

Dairy Milk Chiller

Contents Table

- ▷1. What Is A Dairy Milk Chiller?
- ▷2. How Daily Milk Chillers Work?
- ▷3. Importance of Glycol Dairy Milk Chiller
- ▷4. What Temperature Should Milk Be Kept?
- ▷5. What's the Difference Between Air-cooled & Water-cooled Dairy Milk Chillers?
- ▷6. What Are the Differences Between Dairy Milk Scroll Chiller and Dairy Milk Screw Chiller?
- ▷7. What Are The Main Components of Dairy Milk Chillers?
 - 7.1 Compressor
 - 7.2 Evaporator
 - 7.3 Water Pump
 - 7.4 Condenser
 - 7.5 Controller Panel
- ▷8. What are the Key Features of An Dairy Milk Chiller?
- ▷9. Benefits of Milk Chilling Units
- ▷10. How to Choose Right Dairy Milk Chiller for Your Dairy Milk Process?
- ▷11. Get a Quote on Industrial Dairy Milk Chillers Now

1.What is A Dairy Milk Chiller?

A Dairy Milk Chiller, also known as a milk cooling tank or milk refrigeration unit, is a specialized cooling system used to store and cool fresh milk from dairy farms. It plays a vital role in maintaining the quality and safety of milk from the moment it is harvested from cows until it is transported to processing facilities.

Dairy Milk Chillers are vital for preserving the quality and safety of milk, which is a highly perishable product. By rapidly cooling and maintaining the milk at the proper temperature, these systems help extend the shelf life of the milk and preserve the nutritional value of the milk before further processing or distribution.



Air Cooled Dairy Milk Chiller Working

2.How Daily Milk Chillers Work?

After the milk is pumped into the refrigerated dairy cooling tanks, our industrial grade dairy milk chillers are used to increase the heat generated by your dairy equipment during the pasteurization process. The chillers can effectively cool milk to the exact temperature needed to preserve it, ensuring its safety and extending its shelf life.

Dairy milk chiller is considered a plate chiller and it uses glycol and water to cool milk. Here's an overview of the process:

- The machine funnels milk through stainless steel plate chiller
- The milk reaches the other side of the chiller system where it awaits a mixture of glycol and water
- A mixture of glycol and water cools the milk to the proper temperature

CHILLER SYSTEM FOR MILK



3.Importance of Glycol Dairy Milk Chiller

Dairy milk chillers are an integral part of the milk cooling plant process. In dairy farming, these systems cool pasteurized milk by capturing and releasing heat. Glycol chillers work fast, keeping temperature and bacterial growth under control 24/7.

Additionally, glycol milk cooling systems are cheaper to install, easier to maintain, and more reliable than traditional refrigeration systems commonly used in industry.

4.What Temperature Should Milk Be Kept?

Dairy farmers are encouraged to lower the initial temperature of milk from 98 degrees Fahrenheit (36.7°C to 37-38 degrees Fahrenheit (2.8-3.3°C) . Under no circumstances should milk exceed 45 degrees Fahrenheit (7°C) . For this reason, it can be very beneficial for dairy farmers to utilize bulk milk chillers



Milk Production

5.What's the Difference Between Air-cooled & Water-cooled

Dairy Milk Chillers?

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

Air-cooled Dairy Milk 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 Dairy Milk 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 Dairy Milk chiller.

6.What Are the Differences Between Dairy Milk Scroll Chiller and Dairy Milk Screw Chiller?

Dairy Milk Scroll Chiller

- 1/2 HP-60HP (2KW-170KW)
- Danfoss/Panasonic Scroll Compressor
- Built with water tank and water pump

Dairy Milk Screw Chiller

- Above 60HP(Above 170KW)
- Hanbell/Bitzer Screw compressor
- Without water tank and water pump



Air-cooled Dairy Milk Scroll Chiller



Air-cooled Dairy Milk Screw Chiller



Water-cooled Dairy Milk Scroll Chiller



Water-cooled Dairy Milk Screw Chiller

7.What Are The Main Components of Dairy Milk Chillers?

7.1 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) Dairy Milk chiller , which is with **Panasonic** or **Danfoss** brand **Scroll** compressor ,

