



PolyScience[®]
Temperature Control Solutions[®]

CHILLERS AND COOLERS

FOR THOSE OF YOU WHO REFUSE TO SETTLE
FOR ANYTHING SHORT OF PERFECTION.

Chillers

“Changing the world of chillers forever” is more than a catch phrase. It’s delivering on a promise to create a product line that redefines what a chiller is. Quality, Reliability, Durability, American Made...For those of you who refuse to settle for anything short of perfection.



DuraChill® Portable Recirculating Chillers

THIS IS NOT JUST A MACHINE...

DuraChill® is defined by numerous innovations thoughtfully engineered to work together to deliver precise and reliable temperature control day after day – whenever you need it.

- Cooling capacities from 850 to 2900 watts
- Choice of ultra-reliable Turbine or Positive Displacement Pumps
- Fluid temperature control range from -10 to 70°C
- ETL and CE electrical safety certifications



High Capacity Recirculating Chillers

Designed for high heat removal in demanding environments, our High Capacity Chillers provide robust and reliable temperature control for closed, external systems such as pilot plants, medical diagnostic equipment, metalworking lasers, and plastic molding machines. These chillers are suitable for most applications with their many options and accessories.



Benchtop Chillers

Powerful cooling performance in a compact package. PolyScience Benchtop Chillers deliver superior temperature ranges and consistent performance without taking up valuable floor space. These powerful units are ideal for use with rotary evaporators, vacuum systems, spectrometers and other analytical instrumentation.

Coolers

PolyScience Chillers and Coolers have proven, over several decades and hundreds of thousands of installations, that they are the most reliable in the industry - an exceptionally smart choice for end-user and OEM applications ranging from lasers and analytical equipment to reactors and manufacturing equipment.



Recirculating Coolers

Available in both Liquid-to-Air and Liquid-to-Liquid models, PolyScience Recirculating Coolers deliver extremely quiet and energy-efficient heat removal. They provide significant cooling for set-points above ambient, without the energy consumption of refrigerated chillers.



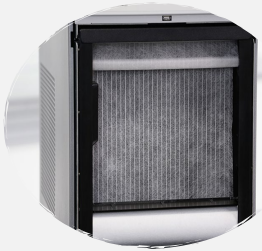
Low Temperature Coolers

PolyScience Low Temperature Coolers enhance and simplify low-temperature laboratory work, providing rapid, low-cost cooling of liquids to temperatures as low as -100°C . Typical applications include the cooling of exothermic reactions, vapor and solvent trapping, and impact testing. Immersion Probes are excellent for trapping and Dewar-type applications. An economical alternative to dry ice or liquid nitrogen.

DuraChill® Features

Changing the world of chillers, forever...

More than a catch phrase, DuraChill® is an ongoing commitment to the environment, innovation and a 60 year old promise to create and deliver the best products...each and every day.



Self-changing Filter System

DuraChill® features the DynamicFilter™ System which is preprogrammed to change the filter once a month for a two-year period and can be adjusted to suit your operating environment. This relieves you of the burden of preventive maintenance.



UV Biological Growth Inhibitor

As part of our commitment to the environment we developed a UV light system that will continuously control biological growth in the fluid path without the need to add chemical growth inhibitors, preventing algaecides from being released into the world's waterways.



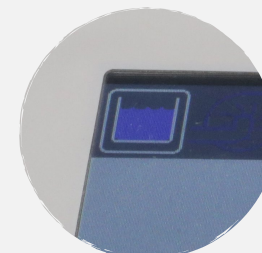
Front Fill Reservoir

A conveniently located fill port on the front means you no longer have to go to the back of the chiller to open and fill the reservoir.



Full Color Touch Screen Display

The color touch screen display gives you all the information you need at a glance, in five selectable languages. The screen will display continuous status of set temperature, actual temperature, reservoir fill level and output pressure as well as the status of your air filter.



Continuous Liquid Level Monitoring

Because pump seals will fail in as little as 30 seconds of being run dry, DuraChill® Chillers include a state-of-the-art capacitance liquid level sensor on the reservoir to protect the pump from premature failure.



WhisperCool® Noise Reduction

DuraChill® utilizes our patented WhisperCool® system, which evaluates the demand for cooling from the application and then slows the fan speed to the minimum necessary, making the chiller extremely quiet without sacrificing performance.

