

## COLD BATHS



### Cold Baths

Models 7008, 7011, 7012, 7030, 7037, and 7040

- Stability to  $\pm 0.0007^{\circ}\text{C}$
- Best digital temperature controller available
- "Super Tweak" function provides set-point resolution to  $0.00003^{\circ}\text{C}$
- Excellent for maintaining fixed-point cells

Hart Scientific's temperature calibration baths are known around the world as the best calibration baths made. If you're looking for a cold bath, no one gives you more choices than Hart.

These six baths operate at temperatures as low as  $-40^{\circ}\text{C}$ , and each one is built using CFC-free refrigerants. Hart's proprietary controller design and unique tank construction produce bath stabilities to  $\pm 0.001^{\circ}\text{C}$  or better. These baths are so stable and uniform that national labs use them for comparison calibrations and fixed-point cell maintenance.

Each bath (except the 7011) is fully automatable with a bath interface package

and Hart's MET/TEMP II automation software package described on page 75. When we automate a bath, we automate it completely with computer-controlled solenoid valves for precision balancing of the heating and cooling system. MET/TEMP II performs all calibration tasks automatically, using your PC.

With a Hart cold bath, you can forget external coolants. Internal refrigeration systems are all that's needed to reach each bath's coldest temperature. Most cold baths may be ordered with an optional pumping lid for supplying external cooling requirements.

Not only are these the best-performing calibration baths in the industry, they're also the most reasonably priced. Hart is the largest manufacturer of temperature calibration baths, and larger volume means better pricing.

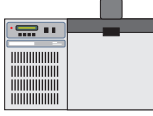
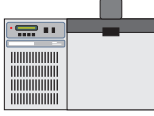
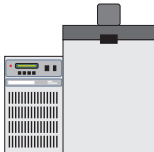
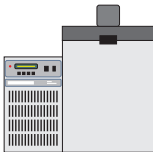
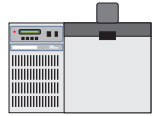

Each bath has unique characteristics that make it perfect for specific jobs. Some baths are excellent for SPRTs, some are great with thermistors, and some are perfect for maintaining triple point of water cells. A 7008IR bath can even be used to maintain the temperature of a blackbody cone.

Regardless of your application, Hart has a bath that gets the job done, and done better than anyone else can do it. Call us today and tell us about your application.



See our selection of bath fluids on page 104.

