



## Industrial Process Chillers



[www.drakechillers.com](http://www.drakechillers.com)



# Why Choose Drake?



1/4 ton to 200 tons air-cooled and water-cooled chillers



Technical site review and needs assessment



Custom engineering for specific industries



Outstanding after-sale technical support

Drake Refrigeration, Inc. has been manufacturing industrial process chillers since 1972 and offers a complete line of air-cooled and water-cooled chillers from 1/4 ton to 200 tons. Drake designs custom process chillers to meet a customer's particular needs when a standard chiller won't work. By maintaining a cost effective, yet dependable product line with many custom options, our client base has grown to include many industries and applications.

With close to 50 years of experience, we bring our expertise and engineering to every chiller we design, fabricate, and test to make sure we're providing reliability and ease of operation without sacrificing either. Our systems can be built to handle varying loads, multiple pieces of equipment, narrow temperature bands, near freezing water, low exiting temperatures, low and high ambient conditions, high return temperatures, corrosive environments, and many others. Drake is the industry leader in the design and manufacturing of industrial process chillers, and our chillers are available for quick delivery. Our business is built on creating custom engineered solutions for your specific cooling needs, with outstanding after-the-sale technical support and customer service.

Drake is sold through most refrigeration wholesalers, so you are working with suppliers and contractors that you know and trust. Representatives are located throughout North, Central, and South America so you can get the support you need for all stages of the project.

## Industries We Serve!



Brewery



Dairy



Food Processing



Medical



Cannabis



Comfort Cooling



Refrigeration



Low Temperature



Industrial

The industry leader in the manufacturing of industrial process chillers





## Drake Brewery Chillers vs. Off-the-Shelf Chillers

### Heavier Duty Performance

Unlike a standard comfort chiller that you can pick up off the shelf, a Drake brewery chiller with industrial-grade performance mechanisms built into its DNA will deliver the heavy-duty strength you need for all your rugged brewing processes. It efficiently cools your brewing equipment with the temperature precision and unsurpassed reliability needed to craft only the finest beers.

### Tighter Temperature Control

A standard comfort chiller doesn't have the capacity to provide the low temperatures and accurate temperature controls you need in an efficient brewery chiller. To deliver such consistent performance, we offer a dual loop recirculation tank designed specifically to maintain glycol temperature under a variety of conditions. With better control over temperatures, your brew tastes just as good after the thousandth batch as it did on the first.

### Year-Round Performance

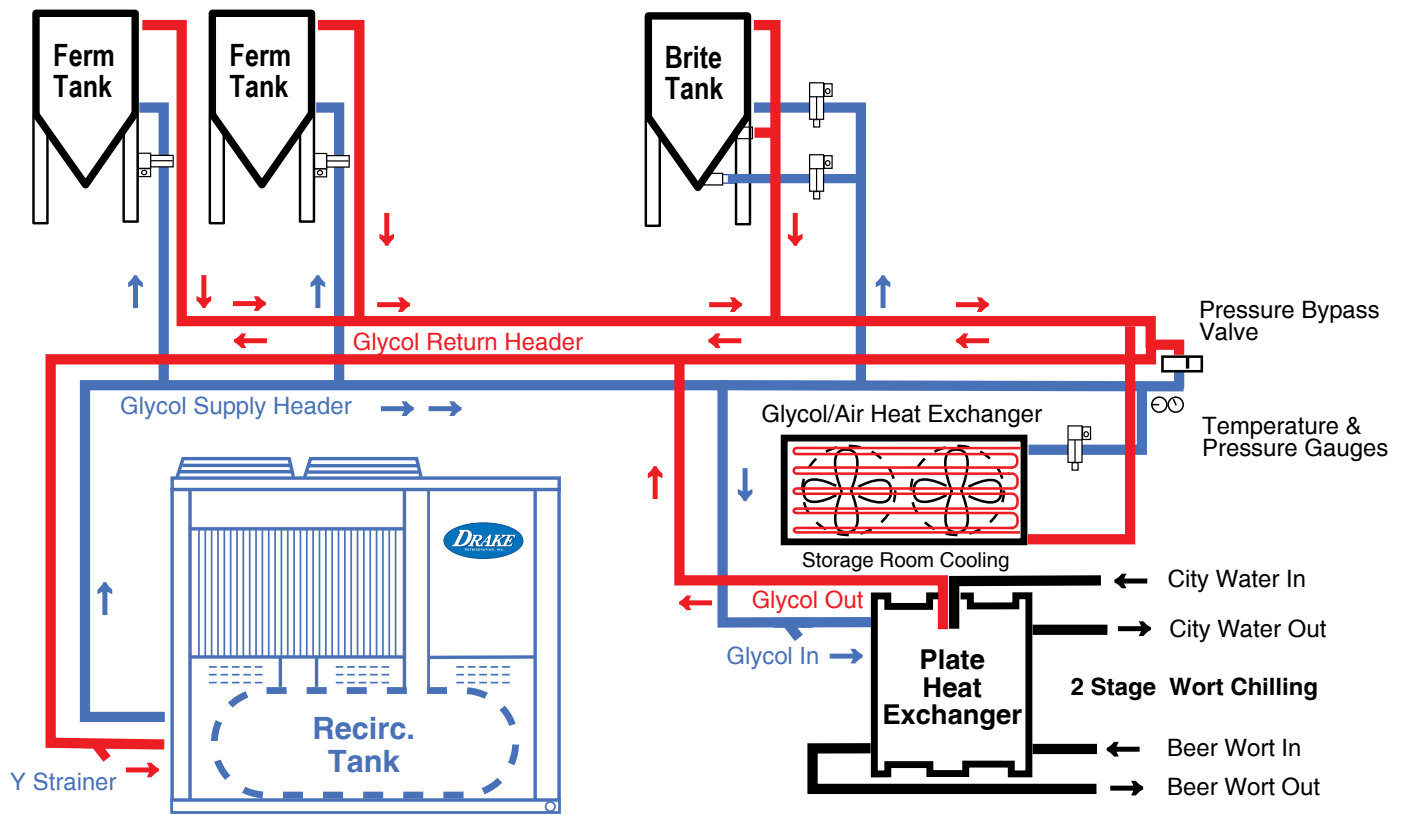
Off-the-shelf comfort chillers are no competition for a Drake industrial-grade brewery chiller when it comes to reliable performance year-round. While comfort coolers may perform well in the warmer months, they often take a deep dive when the weather is colder – they're simply not designed for all-season operation. Our year-round performing brewery chillers can keep your brewing operations running strong, no matter the time of year. These engineered solutions come with several low-temperature options, including the capability to run in ambient temperatures as low as -40°F so that you never miss a beat.

