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 **PolyScience**<sup>®</sup>  
Temperature Control Solutions<sup>®</sup>



## CIRCULATING BATHS

ACHIEVE THE TEMPERATURE YOU WANT, WHEN YOU WANT IT.



## Features

- Reservoir sizes ranging from 6 to 75 liters
- Refrigerated and Heated, Heated and Open Bath models, and Immersion Circulators
- Four types of digital temperature controllers, from the essentials to fully programmable
- Intuitive setup and operation, featuring either multi-language help or screen prompts (depending on model)

Our circulating baths are designed to work hard for your specific needs while making your job more efficient and ensuring the most precise temperature control.

# Circulating Water Baths

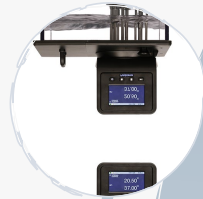
Innovation, ease of use and constant reliable temperature is the foundation of our circulating baths. From 6 liters to 75 liters



## Stainless Steel Open Bath

An economical alternative to integrated heating baths for liquid temperatures up to 150°C.

Working temperatures from ambient +10° up to 150°C. Controller bridge rests securely on the deep drawn stainless steel reservoir, yet is easily removed for tank cleaning. Generous bath opening provides ready access to samples and the included bath cover improves stability.



## Polycarbonate Open Bath

Handle liquid temperatures up to 85°C.

Advanced Programmable or MX Temperature Controller. Transparent polycarbonate reservoir lets you keep samples in clear view. Included bath cover reduces evaporation and improves temperature stability



## Heated Circulating Bath

Precise. Reliable. Feature-Rich.

Working temperatures from ambient +10° to + 200°C. PolyScience Integrated Heated Circulating Baths offers solutions for all your laboratory's liquid heating needs. A bath with an integral pump, heater and temperature controller. The circulation of fluid inside the bath reservoir results in better temperature stability and uniformity. All PolyScience Circulating Baths are capable of external circulation.



## Heated/ Refrigerated Circulating Bath

A versatile range of products to fit every need.

Capable of reaching temperatures as low as -40°C, PolyScience Refrigerated/Heated Circulating Baths provide dependable temperature control for a wide variety of laboratory cooling applications. A bath with an integral pump, heater, refrigeration system, and temperature controller. In addition to low temperature applications, Refrigerated/Heated Circulating Baths offer more precise control for applications that require bath temperatures near or below ambient. All PolyScience Circulating Baths provide internal circulation as well as external circulation capability.

# Temperature Controllers

From the sleek, contemporary profile to the ultra-intuitive interface, we have created a better breed of temperature controllers. Easy to use, informative, and connected, we have designed a stable, reliable and precise partner for your lab bench.

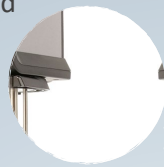
## Overall Features

- Intuitive, icon-driven operation
- Complete operating information displayed on a single screen
- Large, easy to read displays
- Multiple connectivity options
- Temperature stability as precise as  $\pm 0.005^{\circ}\text{C}$
- Customizable features and functions



## Advanced Programmable

Excellent precision and performance, highly intuitive operation.



## Standard Digital

Combines innovative design with highly intuitive operation to deliver reliable temperature control for a wide range of laboratory applications.



## Advanced Digital

Combines exceptional precision and performance with highly intuitive, feature-rich operation.



## MX

The flexibility of a fully integrated temperature controller or clamp-on immersion circulator.

# Circulating Controller Specifications & Features

Innovation, ease of use and constant reliable temperature is the foundation of our circulating baths.

## MX

### Key Specifications

**Working Temperature:** 135°C maximum temperature  
**Temperature Stability:**  $\pm 0.07^\circ\text{C}$   
**Safety Rating:** DIN 12876-1 Class I (for use with non-flammable liquids)  
**Pump:** 1-speed  
**External Circulation:** Closed-loop

### Key Features

- Large, universal icon and English display
- On-screen prompts
- Single-point calibration capability



## Standard Digital

### Key Specifications

**Working Temperature:** 170°C maximum temperature  
**Temperature Stability:**  $\pm 0.04^\circ\text{C}$   
**Safety Rating:** DIN 12876-1 Class I (for use with non-flammable liquids)  
**Pump:** 2-speed  
**External Circulation:** Closed-loop

### Key Features

- Large, universal icon & English display
- Swivel 80™ Rotating Controller
- On-board connectivity: RS-232 serial output
- On-screen prompts
- Automatic performance optimization
- Single-point calibration capability



# Circulating Controller Specifications & Features Continued

Innovation, ease of use and constant reliable temperature is the foundation of our circulating baths.