DuraChill® Specifications

	CA02		CA03		CA05		CA10	
Compressor HP	.25		.33		.5		1.0	
Pump Type	Positive Disp.	Turbine	Positive Disp.	Turbine	Positive Disp.	Turbine	Positive Disp.	Turbine
Cooling Capacity @20°C¹ 60Hz	.85 kW		1.4 kW		1.74 kW		2.9 kW	
	.70 kW		1.28 kW		1.84 kW		2.65 kW	
Temperature Range	-10° to 70°C 14° to 104°F							
Temperature Stability	±0.1°C		±0.1°C		±0.1°C		±0.1°C	
Maximum Pressure psi (kPa) 60Hz	100 (689)		90 (621)		100 (689)		90 (629)	
	83 (572)		75 (517)		83 (572)		75 (517)	
Maximum Flow gpm (L/min) 60Hz	2.6 (9.8)		2.6 (9.8)		2.6 (9.8)		3.5 (13.2)	
	2.0 (7.6)		2.2 (8.3)		2.0 (7.6)		2.9 (11.0)	
WhisperCool®	•	•	•	•	•	•	•	•
Overall Dimensions (L x W x H)	26.0 x 15.0 x 21.8 in (66 x 38.1 x 55.4 cm)							
Connectivity Options	RS-232, Ethernet, USB Serial Port Emulation, USB TMC, Dry Contact On/Off/Status							
Reservoir Capacity gal (L)	11 (4.2)							
Process Connections	1/2" female NPT							
Optional Remote Temperature Probe	Remote monitoring / Remote control							
Self-changing Air Filter	•	•	•	•	•	•	•	•
UV Biological Growth Inhibitor	•	•	•	•	•	•	•	•
Ambient Air Temperature Tracking	•	•	•	•	•	•	•	•
Available Power Configurations	120V 60Hz		120V 60Hz		120V 60Hz		230V 60Hz	
	240V 50Hz		240V 50Hz		240V 50Hz		240V 50Hz	

1. Cooling capacity based on 20°C (68°F) ambient temperature and a 50%/50% mix of ethylene glycol and distilled water as coolant.



High Capacity Chiller Features

Designed for high heat removal in demanding environments, our High Capacity Chillers provide robust and reliable temperature control for closed, external systems such as pilot plants, medical diagnostic equipment, metalworking lasers, and plastic molding machines. These chillers are suitable for most applications with their many options and accessories.

Chillers 3HP and up are not available outside of the United States.

1.5 HP High Capacity Chillers

Key Specifications

Working Temperature: +5° to +35°C

Temperature Stability: ±0.5°C

Cooling Capacity: Up to 5328 watts @ 20°C

Key Features

- High capacity cooling for lasers, electron microscopes, and other laboratory applications
- Small footprint conserves floor space
- Displays temperature and pressure or flow rate simultaneously
- User-adjustable temperature, pressure, and flow rate alarms
- Simple operation and maintenance
- Air- or water-cooled
- Positive displacement (PD) or turbine (T) pump; other pump options also available



3HP High Capacity Chillers

Key Specifications

Working Temperature: +5° to +35°C

Temperature Stability: ±0.5°C

Cooling Capacity: Up to 10,936 watts @ 20°C

Key Features

- Chillers 3HP and up are not available outside of the United States
- High capacity cooling for lasers, EDM equipment, injection molding, and other heat removal applications
- Displays temperature and pressure or flow rate simultaneously
- User-adjustable temperature, pressure, and flow rate alarms
- Simple operation and maintenance
- Air- or water-cooled
- Wide variety of pump options available



High Capacity Chiller Features Continued

Designed for high heat removal in demanding environments, our High Capacity Chillers provide robust and reliable temperature control for closed, external systems such as pilot plants, medical diagnostic equipment, metalworking lasers, and plastic molding machines. These chillers are suitable for most applications with their many options and accessories.

Chillers 3HP and up are not available outside of the United States.