### Capacity Control

Most chillers have two levels of capacity; full on and full off. If your chiller can't modulate the capacity, the chiller will start and stop frequently. This short cycling will lead to short compressor life. Drake brewery chillers have a number of available capacity controls protecting you from short cycling.



## How A Drake Chiller Can Integrate Into A Brewing System



Recent installation of a Drake brewery chiller system.

- PAC1600D3-T4-T (70 tons at 28°F LFT)
- Pump Skid (4 pumps)
- TSR1000S-SS (Recirculation tank section)



## Drake Dairy Chillers vs. Off-the-Shelf Chillers

### **Stronger Performance**

Standard chillers don't have the same built-in industrial-grade performance mechanisms to deliver the heavy-duty strength you need for your rugged dairy processes. A Drake Chiller will efficiently cool your dairy equipment with the temperature precision and unsurpassed reliability required to maximize output and profitability.

### **Tighter Temperature Control**

A standard comfort chiller isn't built to give you precise temperature control you need like an efficient Drake industrial-grade dairy chiller. Our on-demand chilling and jacketed milk tank cooling helps you achieve the temperatures you need for high-performance dairy processing.

### **Year-Round Performance**

For reliable, year-round performance, an off-the-shelf chiller can't stand up to industrial-grade dairy chillers. While standard chillers may perform well in warmer months, they can't keep up when the weather turns colder. Our year-round performing dairy chillers can keep your farm operations going, no matter the season.

### **Reduced Refrigerant Loss**

Thanks to the jacketed milk tank cooling capabilities of our dairy chillers, there's no need for long runs of refrigerant piping. The glycol jacketed tanks work hard to reduce the risk and expense of losing refrigerant to the environment, and when paired with our chiller makes your system more productive and efficient.

### **Redundancy Options**

Our glycol dairy chillers offer a variety of redundancy options to ensure your milk is always chilled when you need it. From multiple refrigeration circuits with standard lead-lag control to auto-changeover pumps, we design units that will keep your processes running smoothly.

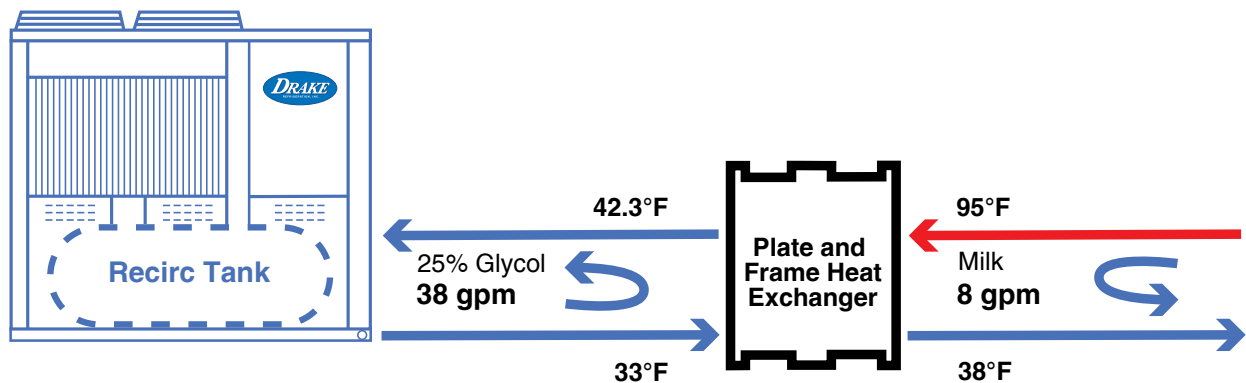
## Energy Conservation

The operating cost of dairy chillers is just as important as the initial expense. A Drake chiller has economical solutions that reduce energy needs and minimize operational costs, with options such as variable frequency drives (VFDs), EC fan motors, and heat reclamation. With multiple refrigerant circuits or digital compressors, our dairy chillers are intelligent enough to work less while also getting the job done right. In the end, the more energy you save, the more money you earn.

