Medical Chillers

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1.Medical Chiller Ststem

With more than 20 years of industrial chiller experience, we apply our knowledge and engineering expertise to the design, manufacture and test of medical chillers for medical imaging applications such as MRI, linear accelerators, and PET scanners to ensure reliability and ease of operation - without sacrificing quality. Our strong staff of technical support and engineers can help with customer service issues, technical problem solving and design. We are the chillers experts you can trust to keep your medical equipment running well.

50Ton Water Cooled Screw Medical Chiller

Medical Chillers Systems are utilized in many medical applications where temperature control is critical. We offers a variety of industrial chillers suited to diverse medical applications, such as:

- MRI Chillers
- PET Chillers
- Pharmaceutical Chillers

Medical Industry

2.Why is Temperature Control Important in Medical Equipment?

Due to the sensitive nature of clinical procedures, some medical devices are equipped with sensors or controllers to monitor and regulate the temperature of the space and processes within the enclosure. Because some medical applications involve machines that can generate large amounts of heat,it is necessary to cool rapidly to ensure stable process temperatures.

Often, processes in medical facilities must be maintained within a narrow temperature range. For example, the ideal temperature for the magnets inside an MRI machine is minus 270 degrees Celsius or -450°F. Temperatures above this level can cause machine failure or inaccurate measurements.

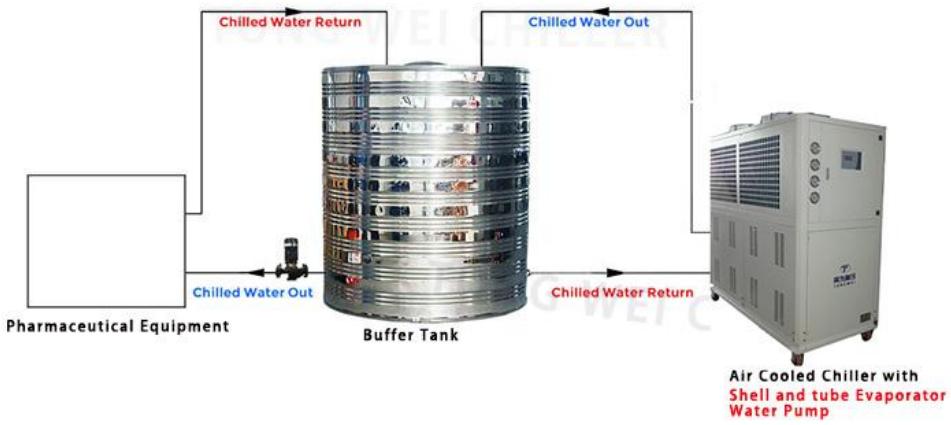
A dedicated chiller system can provide the cooling needed to keep the machine‘s internal temperature low. Many medical chiller systems are designed to immediately switch to city water for cooling if the chiller fails. Medical equipment chillers can accommodate a wide range of heat loads required for long-term reliability.

3.What’s the Difference Between Air-cooled & Water-cooled Medical Chillers?

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

Air-cooled medical 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 medical 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 Medicalchiller.



Air-Cooled Medical Chiller installation

Water-Cooled Medical Chiller installation

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

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

Medical Scroll Chiller	**Medical 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 Medical Scroll Chiller
Water-cooled Medical Scroll Chiller

Air-cooled Medical ScrewChiller
Water-cooled Medical Screw Chiller

5.What Are The Main Components of Medical Chillers?