5HP & Up High Capacity Chillers

Features

- Chillers 3HP and up are not available outside of the United States
- High capacity cooling for plasma torch cutting, machine tool hydraulics, high powered lasers, and other high heat generating processes and equipment
- Displays temperature and pressure or flow rate simultaneously
- User-adjustable temperature, pressure, and flow rate alarms
- Simple operation and maintenance
- Wide variety of options available



1.5 HP High Capacity Specifications

Model Series	6800	6900
Pump Options	1/3HP Turbine 1/3 HP Positive Displacement 3/4HP Turbine Bronze 3/4HP Turbine	1/3HP Turbine 1/3 HP Positive Displacement 3/4HP Turbine Bronze 3/4HP Turbine
Cooling Capacities ¹	Up to 5.3kW @20°C	Up to 5.3kW @20°C
Condenser Cooling Type	Air	Water
Temperature Range (without optional heater)	5° to 35°C ²	5° to 35°C ²
Temperature Stability	±0.5°C	±0.5°C
Maximum Pressure ³ psi (kPa) 60Hz	100 (689)	100 (689)
50Hz	83 (572)	83 (572)
Maximum Flow ³ gpm (L/min) 60Hz	11 (41.6)	11 (41.6)
50Hz	9 (34)	9 (34)
Overall Dimensions (L x W x H)	30.5 x 19 x 26" (78 x 48 x 66 cm)	30.5 x 19 x 26" (78 x 48 x 66 cm)
Electrical Configuration Options	230V 50/60Hz 3Ø, 208-230V 60Hz 1Ø, 460V 60Hz 3Ø, 240V 50Hz 1Ø	230V 50/60Hz 3Ø, 208-230V 60Hz 1Ø, 460V 60Hz 3Ø, 240V 50Hz 1Ø
Reservoir Capacity gal (L)	3.5 (13.25)	3.5 (13.25)
Process Connections	1/2" female NPT	1/2" female NPT

1. Cooling capacity based on 20°C (68°F) ambient temperature and a 50%/50% mix of ethylene glycol and distilled water as coolant.
2. Temperature range dependent on final configuration and heating options.
3. Actual pressure and flow rates are dependent on pump selection and final configuration.



Benchtop Chiller Features

These powerful, low-temperature chillers are well matched for use with rotary evaporators, vacuum systems, spectrometers, and other analytical equipment. They also are available with a mobile cart accessory for convenient placement under a bench.

LS Benchtop Chiller Series



Key Specifications

Working Temperature: -20° to +40°C
Temperature Stability: ±0.1°C
Cooling Capacity: Up to 1290 watts @ 20°C

Features

- Optimized for high performance at low temperatures
- Capable of cooling multiple rotary evaporators
- WhisperCool® Environmental Control System
- Large, easy to read LED display
- Space-saving design
- Cooling at ambient temperatures as high as 30°C
- Low flow shutoff and alarm, high and low temperature alarms
- Simple setup, operation, and maintenance
- Centrifugal or turbine pump
- Fluid level indicator
- RS232 communication and external water filter optional

LM Benchtop Chiller Series



Key Specifications

Working Temperature: -10° to +30°C
Temperature Stability: ±0.1°C
Cooling Capacity: Up to 560 watts @ 20°C

Features

- Optimized for performance at low temperatures
- Ideal for benchtop rotary evaporators
- Large, easy to read LED display
- Space-saving design
- Cooling at ambient temperatures as high as 30°C
- Low flow shutoff and alarm, high and low temperature alarms
- Simple setup, operation, and maintenance
- Choice of two different centrifugal pumps
- Fluid level indicator
- RS232 communication and external water filter optional

MM Benchtop Chiller Series



Key Specifications

Working Temperature: -5° to +50°C
Temperature Stability: ±0.1°C
Cooling Capacity: Up to 460 watts @ 20°C

Features

- Precise and stable temperature control at low temperatures
- Large, easy to read LED display
- Space-saving, benchtop design
- Cooling at ambient temperatures as high as 30°C
- Low flow shutoff and alarm, high and low temperature alarms
- Simple setup, operation, and maintenance
- Choice of two different centrifugal pumps
- Fluid level indicator
- RS232 communication and external water filter optional