## Types of Dairy Cooling

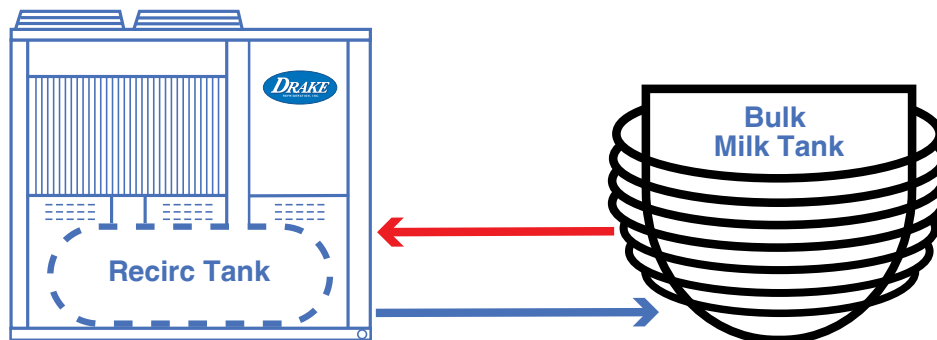
### On-Demand Chilling:

Large scale chillers are designed to reach proper milk temperature in a single pass without the need of storage tanks. Single pass chilling reduces the cooling time and extends the shelf life of the milk. Cleanable plate and frame heat exchangers combined with precision controlled glycol tanks make short work of even the biggest dairy job. Our experience in working with dairy farmers has given us the understanding of the tough conditions on a farm and allows us to design a chiller that can take the heat.



### Jacketed Milk Tank Cooling:

Glycol jacketed tanks eliminate the need for long runs of refrigerant piping, therefore reducing the risk and expense of losing refrigerant to the environment. Glycol chillers offer a variety of redundancy options to ensure that your milk is always chilled when you need it. From multiple refrigeration circuits with standard lead-lag control to auto-changeover pumps, our units are designed to ensure that your process is not halted.





## Drake Food Processing Chillers vs. Ice Cooling

### Money Savings

Some companies spend tens of thousands of dollars on ice every month for food cooling needs, creating an ongoing financial burden. A Drake food processing chiller doesn't require continual ice replenishment so you can save or reinvest the funds from ice purchases back into your business. When you do so, the payback period for a food processing chiller takes less than a year.

### Better Performance

When you use ice or less dependable solutions, ice can often form in the process chiller, reducing the performance of the system's circulation and interfering with cooling performance. A Drake food processing chiller reliably maintains narrow temperature ranges, so there's no risk of freezing. Additionally, our glycol systems have antifreeze properties, ensuring you'll never encounter ice in your chiller again!

### Precise Temperature Control

Ice cooling does not allow for the tight temperature control options that come standard with all our food processing chillers. With secondary heat exchangers and variable frequency drives (VFDs), our systems can chill water to the brink of freezing if the application demands, with precise temperature controls to keep the process flowing smoothly. In addition, we offer many other options to ensure your food processing chiller is uniquely designed to meet the specific requirements of your application.

### Capacity Control

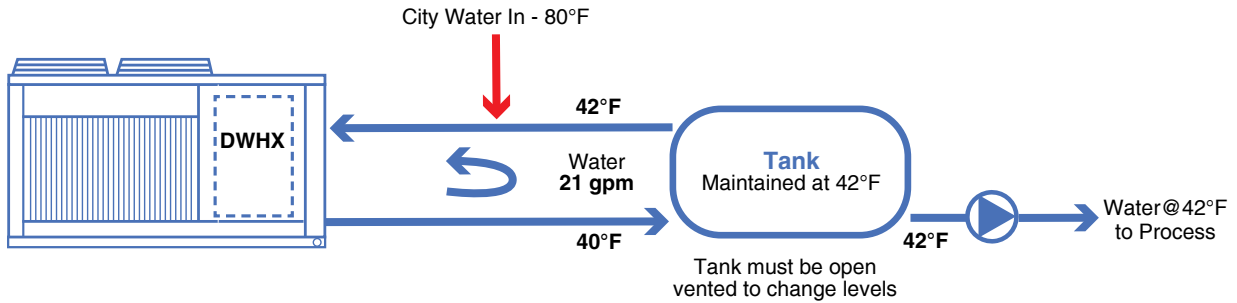
Most chillers have two levels of capacity; full on and full off. If your chiller can't modulate the capacity, the chiller will start and stop frequently. This short cycling will lead to short compressor life. Drake food processing chillers have a number of available capacity controls protecting you from short cycling.



## Types of Food Processing Cooling

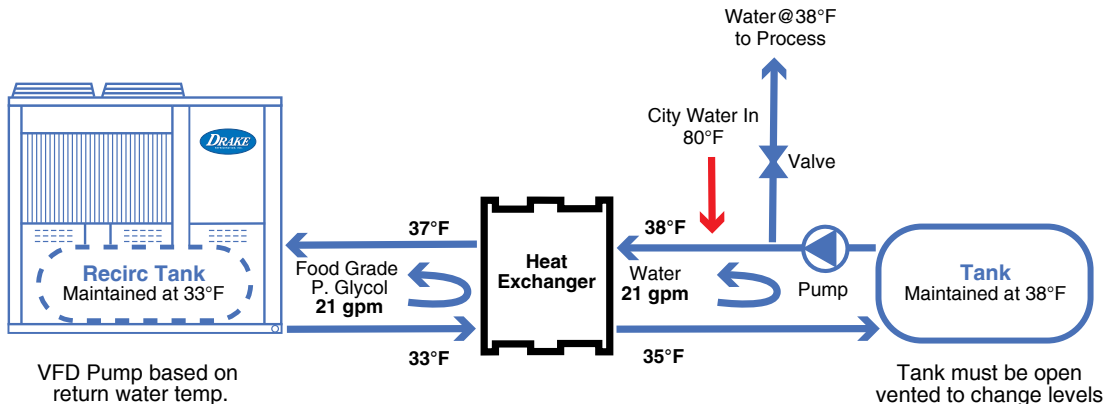
### 42°F+ Potable Water Chillers:

The coolant in potable water chillers is water. With double-walled heat exchangers, these food processing chillers prevent contamination. Best suited for medium temperature food processes, such as cheese, meat, and sauce production, potable water chillers tend to be an economical solution that delivers excellent cooling efficiency.