## Advanced Digital

### Key Specifications

**Working Temperature:** 200°C maximum temperature  
**Temperature Stability:**  $\pm 0.01^\circ\text{C}$   
**Safety Rating:** DIN 12876-1 Class III (for use with flammable liquids)  
**External Temperature Control Capability:** Yes  
**Pump:** Variable-speed  
**External Circulation:** Open- or closed-loop

### Key Features

- Intuitive 3.75" (9.5 cm) display with touch-pad control
- 4 languages: French, German, Spanish, English
- Swivel 180™ Rotating Controller
- On-board connectivity: USB-A & B, Ethernet, RS-232/RS-485 & external temperature probe
- On-screen prompts
- Automatic performance optimization and specific heat tuning
- Single-point calibration capability



## Advanced Programmable

### Key Specifications

**Working Temperature:** 200°C maximum temperature  
**Temperature Stability:**  $\pm 0.005^\circ\text{C}$   
**Safety Rating:** DIN 12876-1 Class III (for use with flammable liquids)  
**External Temperature Control Capability:** Yes  
**Pump:** Variable-speed  
**External Circulation:** Open- or closed-loop

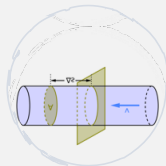
### Key Features

- Time/temperature programming (Open-mode programs)
- Intuitive 4.3" (10.9 cm) SmartTouch display
- 11 languages: French, German, Spanish, Chinese, Portuguese, Russian, Hindi, Arabic, Italian, Korean, English
- Variable speed pump with open- and closed-loop external circulation capability
- Swivel 180™ Rotating Controller
- On-board connectivity: USB-A & B, Ethernet, RS-232/RS-485, remote on/off and external temperature probe
- Event scheduling (time & date) with real-time clock
- Review temperature trends for up to 10 days
- Multiple selectable "home" screens
- On-screen help
- Automatic and/or user-adjustable performance optimization
- 10-point calibration capability



## 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.



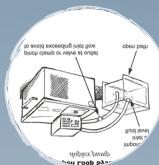
### Flow Rate

The volume of fluid pumped in a given amount of time. It is measured using water at a pressure of 0 psi (0.0 bar). Pressure Flow Rate is measured at the outlet port of the unit; Suction Flow Rate is measured at the inlet port.



### Closed-Loop Circulation

This is generally used in reference to systems or applications where liquid is pumped from a Chiller or Circulating Bath through an external device such as a laser and then returned directly to the Chiller or Circulating Bath. 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 Circulating Baths and Chillers are capable of closed-loop circulation.



### Pump Pressure

The force of fluid being pumped. The higher the pressure, the greater the distance that the fluid can travel. Lower pressure is better for fragile fluid paths, such as glass tubing. It is measured using water at a flow rate of 0 gpm (0.0 l/min) at the outlet port of the unit.



### Thermal Conductivity

This is a liquid, gas, or solid's ability to conduct heat. Water (with a thermal conductivity value of 0.6) is a good conductor of heat, while air (TC value of 0.025) is a much poorer heat conductor.



### Heat Load

The amount of heat that is being generated by a device. Heat load calculations are generally used to determine the amount of heat removal needed to maintain the device at a desired temperature.

## 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.



### Refrigerant

A compound used in a refrigeration unit to extract heat from a process or internal reservoir. All PolyScience Chillers and Refrigerated Circulators use CFC-free refrigerants.



### Heat Exchanger

A device used to transfer heat from one material or medium to another.



### Working Temperature Range

This is the temperature range over which the equipment can achieve and control without auxiliary heating or cooling at the stated temperature stability specification.