5.1 Compressor

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

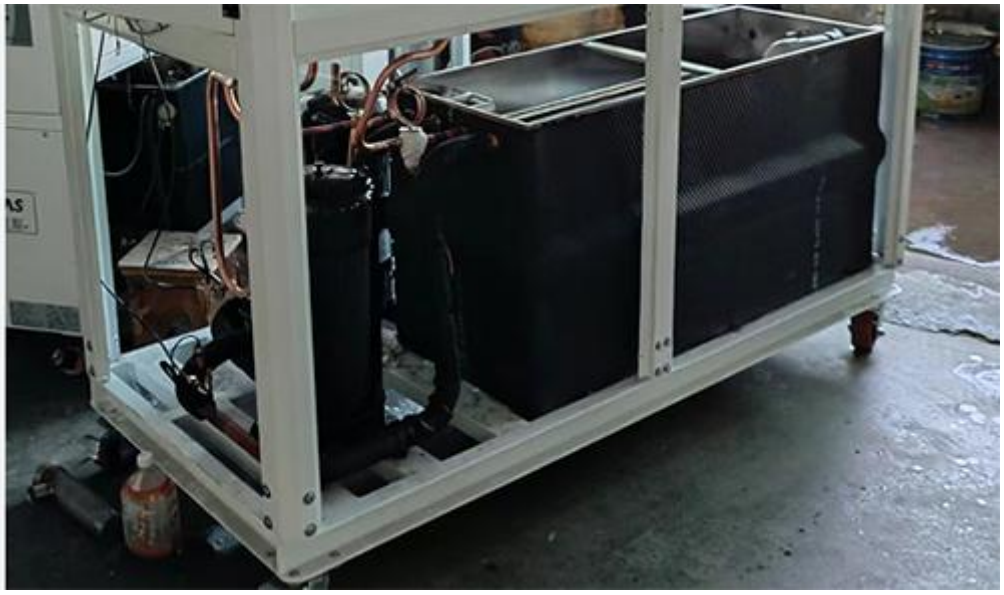
From 1/2HP(1/2 Ton) to 60HP(5oTon) waterjet cutting chiller , which is with **Panasonic** or **Danfoss brand Scroll compressor** ,