Benchtop Chiller Specifications



	MM	LM	LS
Cooling Capacity @ 20°C ¹ (W) 60Hz/50Hz	460/410	560/520	1290/1190
Temperature Range	-5° to +50°C	-10° to +30°C	-20° to +40°C
Temperature Stability	±0.1°C	±0.1°C	±0.1°C
Turbine Pump	Maximum Pressure psi (bar) 60Hz/50Hz	-	43.4 (299) 32 (221)
	Maximum Flow gpm (l/min) 60Hz/50Hz	-	2.6 (9.8) 2.2 (8.3)
Centrifugal Pump	Maximum Pressure psi (kPa) 60Hz/50Hz	14.5 (100) 12.5 (86)	14.5 (100) 10.5 (72)
	Maximum Flow gpm (l/min) 60Hz/50Hz	3.5 (13.2) 3.0 (11.4)	3.5 (13.2) 3.0 (11.4)
WhisperCool®			●
Overall Dimensions (L x W x H)	20 x 10 x 17 in 50.8 x 25.4 x 43.2 cm	20 x 10 x 19 in 50.8 x 25.4 x 48.3 cm	23.9 x 10 x 19 in 60.7 x 25.4 x 48.3 cm
Electrical Configurations	Turbine Pump 60Hz 50Hz	-	120V 12A 240V 6A
	Centrifugal Pump 60Hz 50Hz	120V 12A 240V 4.5A	120V 12A 240V 4.5A
Reservoir Capacity gal (L)	0.7 (2.65)	0.7 (2.65)	0.7 (2.65)
Process Connections	1/2" female NPT	1/2" female NPT	1/2" female NPT



Large, easy to read LED display



Operating lights

1. Cooling capacity based on 20°C (68°F) ambient temperature and a 50%/50% mix of ethylene glycol and distilled water as coolant.

Recirculating Coolers Features

Quiet, energy-efficient heat removal Coolers. Available in both Liquid-to-Air and Liquid-to-Liquid models, PolyScience Recirculating Coolers deliver extremely quiet and energy-efficient heat removal. They provide significant cooling for setpoints above ambient, without the energy consumption of refrigerated chillers.

3370 Liquid-to-Air Cooler

Key Specifications

Working Temperature Range:

Ambient +5° to 70°C

Maximum Fluid Temperature: 70°C

Cooling Capacity: 4000 watts based on 11°C Δ T (water)

Features

- An economical solution for applications where cooling fluid temperature is higher than ambient and temperature control is not required
- Quiet liquid-to-air cooling
- Positive displacement or turbine pump
- Built-in low liquid level indicator



4100 Liquid-to-Liquid Cooler

Key Specifications

Working Temperature Range:

Facility water +10° to 60°C

Maximum Process Temperature: 60°C

Temperature Stability: ±0.4°C

Cooling Capacity: 10,000 watts based on 10°C Δ T

Features

- Protects precision equipment from facility water contaminants
- Quiet, energy-efficient liquid-to-liquid heat removal
- Displays temperature and pressure or flow rate information
- Built-in temperature and low flow alarms



Recirculating Coolers Features Continued

Quiet, energy-efficient heat removal Coolers. Available in both Liquid-to-Air and Liquid-to-Liquid models, PolyScience Recirculating Coolers deliver extremely quiet and energy-efficient heat removal. They provide significant cooling for set-points above ambient, without the energy consumption of refrigerated chillers.

FT-25 Flow-Through Refrigerated Cooler

Key Specifications

Temperature Range: -25° to +40°C

Cooling Capacity: 745 watts @ 20°C;
260 watts @ -10°C

Temperature Control: Fixed at -25°C

Features

- Continuous cooling to -25°C
- Designed to run at maximum cooling
- Ideal for use with heated and refrigerated circulating baths



Recirculating Cooler Specifications



3370 Liquid-to-Air Cooler

Cooling Capacity @ 20°C (W) 60Hz/50Hz	4000 ¹	
Temperature Range	Ambient +5° to 70°C	
Turbine Pump	Maximum Pressure psi (bar) 60Hz/50Hz	62 (4.3) 50 (3.4)
	Maximum Flow gpm (l/min) 60Hz/50Hz	5.4 (20.5) 4.5 (17.1)
Positive Displacement Pump	Maximum Pressure psi (kPa) 60Hz/50Hz	100 (689) 100 (689)
	Maximum Flow gpm (l/min) 60Hz/50Hz	2.4 (9.1) 2 (7.6)
Overall Dimensions (L x W x H)	20.5 x 15 x 22.3 in 52 x 38.1 x 56.6 cm	
Electrical Configurations	Turbine Pump 60Hz/50Hz	120V 60Hz 5.5A 240V 50Hz 3A
	Positive Displacement Pump 60Hz/50Hz	120V 60Hz 5.5A 240V 50Hz 3A
Reservoir Capacity gal (L)	1.1 (4.2)	
Process Connections	1/2" female NPT	