### Time/Temperature Programming

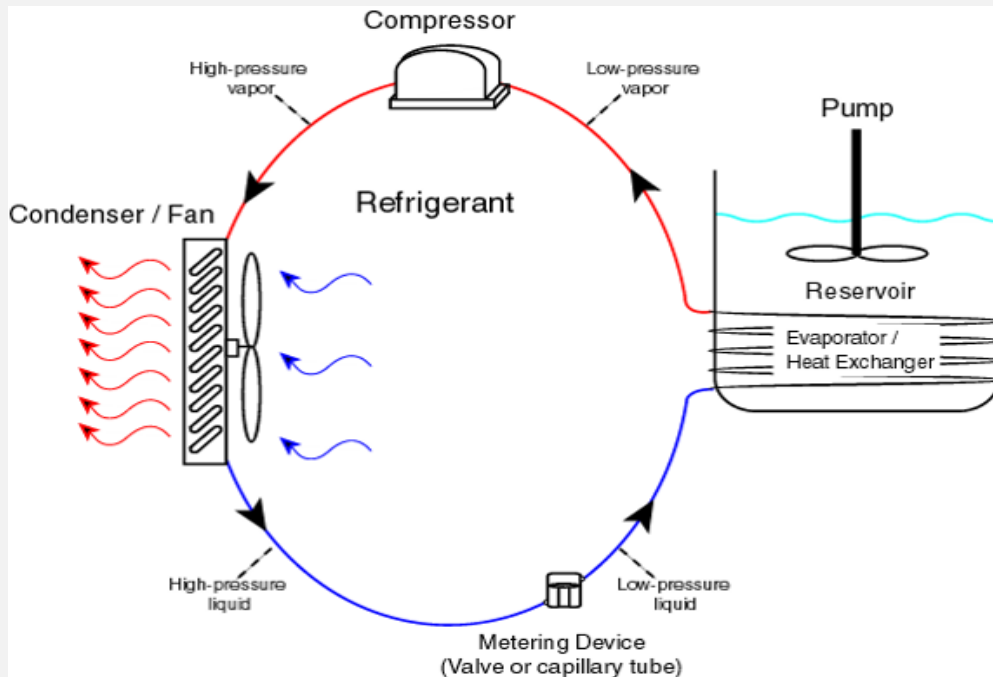
Standard on Advanced Programmable Temperature Controllers, this feature allows the operator to create and store frequently used test protocols and/or complex ramp and soak profiles for later retrieval and use. The PolyScience Advanced Programmable Controller features OpenMode Programming which has no set limits on the number of programs that can be stored or the number of steps in a program.



### Temperature Stability

This represents how precisely an instrument maintains a set-point temperature and is expressed as a plus/minus value. For example, the actual bath temperature in a circulating bath with a set-point of 23.20°C and a temperature stability of  $\pm 0.01^\circ\text{C}$  may vary from 23.19°C to 23.21°C.

# How Refrigeration Works - Circulators



## Integrated Circulating Baths Specifications

Refrigerated/ Heated Circulating Baths

Capacity	7 Liter (Low Profile)	7 Liter	7 Liter	15 Liter	15 Liter	20 Liter	28 Liter	45 Liter	75 Liter
Maximum Temperature <sup>1</sup>	200°C	200°C	200°C	200°C	200°C	200°C	200°C	135°C	100°C
Minimum Temperature	-20°C	-20°C	-40°C	-30°C	-40°C	-30°C	-30°C	-25°C	-20°C
Cooling Capacity @ 20°C	200 W	200 W	360 W	915 W	1000 W	915 W	915 W	1400 W	1400 W
Working Access (L x W x D)	6.2 x 5.6 x 5 in 15.7 x 14.2 x 12.7 cm	6.2 x 5.6 x 5 in 15.7 x 14.2 x 12.7 cm	6.2 x 5.6 x 5 in 15.7 x 14.2 x 12.7 cm	8.4 x 10.9 x 5.5 in 21.2 x 27.6 x 14 cm	8.4 x 10.9 x 5.5 in 21.2 x 27.6 x 14 cm	9.9 x 12.5 x 5.5 in 25 x 31.6 x 14 cm	12.4 x 14.1 x 5.5 in 31.4 x 35.9 x 14 cm	21.6 x 15.7 x 5.5 in 54.9 x 39.8 x 14 cm	21.6 x 15.7 x 9.4 in 54.9 x 39.8 x 23.9 cm
Drain	•	•	•	•	•	•	•	•	•
LidDock™	•	•	•	•	•	•	•		
Advanced Programmable	AP7LR-20	AP07R-20	AP07R-40	AP15R-30	AP15R-40	AP20R-30	AP28R-30	AP45R-20	AP75R-20
Advanced Digital	AD7LR-20	AD07R-20	AD07R-40	AD15R-30	AD15R-40	AD20R-30	AD28R-30	AD45R-20	
Standard Digital	SD7LR-20	SD07R-20		SD15R-30		SD20R-30	SD28R-30		
MX	MX7LR-20	MX07R-20		MX15R-30		MX20R-30			

<sup>1</sup> Maximum temperature is controller-dependent.