Panasonic Compressor

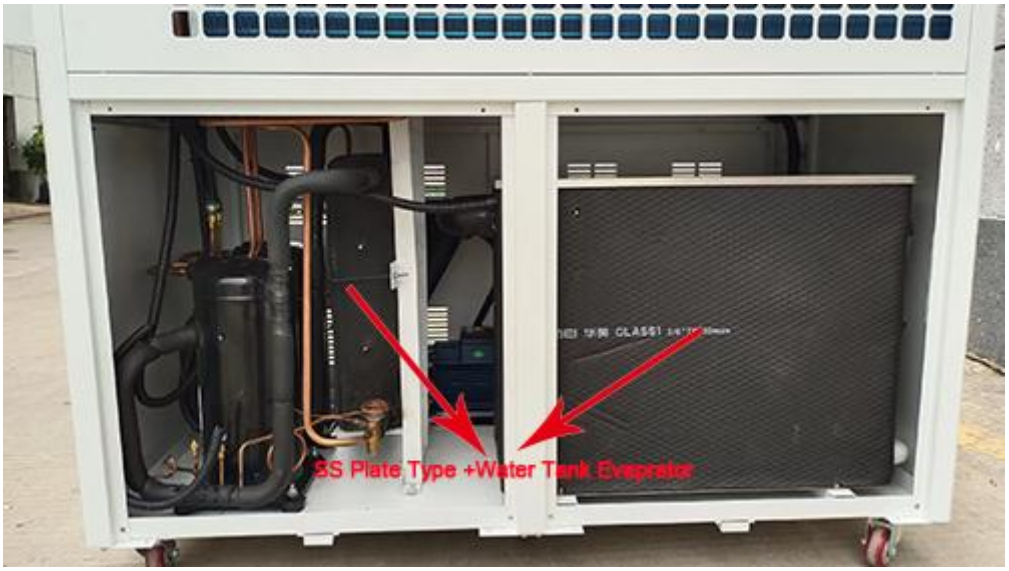
Danfoss Compressor

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

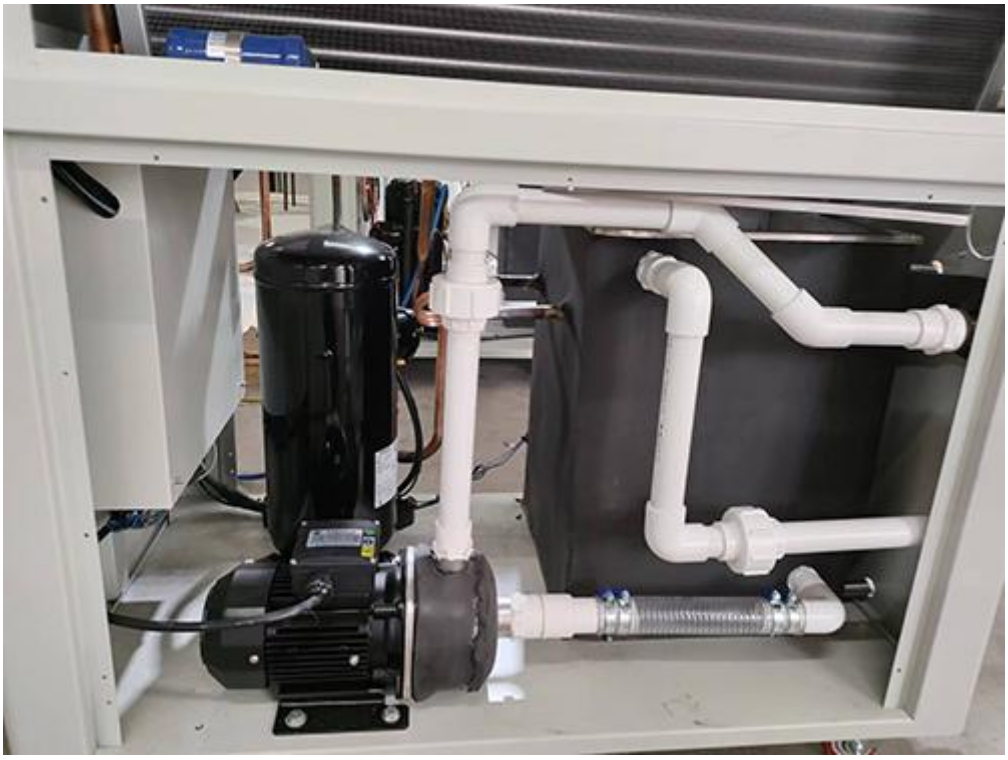


SS Plate Type+ Water Tank Evaporator

5.3 Water Pump

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

MedicalChiller is used with 304 Stainless Steel Water pump.



Water Pump

5.4 Condenser

The condenser for air-cooled Medical 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 Medical chiller

The condenser for water-cooled Medical 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 Medical 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 Medical Chiller?

- Energy-efficient Panasonic/Danfoss/Hanbell/Bitzer compressor
- 304 Stainless steel water pump
- 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.What Applications Can A Medical Chiller Be Used For?

CT scanner built inside the patient‘s body and protected by a medical chiller
We offer stock and custom made medical chillers for many types of equipment for process cooling. We provide reliable engineering solutions for analytical equipment such as:

- MRI machine
- CT scanner
- Linear accelerator

We also provide chillers for other medical applications including:

- laboratory reagents
- pharmaceutical equipment
- Medical Marijuana and THC Extraction Equipment

Our medical chiller can accommodate other types of equipment as well. If you don‘t have your application here, please *contact us* for knowing more about.

8.How to Choose Right Medical Chiller for Your Medical Process?

How to calculate right cooling capacity for your Medicalchillers?
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 Medicalchiller system?

There are two types of chiller :**Air Cooled Medical Chiller** and **Water Cooled Medical 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 Medicalchiller ,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;

9.Get a Quote on Industrial Medical 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 Medical water chillers or learn about the other *air-cooled chillers* and *water-cooled chillers*.