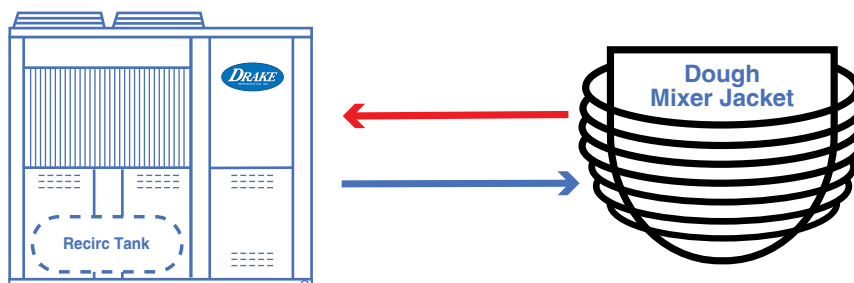
### 35-41°F Ingredient Water Glycol Chillers:

The coolant in a glycol chiller is a water-glycol mix that acts as an antifreeze, helping achieve a lower freezing point than water. These chillers use non-toxic propylene glycol, as opposed to ethylene, to ensure food safety. This close to freezing water can be used for washing produce, making cheese, cooling meat products, or as an ingredient in dough or other food products.



### Glycol Systems

These chillers use non-toxic propylene glycol, as opposed to ethylene, to ensure food safety. Glycol chillers are often used in low-temperature storage applications for food products such as yogurt, ice cream, chocolate, and cold tables, but are also suited for above-freezing applications.





## Drake Medical Chillers vs. Off-the-Shelf Chillers

### **Tighter Temperature Accuracy:**

A standard off-the-shelf chiller isn't built to give you the precise temperature control your medical equipment requires. Drake medical chillers are uniquely designed for consistency and reliability to maximize the uptime of lifesaving equipment. We focus on process cooling to provide year-round operation, unlike standard comfort chillers that often develop refrigeration issues during colder months. A Drake recirculation system maintains temperature at +/- 1°F for accurate temperature control, and our capacity modulation options allow us to achieve a level of precision without high degrees of compressor cycling, which would otherwise cause short component life. Consistent temperature accuracy equals greater up-time for your medical equipment.

### **Reliability:**

Standard off-the-shelf chillers are not intended to cool medical equipment. An industrial-grade medical chiller is the only way to ensure that you're getting the best performance and most uptime from your equipment. Drake always has the end customer in mind when designing and fabricating our medical chillers. You can rest comfortably knowing that our medical chillers will maintain a high up-time because of our redundant circuits and other backup systems. Drake has designed these chillers to operate from 120°F ambient all the way down to -40°F without any customer interaction. After the initial set up, the chiller will do the rest. When you are saving lives, the chiller is the last thing you want to worry about.

### **99.4% Uptime**

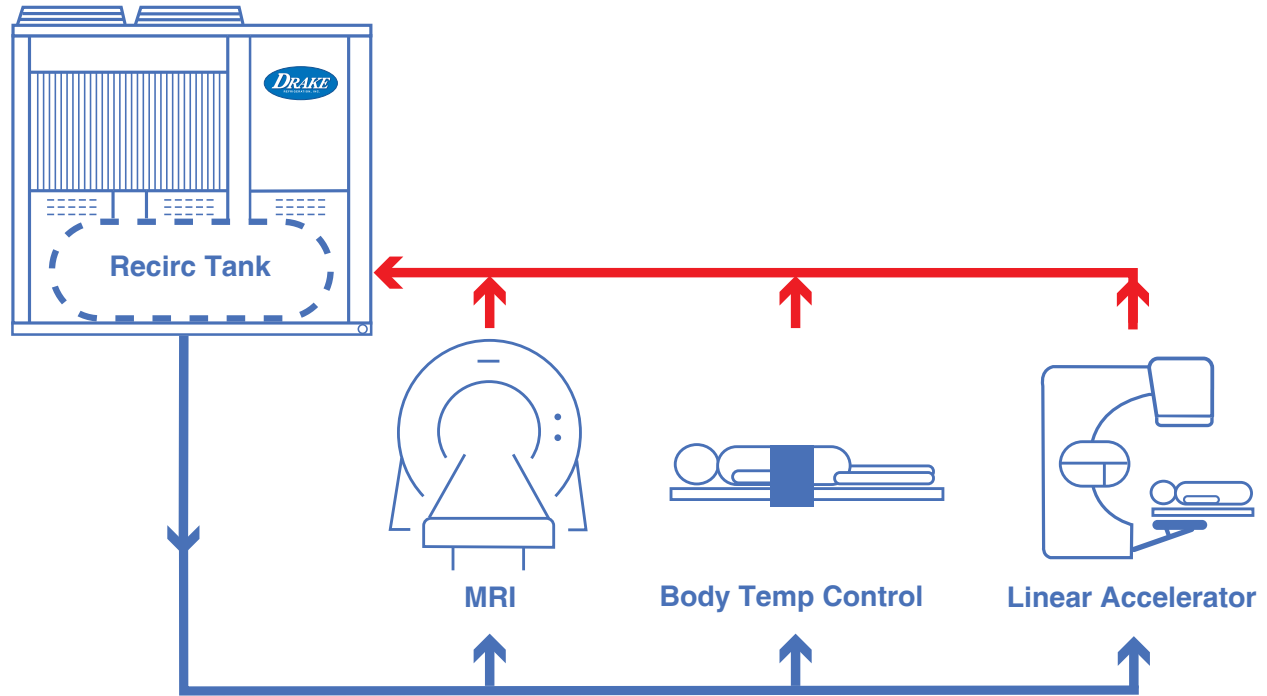
Thanks to our high-quality components and expert engineering and manufacturing capabilities, our chillers maintain a high uptime rate of 99.4% to keep your medical operation running strong. We are the industry leader in the design and manufacturing of industrial chillers. Drake provides robust, engineered solutions, and has the vast expertise to ensure your medical operation runs smoothly.