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



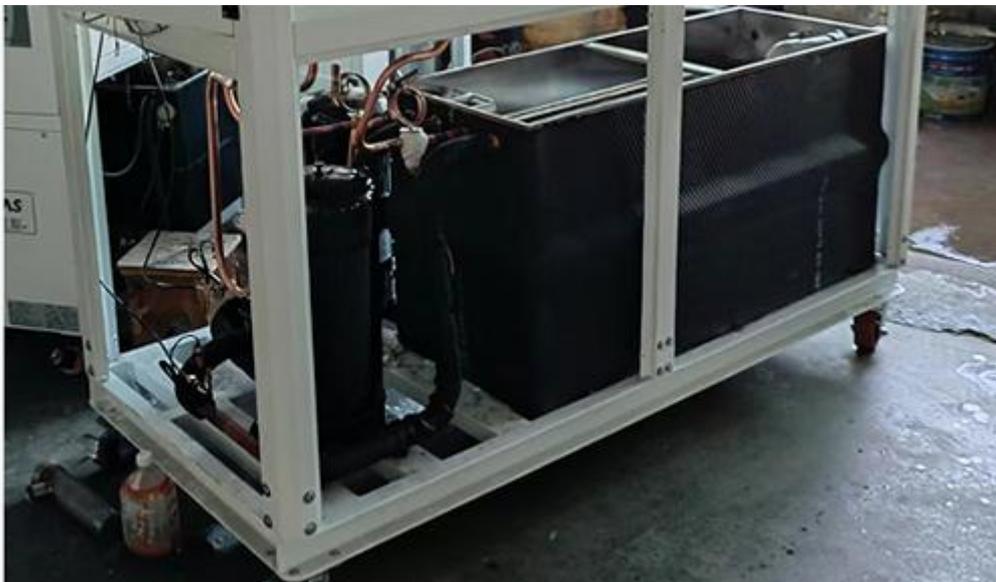
Panasonic Compressor

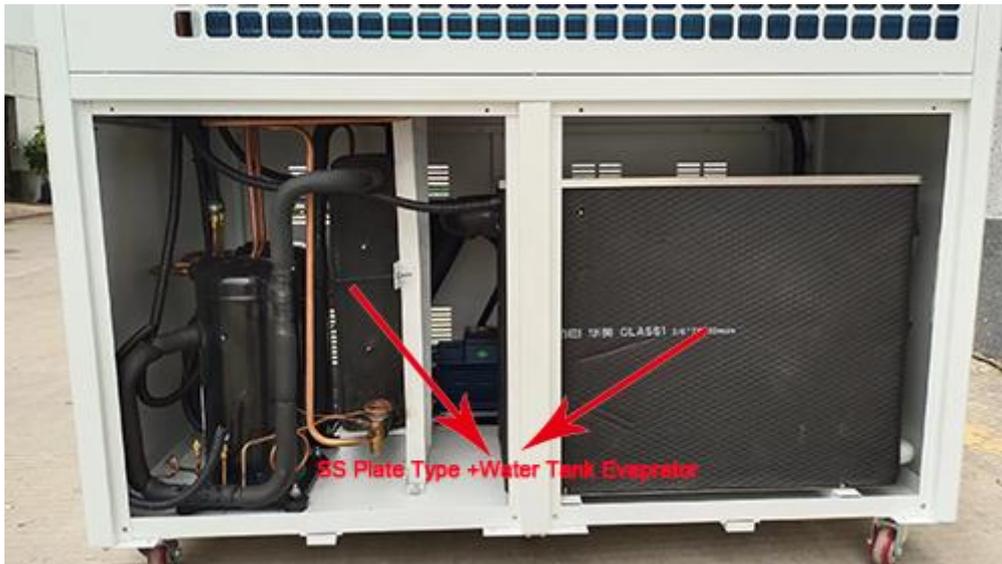


Danfoss Compressor

7.2 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.**





SS Plate Type+ Water Tank Evaporator

7.3 Water Pump

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

Dairy Milk Chiller is used with 304 Stainless Steel Water pump.



Water Pump

7.4 Condenser

The condenser for air-cooled Dairy Milk 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 Dairy Milk chiller

The condenser for water-cooled Dairy Milk 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 Dairy Milk chiller

7.5 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

8. What are the Key Features of a Dairy Milk Chiller?

- Energy-efficient Panasonic/Danfoss/Hanbell/Bitzer compressor
- Chilled Outlet water temperature control -10°C to 25°C
- Precise temperature controller
- Environment-friendly refrigerant R407c/r410a
- PID temperature controller
- Easy installation ,operation and low cost of maintenance
- 304 Stainless Steel Plate Type +SS Water Tank /Shell And tube as evaporator

9. Benefits of Milk Chilling Units

Years of working closely with dairy farm professionals have given our team a full understanding of the importance of the milk cooling process. Here's what our dairy milk chillers can offer:

Reduce Refrigerant Loss - Our chillers work to reduce refrigerant loss to the environment, making our units more productive and efficient.

Low energy output - Our economical solutions reduce energy output, giving you lower operating costs and higher profitability.

On-Demand Refrigeration - Extend the shelf life of your milk with lower cooling times, no storage tank required.

Redundancy Options - We offer a variety of redundancy options available that will keep your milk refrigerated and operations running smoothly.



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Easy to maintain - reduce maintenance time with an easy-to-clean plate and frame heat exchangers.

10.How to Choose Right Dairy Milk Chiller for Your Dairy Milk Process?

How to calculate right cooling capacity for your Dairy Milk chillers?

- Please the milk production every one hour
- the inlet and outlet of water temperature

Types of Dairy Milkchiller system?

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

Water cooled chiller needs a separated water cooling tower and water cooling pump ,if you don't have existing water cooling tower,we suggest you use air cooled chiller; But if your ambient 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 Dairy Milkchiller ,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.



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Cooling capacity unit conversion?

1 KW=860 kcal/h ;

1 TON=3.517 KW;

1 KW=3412 Btu/h;

11. Get a Quote on Industrial Dairy Milk 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 Dairy Milkwater chillers or learn about the other air-cooled chillers and water-cooled chillers.