4100 Liquid-to-Liquid Cooler

Cooling Capacity @ 20°C (W) 60Hz/50Hz	10,000 ²	
Temperature Range	Facility Water +10° to 60°C	
Temperature Stability	±0.4°C	
Turbine Pump	Maximum Pressure psi (kPa) 60Hz/50Hz	100 (689) 100 (689)
	Maximum Flow gpm (l/min) 60Hz/50Hz	3.5 (13.2) 3.5 (13.2)
Overall Dimensions (L x W x H)	27.6 x 14.5 x 22.6 in 70.2 x 36.8 x 57.5 cm	
Electrical Configurations	208-240V 50-60Hz 3A 240V 50Hz 3A	
Reservoir Capacity gal (L)	1.1 (4.2)	
Process Connections	1/2" female NPT	

FT-25 Flow-Through Refrigerated Cooler

Temperature Range	-25° to 40°C
Cooling Capacity (W)	745 @ 20°C 260 @ -10°C
Temperature Control	Fixed at -25°C
Inlet and Outlet Sizes	3/8" (9.5 mm)
Overall Dimensions (L x W x H)	17 x 14 x 14 in 43.2 x 35.6 x 35.6 cm

1. Cooling capacity for 3370 based on 11°C temperature differential between ambient air temperature and cooling fluid temperature.
2. Cooling capacity for 4100 given at 30°C using 20°C facility water.

Immersion Probe Coolers Features & Specifications

Excellent for trapping and Dewar-type applications, these coolers reduce the expense of using consumables such as dry ice or liquid nitrogen. A flexible hose allows convenient placement of the cooling probe. With a variety of probes available, these Immersion Probe Coolers are the ideal solution for reaching extreme cold temperatures with high efficiency.



Low Temperature Coolers - Immersion Probe Style

Key Features

- Continuous cooling to temperatures as low as -100°C
- Designed to run at maximum cooling
- An economical alternative to dry ice or liquid nitrogen
- Excellent for trapping applications, freeze drying, and rapidly cooling small volumes of liquids

Immersion Probes



Rigid Coil Probe



Bent Probe



Rigid Cold Finger Probe



Flexible Cold Finger Probe

	Probe Length	Probe Diameter	Exposed Length ¹
3" Rigid Coil	9" (22.9 cm)	3" (7.6 cm)	17" (43.2 cm)
1.875" Rigid Coil	7" (17.8 cm)	1.875" (4.8 cm)	16.5" (41.9 cm)
1.5" Rigid Coil	4" (10.2 cm)	1.5" (3.8 cm)	15" (38.1 cm)
1.875" Bent Probe	7" (17.8 cm)	1.875" (4.8 cm)	8" (20.3 cm)
1.5" Bent Probe	4" (10.2 cm)	1.5" (3.8 cm)	6" (15.2 cm)
Rigid Cold Finger	3.75" (9.53 cm)	0.7" (1.8 cm)	3.75" (9.53 cm)
Flexible Cold Finger	15" (38.1 cm)	0.625" (1.6 cm)	15" (38.1 cm)