### **Next Generation Controls**

Controls help you manage your system effectively. Drake chillers include onboard MCS microcontrollers as a standard feature for tighter process control and remote login access. From smart technology features to other customized control options, Drake offers custom programming for application control, central

control for multiple units, and onboard or remote touchscreen options. Our systems can even be customized to send you an email and/or text alert in case of an alarm. Beyond these customization options we have the design and engineering expertise to fabricate a unique medical chiller tailored to your specific application. Whether you require fireproof wire, NEMA 4 electrical protection, preventative alarms, or something else, Drake has the expertise to help you manage your system.

### Examples of Medical Cooling Applications



Critical temperature tolerances are difficult to maintain under varying conditions. Drake recirculation tanks can hold temps to +/- 1°F.



# CANNABIS



## Drake Cannabis Chillers vs. Off-the-Shelf Chillers

### Low Fluid Temperatures

A standard off-the shelf chiller isn't built to give you the extra low temperatures required for maximum cannabis extraction. Drake offers extra-low temperature process chillers for compound extraction in high-volume facilities, and comfort chillers for plant cultivation in smaller facilities. You can expect our extra low temperature systems to handle fluid temperatures as low as -40°F.

### Tighter Temperature Accuracy:

Standard off-the shelf chillers will not give you the precise temperature control your equipment requires. Our XL Chiller line uses process cooling to remove heat from the cannabinoid extraction process. So whether you're extracting THC, CBN, or CBD, our XL Chillers provide the precise temperature control you need to ensure that the liquids remain at subzero temperatures to prevent denaturing or other damage.

### Year Round Performance

Unlike some off-the-shelf cooling systems that only operate optimally during the summer months, our cannabis chillers are designed for all-season operation, including winter months when the weather is colder. Year-round operation can help maximize the output and performance of your cannabis operation.

### Energy Efficiency:

Drake takes environmental responsibility seriously. We use only EPA approved refrigerants and the latest in energy efficient compressors. We also offer supplemental fluid coolers, with our cannabis chiller systems, for reduced energy consumption. A standard off-the-shelf chiller is just that, with a Drake industrial chiller you can choose to partially or fully customize our products to meet your specifications. Our cannabis chillers deliver a higher standard that you can trust to keep your investment running 24/7.



## 10 Benefits of a Drake Cannabis Chiller

### 1. Suitable for all facilities

No matter the size and volume of your cannabis facility, our cannabis chiller line can accommodate it. We provide engineered solutions for low and high-volume compound extractions and hemp plant cultivation.

### 2. Maximum cannabinoid extraction

Our extra-low fluid temperatures of  $-20^{\circ}\text{F}$  to  $-40^{\circ}\text{F}$  and tight temperature control of  $\pm 1^{\circ}\text{F}$  provide the ideal conditions to help you maximize the amount of extracted THC, CBD, or CBN.

### 3. Highest quality components

Our cannabis chillers use the highest quality components, including: high efficiency, low-temperature compressors, stainless steel reservoirs, custom-selected low-temperature pumps, brazed plate evaporators, and insulation to maintain low temperatures.

### 4. High uptime rate

Thanks to our high-quality components and expert engineering and manufacturing capabilities, we maintain a high uptime rate of 99.4% to keep your cannabis operation running strong.

### 5. Customized for your needs

With an endless array of customization options ranging from redundancy to controls, we can custom design the ideal cannabis chiller system to meet your needs.

### 6. Long-lasting design

We specifically engineer our cannabis chillers so that they'll hold up to even the most rigorous requirements, helping to ensure your system lasts.

### 7. Exceptional after-the-sale support

We'll stand behind our cannabis chillers by providing exceptional after-the-sale technical support. Our experienced engineers are also available for troubleshooting and guidance, giving you access to qualified experts who care.

### 8. Short lead times

Many of our cannabis chiller systems are in-stock and ready for quick shipment, helping to get your cannabis operation up and running faster.

### 9. High-efficiency compressors

Our high-efficiency scroll and two-stage economized semi-hermetic compressors are designed specifically to maximize cannabis output and performance.

### 10. Industrial-grade performance

Our XL Chiller line for cannabis extraction and comfort cooling line for hemp plant cultivation are industrial-grade for optimal performance and efficiency.





## Drake Comfort Cooling Chillers vs. Off-the-Shelf Chillers

### **Year-Round Cooling**

With low ambient protection, our comfort cooling chillers will perform optimally all year round. In addition, Drake offers options that are not available in other comfort cooling chillers such as custom sizes, custom dimensions, and redundancy options.

### **Excellent Performance In Coastal Or Harsh Environments**

If your residential or commercial property is in a coastal or harsh environment, our comfort cooling chillers stand out from others on the market with custom condensers which protect against the harsh salt air, and stainless-steel cabinets are available for extreme conditions. Condenser options in these environments include heresite coating, electrofin coating, gold fins, and copper fins.

### **High Ambient Temperature- And High Altitude-Friendly**

Properties located in areas with high ambient temperatures or high altitudes can benefit from our comfort cooling chillers. We offer over-sized condensers designed for lower air density and higher ambient temperatures for maximum chiller performance.