# Integrated Circulating Baths Specifications

## Heated Circulating Baths

Capacity	7 Liter	15 Liter	20 Liter	28 Liter
Maximum Temperature <sup>1</sup>	200°C	200°C	200°C	200°C
Minimum Temperature <sup>2</sup>	Ambient +10°C	Ambient +10°C	Ambient +10°C	Ambient +10°C
Working Access (L x W x D)	6.2 x 5.6 x 5 in 15.7 x 14.2 x 12.7 cm	8.4 x 10.9 x 5.5 in 21.2 x 27.6 x 14 cm	9.9 x 12.5 x 5.5 in 25 x 31.6 x 14 cm	12.4 x 14.1 x 5.5 in 31.4 x 35.9 x 14 cm
Tank Material	Insulated Stainless Steel	Insulated Stainless Steel	Insulated Stainless Steel	Insulated Stainless Steel
Drain	•	•	•	•
Tap Water Cooling-Coil	•	•	•	•
LidDock™	•	•	•	•
Advanced Programmable	AP07H200	AP15H200	AP20H200	AP28H200
Advanced Digital	AD07H200	AD15H200	AD20H200	AD28H200
Standard Digital	SD07H170	SD15H170	SD20H170	SD28H170
MX	MX07H135	MX15H135	MX20H135	

1. Maximum temperature is controller dependent.

2. Minimum temperature is shown with no external heat load.

# Open Tank Circulating Baths Specifications

## Stainless Steel Open Tank Circulating Baths

Capacity	6 Liter	10 Liter	20 Liter	28 Liter
Maximum Temperature <sup>1</sup>	150°C	150°C	150°C	150°C
Minimum Temperature <sup>2</sup>	Ambient +10°C	Ambient +10°C	Ambient +10°C	Ambient +10°C
Working Access (L x W x D)	3.9 x 4.3 x 6 in 10 x 11 x 15.2 cm	3.9 x 10.1 x 6 in 9.9 x 25.5 x 15.2 cm	10.4 x 9 x 6 in 26.4 x 22.8 x 15.2 cm	10.1 x 8.4 x 8 in 25.7 x 21.4 x 20.3 cm
Tank Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Advanced Programmable	AP06S150	AP10S150	AP20S150	AP28S150
Advanced Digital	AD06S150	AD10S150	AD20S150	AD28S150
MX	MX06S135	MX10S135	MX20S135	MX28S135

1. Maximum temperature is controller dependent.

2. Minimum temperature is shown with no external heat load.

# Open Tank Circulating Baths Specifications

## Polycarbonate Open Tank Circulating Baths

Capacity	8 Liter	11 Liter	14 Liter	17 Liter	23 Liter	28 Liter
Maximum Temperature <sup>1</sup>	85°C	85°C	85°C	85°C	85°C	85°C
Minimum Temperature <sup>2</sup>	Ambient +10°C	Ambient +10°C	Ambient +10°C	Ambient +10°C	Ambient +10°C	Ambient +10°C
Working Access (L x W x D)	41 x 6.1 x 8 in 10.5 x 15.6 x 20.3 cm	8.3 x 6.1 x 8 in 21 x 15.6 x 20.3 cm	12.4 x 6.1 x 8 in 31.4 x 15.6 x 20.3 cm	4.1 x 12 x 8 in 10.5 x 30.5 x 20.3 cm	8.3 x 12 x 8 in 21 x 30.5 x 20.3 cm	12.4 x 12 x 8 in 31.5 x 30.5 x 20.3 cm
Tank Material	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
Drain				●	●	●
Advanced Programmable	AP08P100	AP11P100	AP14P100	AP17P100	AP23P100	AP28P100
MX	MX08P100	MX11P100	MX14P100	MX17P100	MX23P100	MX28P100

1. Maximum temperature is controller dependent.

2. Minimum temperature is shown with no external heat load.

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