas into it to create the desired shape within a mold.

A blow molding chiller is a cooling device designed to maintain precise and consistent temperatures in the molds, as well as in the plastic material itself. It accomplishes this by circulating a chilled liquid (typically water or a water-glycol mixture) through the mold and other components of the blow molding machinery.

Maintaining the correct temperature is critical for achieving the desired product quality, consistency, and structural integrity. If the plastic material is too hot or too cold during the molding process, it can lead to defects in the final product. The blow molding chillers help ensure that the plastic material is at the optimal temperature for forming the desired shape.

A blow molding chiller is an essential part in the blow molding process, which helping to regulate temperatures and improve the quality of the final plastic products.

Blow Molding Chiller

3.Why to Use Industrial Chiller In Plastic Blow Molding?

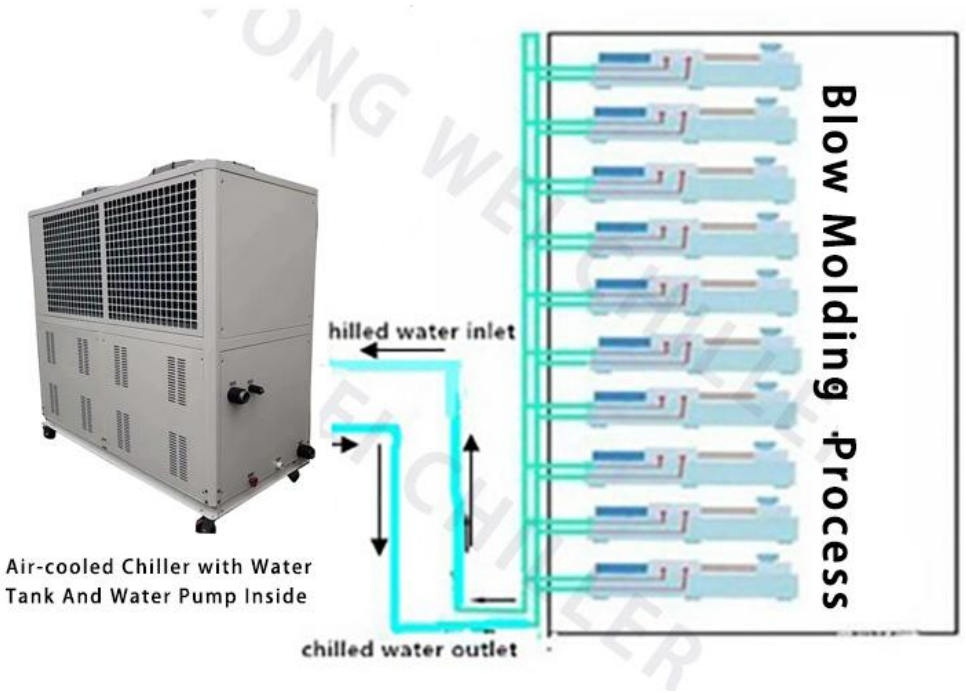
The blow molding process begins by extruding a sample from a plastic injection mold placed next to the blow molding equipment. Next, double-sided bottle-shaped metal molds come together to wrap the boxes that were previously on the shelves. Before manufacturers cool the mold, they inject a hollow stamped rod into the center of the mold to expand the hot plastic preform. Cooling through *air-cooled chiller* or *water-cooled chiller* effectively cools molten plastic, speeds up production cycles, and improves the surface finish of plastic products, making it essential in the process.

4.What's the Difference Between Air-cooled & Water-cooled Blow Molding Chillers?