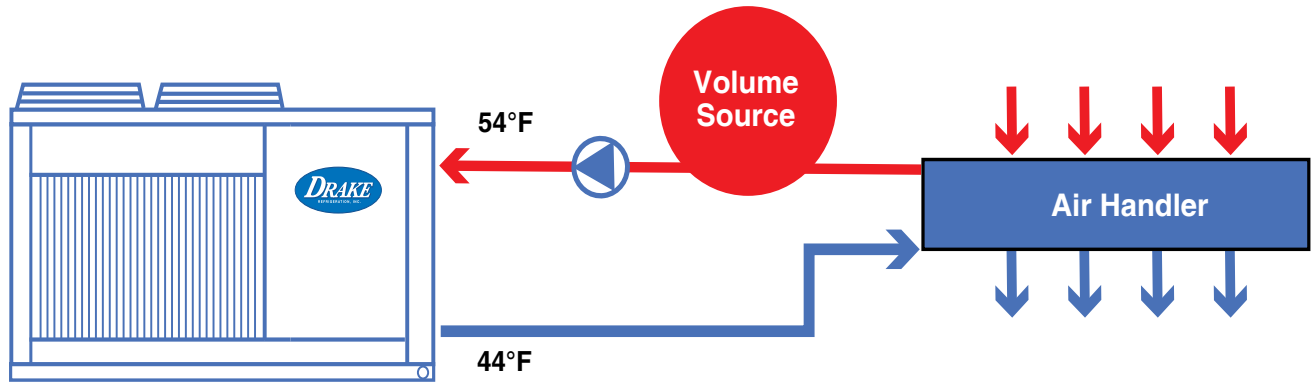
### **More Options Than Other Comfort Cooling Chillers**

Drake is proud to offer specialized options that you cannot find from other comfort cooling chiller manufacturers. From custom sizes and custom dimensions to low ambient protection and redundancy options, we are your source for comfort cooling chillers that are engineered just for you.

### **Multi Circuit Single Phase Systems**

Drake offers larger capacity chillers for applications where only single phase power is available. We manufacture single phase chillers from 5 tons to 50 tons, in 5 ton increments to match your needs. By using multiple 5 ton nominal refrigeration circuits, we are able to provide a unit that meets your total capacity requirements all in one packaged chiller!

## Comfort Cooling Chiller



Comfort cooling chillers can be a significantly cheaper cooling option for commercial and/or residential spaces than other traditional cooling methods. The chiller can be mounted outdoors on a roof, or at the rear of building to maximize functional space. Small fluid lines can be run in place of large duct work to one or multiple air handlers throughout an entire facility. In addition, comfort cooling chillers are energy-efficient, and relatively quick and easy to install.



PAC250M3-S2-Z  
(Five x 5 ton refrigeration circuits for 25 tons total)

# REFRIGERATION



## Drake Refrigeration Chillers vs. Off-the-Shelf Chillers

### Capacity Control

Drake understands that refrigeration processes have intermittent heavy to low load operation. As such, a refrigeration chiller must be designed to meet the changing demands of your application. Digital scrolls, cylinder unloading, and hot gas bypass are just some of the capacity control options that allow our units to operate from 17-100% of available cooling.

### Special Component Selection

Certain processes may require special component considerations, such as double-walled heat exchangers or PVC fluid piping. With a seemingly unlimited selection of specified components to meet your application requirements, we have all the tools we need to engineer your customized refrigeration chiller solution.

### Redundancy Options

Drake offers a variety of redundancy options to ensure that the refrigeration processes are always chilled when you need it. From multiple refrigeration circuits with standard lead-lag control to auto-changeover pumps, our units are designed to ensure your process is not halted because of our systems.

### Precise Temperature Control

Because our refrigeration chillers are custom designed to meet your unique application requirements, we can engineer a solution that achieves the exact temperature needed in your specific space. With more precise temperature control, you can rest assured that your cooling process will run smoothly.



## Refrigeration Chillers

With both air-cooled and water-cooled systems available, the Drake line of refrigeration chillers offers the ultimate in flexibility. Drake works directly with customers to design economical cooling systems that meet each customer's requirements. Whether it is providing chilled glycol for supermarket racks, water for greenhouses, or water for lobster tanks, our chillers are custom designed for your specific application.



PACT50S6-S2-ZF



PACT180D6-T4-Z



The industry leader in the manufacturing of industrial process chillers



# LOW TEMPERATURE



## Drake Low Temp Chillers vs. Off-the-Shelf Chillers

### Rapid Pull Down

Low-temp applications often require large pull-downs, and many competitors only design for the final temperature considerations, which causes highly inefficient chiller operation. We've designed our systems to allow for quick and efficient pull-downs through the entire temperature range. Thanks to our electronic expansion valves (EEVs), our low-temp chillers maintain a constant superheat with no human interaction.

### Oil Management

Anyone with experience in low-temp chillers knows that lack of oil return can plague the operation of even the simplest system. Drake takes all the necessary measures to ensure full oil returns to the compressor without requiring a service technician. Our chillers ensure the proper amount of oil remains where it should: in the compressor. Oil management systems include an oil separator, oil filter, solenoid valve, ball valves, and oil pressure sensor. Oil is the lifeblood of a chiller, and with so much attention to detail in this area, it's no wonder that our low-temp chillers have incredible longevity.

### A Vast Array Of Cooling Types

At lower temperatures, many standard antifreeze fluids become too viscous to pump. We design our low-temp chillers to meet your specific fluid. With us, you never have to de-rate chiller performance because we factor in fluid properties to ensure that our evaporators are sized for 100% efficiency. It's just one more way we engineer solutions for optimal performance and efficiency.

