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PolyScience®
Temperature Control Solutions®

CHILLERS AND COOLERS

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

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.

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.

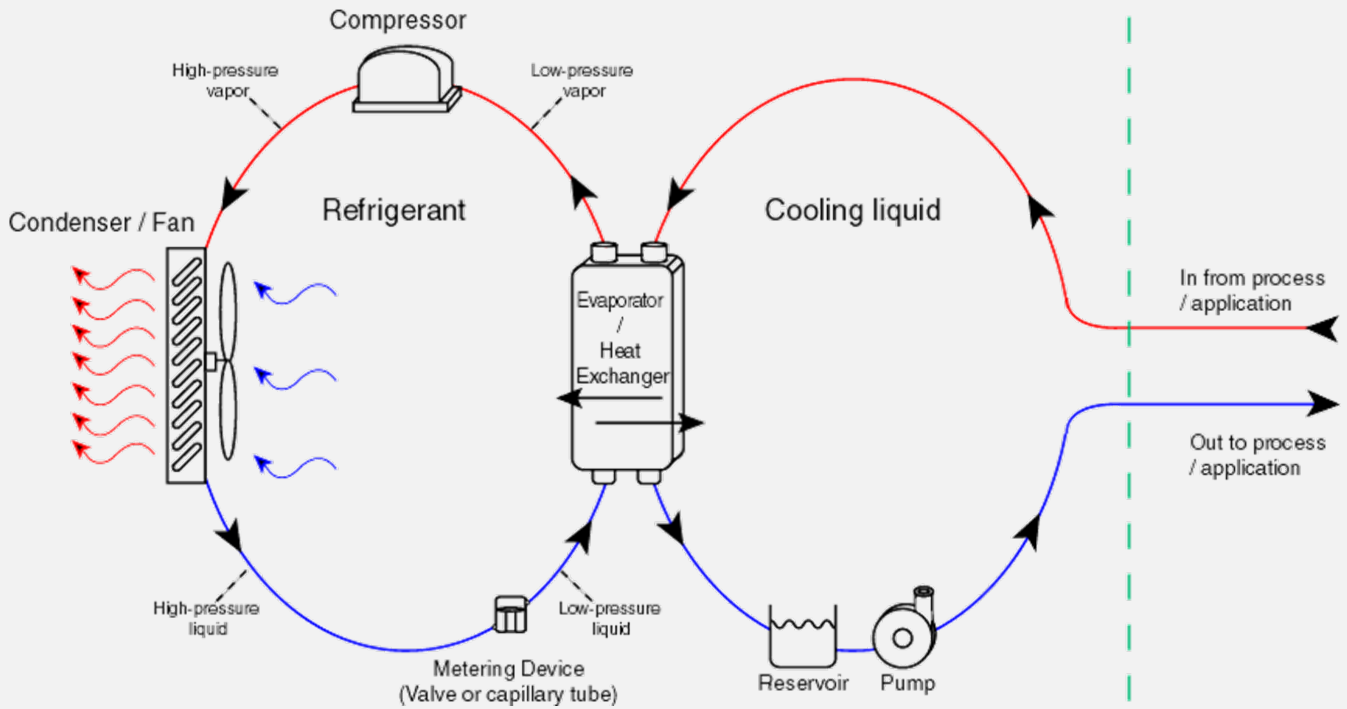
Immersion Probe Coolers Specifications

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.



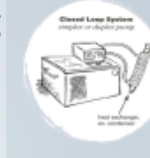
Calibration Capability

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.

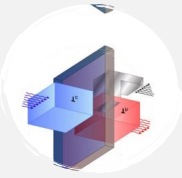


Closed-Loop Circulation

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.

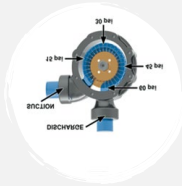
Glossary of Terms Continued

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.



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.



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.



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.



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.



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.



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.

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