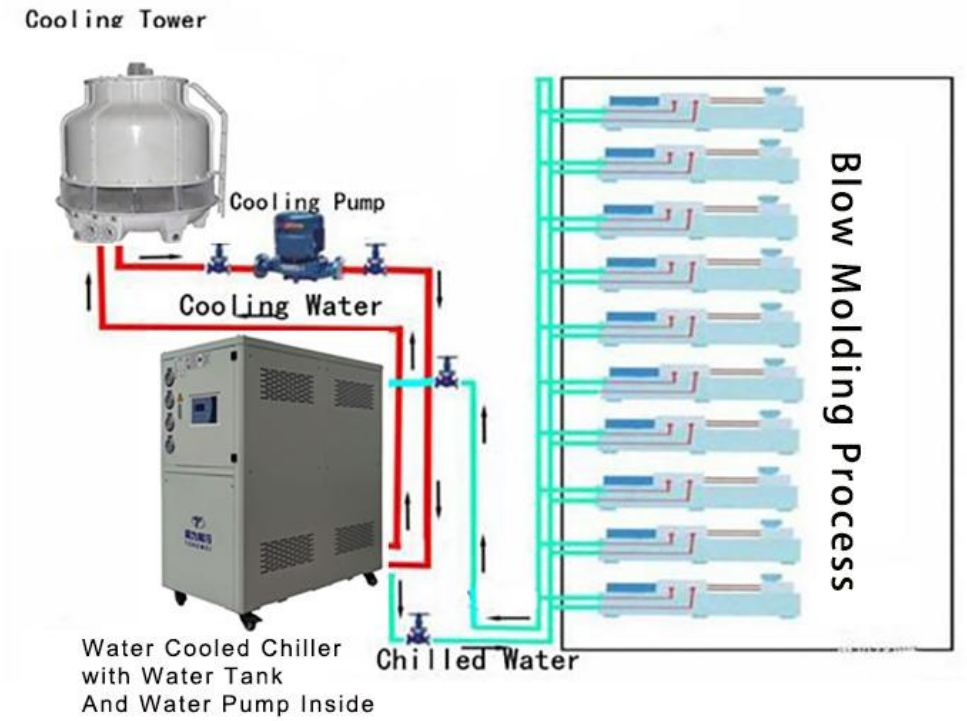
There are two types of Blow Moldingchiller: one is **air-cooled Blow Molding chiller** ,the other is **water-cooled Blow Molding chiller** ;

Air-cooled Blow Molding 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 Blow Molding 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 Blow Molding chiller.



Air-Cooled Blow Molding Chiller installation



Water-Cooled Blow Molding Chiller installation

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

5.What Are the Differences Between Blow Molding Scroll Chiller and Blow Molding Screw Chiller?

Blow Molding Scroll Chiller	**Blow Molding Screw Chiller**
▪1/2HP-60HP	Above 60HP
▪Danfoss/Panasonic Scroll Compressor	Hanbell/Bitzer Screw compressor
▪Built with water tank and water pump	Without water tank and water pump

Air-cooled Blow Molding Scroll Chiller

Air-cooled Blow Molding Screw Chiller

Water-cooled Blow Molding Scroll Chiller

Water-cooled Blow Molding Screw Chiller

6.What Are The Main Components of Blow Molding Chillers?

6.1 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) Blow Molding chiller , which is with **Panasonic** or **Danfoss brand Scroll compressor** ,