## Low Temperature Chillers

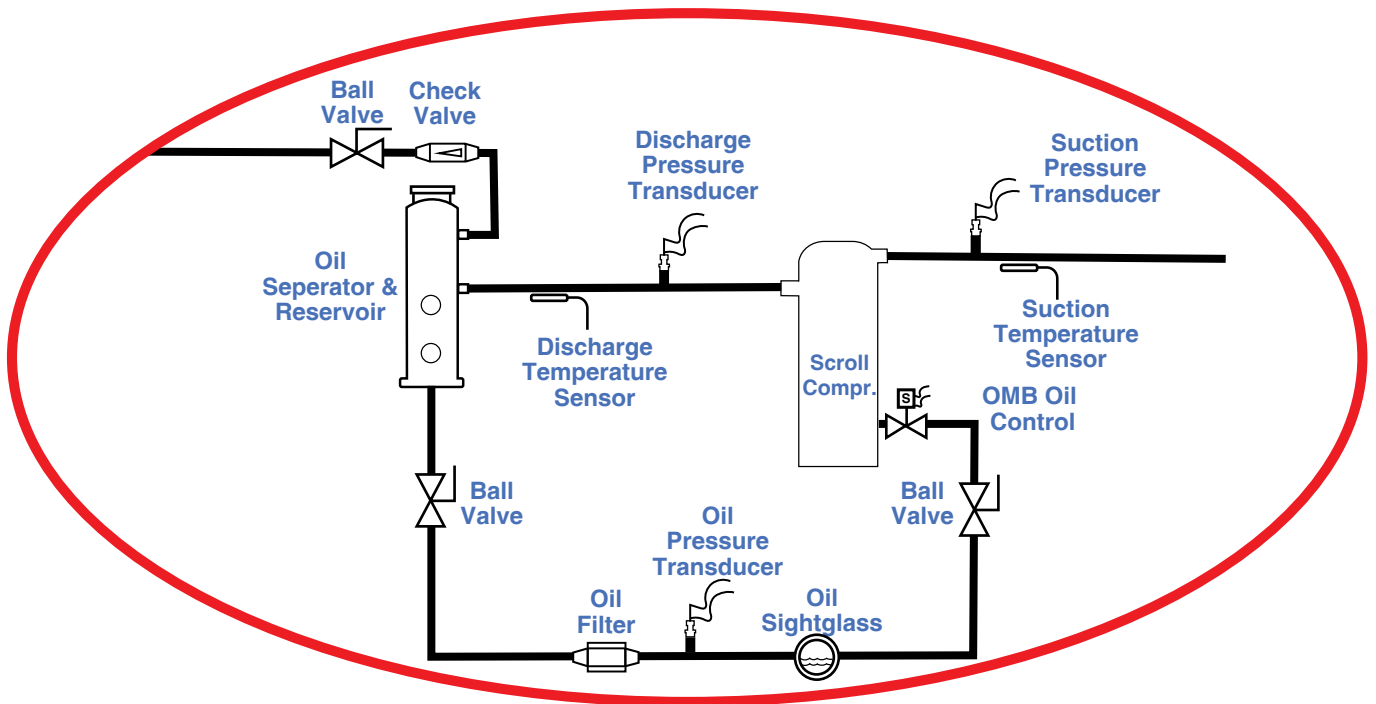
Low temp chillers often come with complexities that other chiller companies avoid – but not Drake. We're different because we take the time to understand your process and operating conditions before making an equipment selection. So, whether you need an air-cooled low temp chiller that relies on ambient air to keep your process cool or a water-cooled low temp chiller that relies on water from an external cooling tower to chill your process, Drake will engineer an affordable solution that will meet your specifications.



PACL1200D6-T4-T



Low Mass flow rate creates the need for oil management systems



The industry leader in the manufacturing of industrial process chillers







## Drake Industrial Chillers vs. Off-the-Shelf Chillers

### Custom Solutions

Drake has over 40 years of experience designing and building process chillers for industrial applications. Our industrial chillers come as a complete packaged unit that can simply be dropped in place and turned on. The internal tank helps maintain a temperature to  $\pm 1^\circ\text{F}$  to prevent temperature spikes, no matter how many processes are operating. You can count on us to build reliable and custom solutions for every industrial process cooling application. Our chillers take the heat, so you don't have to!

### Tighter Temperature Control

Through our experience working with industrial processes, we understand the importance of tight temperature control. We provide cost-effective engineered solutions using variable frequency drives (VFDs) and recirculation tanks to maintain temperature control of  $\pm 1^\circ\text{F}$ .

### Scalable

With the ability to support 1-100+ pieces of equipment, all our industrial chillers are expandable for future growth. Whether you're starting small or require a larger, more complex chilling system, we have process chillers that will grow along with you.

### Continuous Operation

We offer a variety of redundancy options to help your equipment remain cool during its processes. From multiple refrigeration circuits with standard lead-lag control to auto-changeover pumps, our units ensure that your process is continuously running. The chiller must meet the changing demand of your application, which is why we offer capacity control options, including digital scrolls, cylinder unloading, and hot gas bypass.