1. Exposed length refers to the amount of exposed metal from the insulated hose to the tip of the probe.

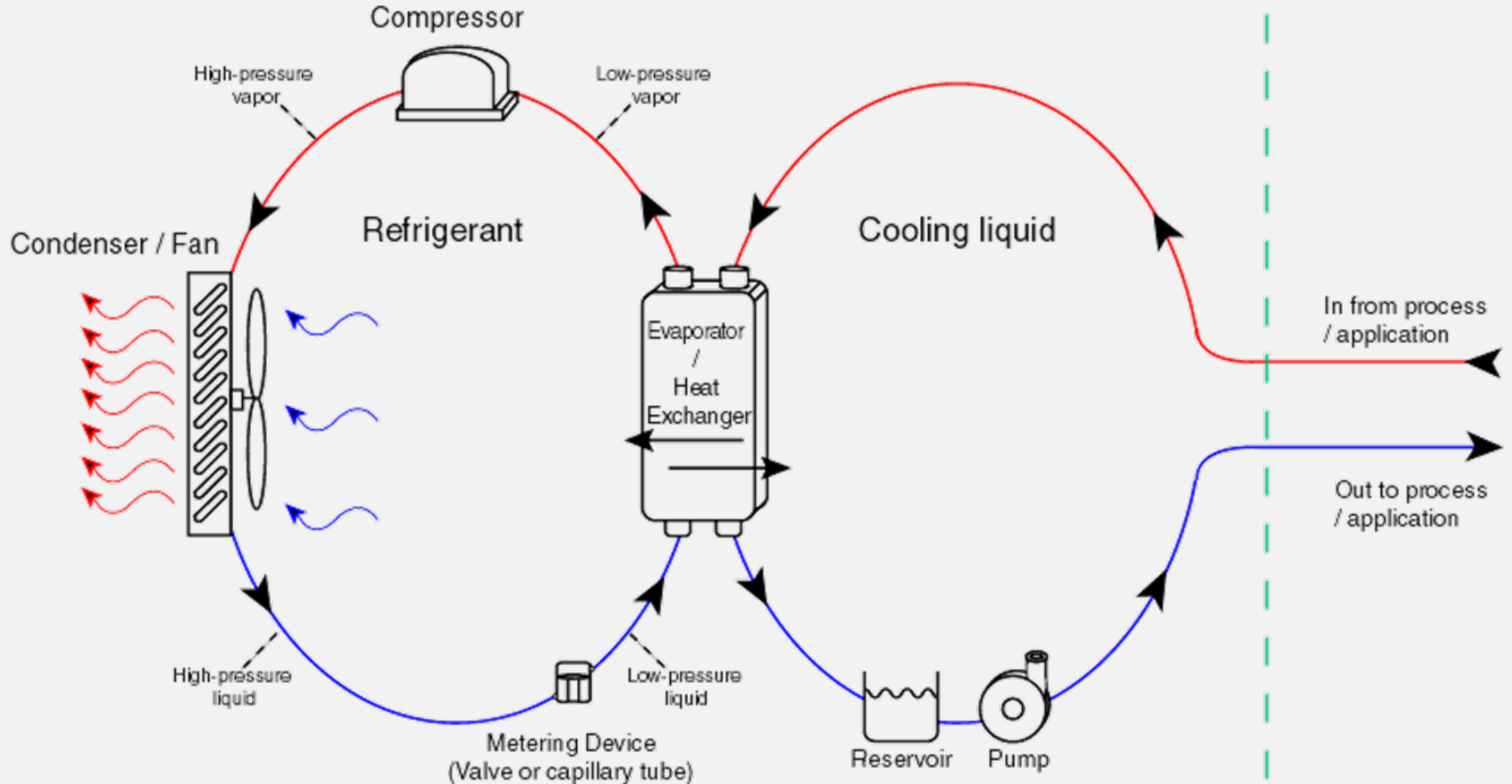
Immersion Probe Coolers Specifications

Low Temperature Coolers

	IP-100	IP-80	IP-60	IP-35
Temperature Range	-100 to -60°C	-80 to -40°C	-60 to -20°C	-35 to 40°C
Cooling Capacity (W)	85 @ -65°C 35 @ -80°C	215 @ -60°C 100 @ -80°C	150 @ -20°C 100 @ -60°C	1004 @ 20°C 106 @ -30°C
Temperature Control	Fixed at -100°C	Fixed at -80°C	Fixed at -60°C	Fixed at -35°C
Temperature Readout	Yes	Yes	No	No
Overall Dimensions (L x W x H)	20.1 x 15 x 22.3 in 51.1 x 38.1 x 56.6 cm	20.1 x 15 x 22.3 in 51.1 x 38.1 x 56.6 cm	11 x 10 x 9 in 27.9 x 25.4 x 22.9 cm	17 x 14 x 14 in 43.2 x 35.6 x 35.6 cm
Hose Diameter	2.8" (7.1 cm)	2.8" (7.1 cm)	1.5" (3.8 cm)	1.5" (3.8 cm)
Hose Length	6' (1.8 m)	6' (1.8 m)	4' (1.2 m)	4' (1.2 m)
3" Rigid Coil	•			•
1.875" Rigid Coil		•		•
1.5" Rigid Coil			•	
1.875" Bent Probe		•		
1.5" Bent Probe			•	
Rigid Cold Finger	•			
Flexible Cold Finger	•			



How Refrigeration Works – Chillers and Coolers



Glossary of Terms

At PolyScience, we believe strongly in providing the very best products and the highest level of service to our customers. While we have tried to provide adequate product descriptions, we realize that some customers may be interested in more in-depth information than that listed.