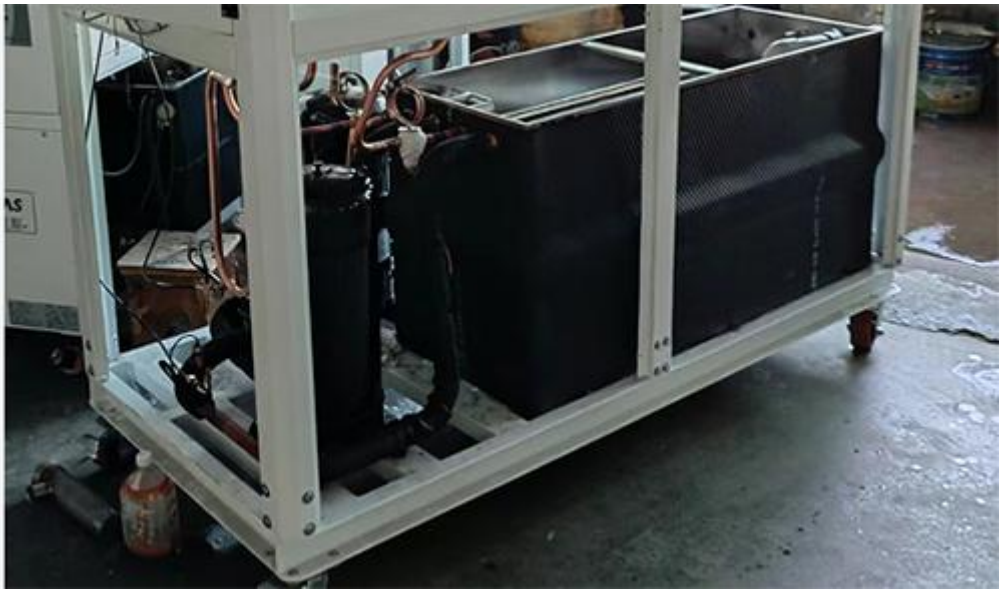
Above 60HP Blow Molding chiller,which is with **Hanbell** or **Bitzer screw compressor**;