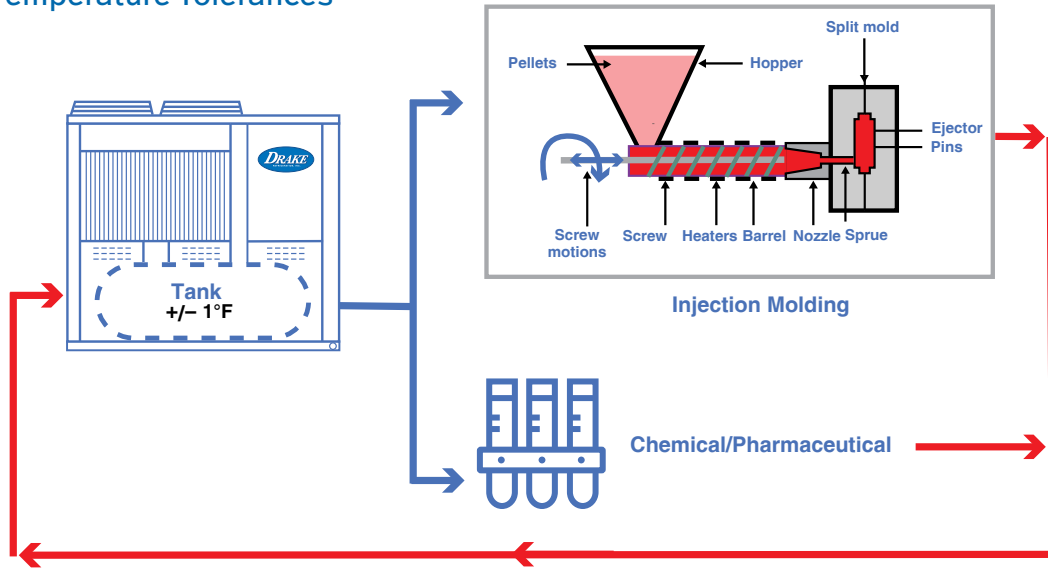
### Oil Chilling Capabilities

The industrial environment is harsh on machine tools, making it essential to keep oil cool. An overheated machine tool can lead to premature failure and long periods of downtime. Our oil chillers are specifically designed for industrial machine tools to increase efficiency, reliability, and equipment lifetime.

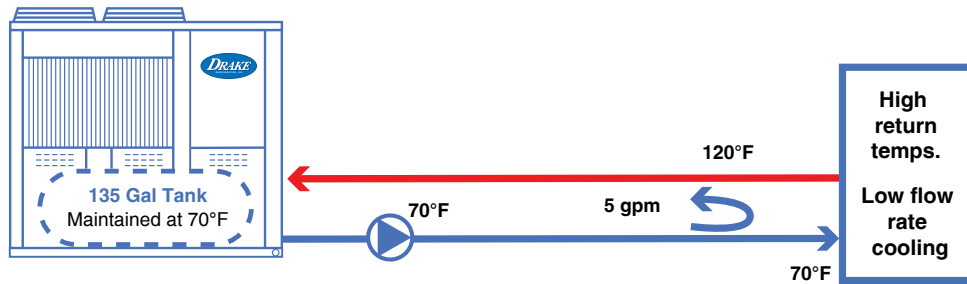


# Examples of Industrial Cooling

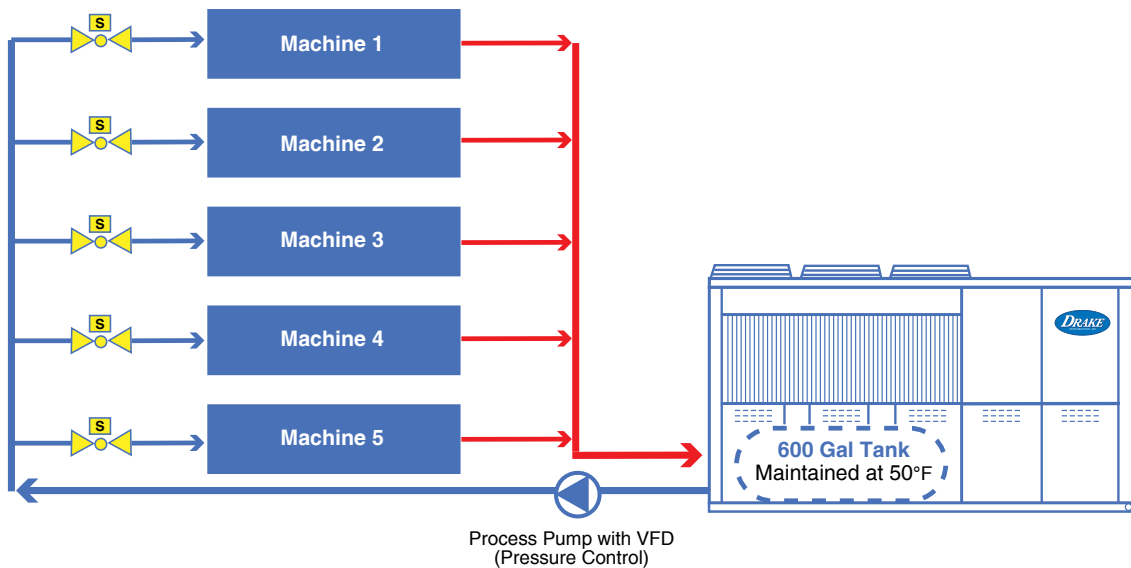
## Critical Temperature Tolerances



## High Fluid Return Temperature



## Machine Tool Cooling



# DRAKE CHILLER UNITS NOMENCLATURE

Example

**P AC T 60 S 3 - T4 - Z MM**

**P** P = Packaged ES = Evaporator Section CS = Condenser Section

**AC** AC = Air Cooled WC = Water Cooled

**T** T = Tank Model L = Low Temp No Letter = No Tank

**60** Nominal Capacity MBTUH Ex: 60 = 60,000 BTUH

**S** S = Single Circuit D = Dual Circuit M = Multiple Circuit Q = Tandem

**3** 1 = R134a 2 = R22 3 = R407c 5 = R507  
6 = R404a 8 = R448a 9 = R449a

**T4** Single Phase S2 = 208/230-1-60 S4 = 460-1-60  
Three Phase T3 = 208/230-3-60 T4 = 460-3-60 T5 = 575-3-60  
T7 = 200/208-3-50 T9 = 380-3-50

**Z** Compressor Type: Z = Scroll T = Screw ZD = Digital Scroll  
H = Hermetic S = Semi-Hermetic

**MM** Controller Type: MM = MicroMag M = Magnum



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