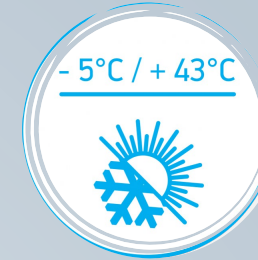
Air-Cooled Chiller

A type of chiller that exhausts the heat absorbed from the process to the surrounding air. The cooling efficiency of air-cooled chillers is directly related to ambient air temperature.



Ambient Air Temperature

The temperature of the room in which the Chiller or Cooler is located. Refrigerated equipment is generally required when the application temperature must be controlled near or below the ambient room temperature.



Ambient Temperature Range

This represents the highest and lowest ambient air temperatures at which the Chiller was designed to operate.



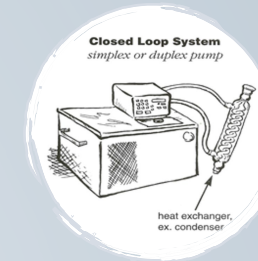
Calibration Capability

The ability to match the reading of a device to that of a known standard or another device. PolyScience Circulators, Chillers and Digital General Purpose Water Baths all feature calibration capability.



Chiller/Recirculating Chiller

A closed-loop refrigerated system designed to cool an external device. In general, Chillers have more cooling capacity and are capable of higher flow rates and higher fluid pressures than can be achieved by Refrigerated Circulators.

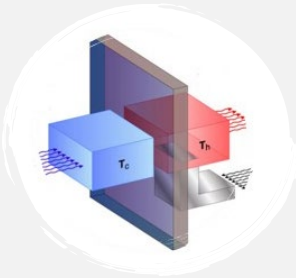


Closed-Loop Circulation

This is used in reference to systems or applications where liquid is pumped from a Chiller through an external device such as a laser and then returned directly to the Chiller. Such systems are “closed” to the atmosphere. Closed-loop circulation may be achieved with both pressure only Simplex and pressure/suction Duplex pumps. All PolyScience Chillers are capable of closed-loop circulation.

Glossary of Terms Continued

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Cooling Capacity

This is the amount of heat removal that a refrigerated device, such as a Chiller or Refrigerated Circulator, can provide at a given temperature. It is generally stated in watts or BTUs/hour. It may also be expressed in tons.



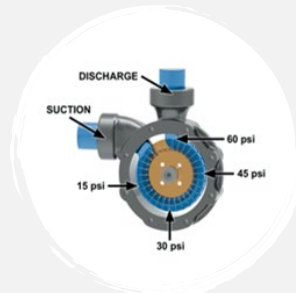
Flow-Through Cooler

This auxiliary device is often used with open baths or heated Circulators when rapid cool down or operation at or near ambient temperature is required. A Flow-Through Cooler can also serve as a source of supplemental cooling when used in conjunction with a refrigerated Circulator or to add cooling to Heated Circulators. Because a Flow-Through Cooler provides refrigeration only, an external pump or other source of circulation is required.



Immersion Cooler

An auxiliary device used to provide rapid cooling for small quantities of liquids or as a replacement for dry ice. An Immersion Cooler can also be used in conjunction with an open bath or heated Circulator to speed cool down or provide more precise control when operating at or near ambient temperature. Cooling is provided via a probe or cooling coil inserted directly in the liquid.



Turbine Pump

Available on many PolyScience Recirculating Chillers, this type of pump provides moderate flow at higher pressures. It is well suited to applications that require higher pressure or experience a higher pressure drop, such as when using high viscosity fluids, smaller tubing diameters or pumping higher or further from the cooling product and the application.



Water-Cooled Chiller

A type of chiller that transfers heat absorbed from the process fluid to another liquid, such as facility water from a cooling tower, as opposed to transferring the heat to the ambient air.



WhisperCool™ Environmental Control System

Our patented adaptive technology noticeably reduces operational noise, optimizes compressor and evaporator performance, decreases overall energy consumption, and prolongs compressor life. It is standard on select PolyScience Recirculating Chillers.



PolyScience[®]
Temperature Control Solutions[®]

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