Panasonic Compressor

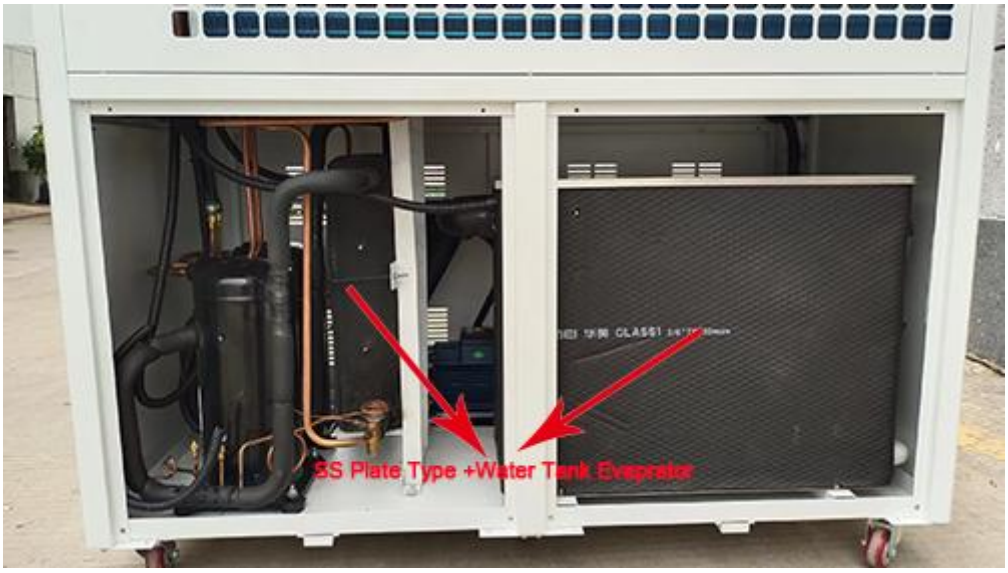
Danfoss Compressor

6.2 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

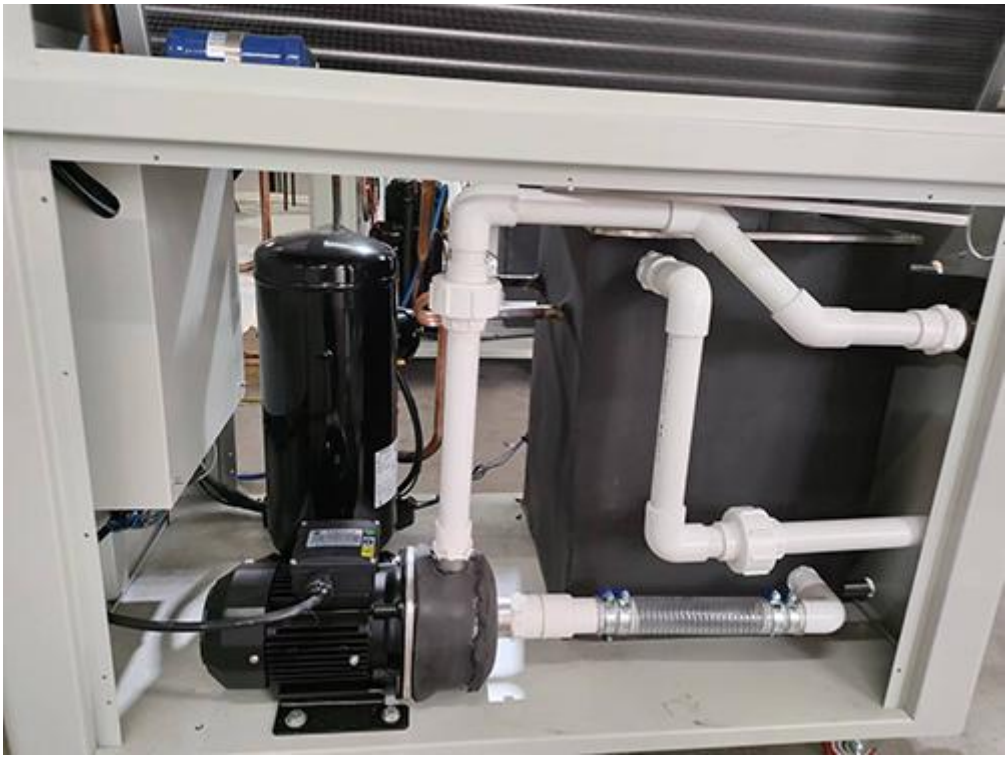


SS Plate Type+ Water Tank Evaporator

6.3 Water Pump

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

Blow Molding Chiller is used with 304 Stainless Steel Water pump.



Water Pump

6.4 Condenser

The condenser for air-cooled Blow Molding 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 Blow Molding chiller

The condenser for water-cooled Blow Molding 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 Blow Molding chiller

6.5 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

7. What are the Key Features of a Blow Molding 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

8.How to Choose Right Blow Molding Chiller for Your Blow Molding Process?

How to calculate right cooling capacity for your Blow Molding chillers?
One of the most frequently ask about how we can know the cooling capacity for chillers.

The range of a chiller at which it can discharge heat from a heated fluid is called cooling capacity.

The cooling capacity of a laser Chiller ranges from 1/2KW to 100KW.

Let's see the below formula.
Cooling Capacity(kw)= Flow Rate(m3/h)*Temp Change(T1-T2)/0.86
Heat Load= C(specific heat)* M(quality output per hour)*Temp Change(T1-T2)

Oversize the chiller by 20% Ideal Size in KW = KW x 1.2
Noted : T1:Incoming Water Temperature (℃) T2:Required Chilled Water Temperature(℃)

For example, what size of chiller is required to cool 5m³ water from 25°c to 15 °c in 1 hour?

Temperature Differential = 25℃-15℃=10℃
Water Flow Rate = 5 m³/hour
Cooling Capacity in KW = 5 x 10 ÷ 0.86 = 58,14 KW
Oversize the chiller = 58.14 x 1.2 = 69.76 KW
69.96kw cooling capacity for chiller is required.

Types of Blow Moldingchiller system?
There are two types of chiller :**Air Cooled Blow Molding Chiller** and **Water Cooled Blow Molding 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 Blow Moldingchiller ,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.

9.Get a Quote on Industrial Blow Molding 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 industrial plastic process chillers or learn about the other *air-cooled chillers* and *water-cooled chillers*.