# Ranges from $-40^{\circ}\text{C}$ to $150^{\circ}\text{C}$

Specifications	7008	7040	7037	7012	7011	7030
						
<b>Range</b>	$-5^{\circ}\text{C}$ to $110^{\circ}\text{C}$	$-40^{\circ}\text{C}$ to $110^{\circ}\text{C}$		$-10^{\circ}\text{C}$ to $110^{\circ}\text{C}$		$-30^{\circ}\text{C}$ to $150^{\circ}\text{C}$
<b>Stability</b>	$\pm 0.0007^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.001^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (mineral oil)	$\pm 0.002^{\circ}\text{C}$ at $-40^{\circ}\text{C}$ (ethanol) $\pm 0.0015^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.003^{\circ}\text{C}$ at $100^{\circ}\text{C}$ (oil 5012)		$\pm 0.0008^{\circ}\text{C}$ at $0^{\circ}\text{C}$ (ethanol) $\pm 0.0008^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.003^{\circ}\text{C}$ at $100^{\circ}\text{C}$ (oil 5012)		$\pm 0.006^{\circ}\text{C}$ full range (oil 5012)
<b>Uniformity</b>	$\pm 0.003^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.004^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (mineral oil)	$\pm 0.004^{\circ}\text{C}$ at $-40^{\circ}\text{C}$ (ethanol) $\pm 0.002^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.004^{\circ}\text{C}$ at $100^{\circ}\text{C}$ (oil 5012)		$\pm 0.003^{\circ}\text{C}$ at $0^{\circ}\text{C}$ (ethanol) $\pm 0.002^{\circ}\text{C}$ at $25^{\circ}\text{C}$ (water) $\pm 0.004^{\circ}\text{C}$ at $100^{\circ}\text{C}$ (oil 5012)		$\pm 0.010^{\circ}\text{C}$ full range
<b>Temperature Setting</b>	Digital display with push-button data entry					
<b>Set-Point Resolution</b>	$0.002^{\circ}\text{C}$ ; high-resolution mode, $0.00003^{\circ}\text{C}$	$0.01^{\circ}\text{C}$ ; high-resolution mode, $0.00007^{\circ}\text{C}$		$0.002^{\circ}\text{C}$ ; high-resolution mode, $0.00003^{\circ}\text{C}$		$0.01^{\circ}\text{C}$ ; high-resolution mode, $0.00018^{\circ}\text{C}$
<b>Display Resolution</b>	$0.01^{\circ}\text{C}$					
<b>Digital Setting Accuracy</b>	$\pm 1^{\circ}\text{C}$					
<b>Digital Setting Repeatability</b>	$\pm 0.01^{\circ}\text{C}$			$\pm 0.005^{\circ}\text{C}$		$\pm 0.01^{\circ}\text{C}$
<b>Heaters</b>	500 and 1000 Watts					
<b>Access Opening (call for customs)</b>	12.75" x 7.25" (324 x 184 mm)	5" x 10" (127 x 254 mm)		6.38" x 11.5" (162 x 292 mm)	5" x 10" (127 x 254 mm)	2.6" diameter (66 mm)
<b>Depth</b>	13" (331 mm)	12" (305 mm)		18" (457 mm)	12" (305 mm)	11" (279 mm)
<b>Wetted Parts</b>	304 stainless steel					
<b>Power</b>	115 VAC ( $\pm 10\%$ ), 60 Hz, 14 A or 230 VAC, 50 or 60 Hz, 8 A, specify	115 VAC ( $\pm 10\%$ ), 60 Hz, 16 A or 230 VAC ( $\pm 10\%$ ), 50 or 60 Hz, 9 A (specify voltage and frequency)		115 VAC ( $\pm 10\%$ ), 60 Hz, 14 A or 230 VAC ( $\pm 10\%$ ), 50 Hz, 7 A, specify		
<b>Volume</b>	11.2 gallons (42 liters)	7.2 gallons (27 liters)		11.2 gallons (42 liters)	7.2 gallons (27 liters)	1.6 gallons (6 liters)
<b>Weight</b>	135 lb. (61 kg)	140 pounds (63.5 kg)		150 pounds (68 kg)	125 pounds (56.7 kg)	120 pounds (54.4 kg)
<b>Size</b>	24" H x 30.5" W x 19" D (610 x 775 x 483 mm)	24.5" H x 30.25" W x 19" D (622 x 768 x 483 mm)	30.5" H x 30.25" W x 19" D (775 x 768 x 483 mm)	30" H x 27" W x 15.8" D (762 x 686 x 401 mm)	22" H x 27" W x 15.8" D (559 x 686 x 401 mm)	40" H x 15" W x 17" D (1016 x 381 x 432 mm)
<b>Automation Package</b>	Interface- <i>it</i> software and RS-232 computer interface are available for setting the bath temperature via an external computer. For IEEE-488, add the 2001-IEEE to the automation package. (Interfaces not available for Model 7011.)					

## Ordering Information

7008	Standard Bath, $-5^{\circ}\text{C}$ to $110^{\circ}\text{C}$ , high capacity	2011	Access Cover, 7.25" x 12.75", Lexan (7008)
7011	Standard Bath, $-10^{\circ}\text{C}$ to $110^{\circ}\text{C}$	2016-7008	Fluid Level Adapter, 7008 (page 106)
7012	Standard Bath, $-10^{\circ}\text{C}$ to $110^{\circ}\text{C}$ , deep	2016-7011	Fluid Level Adapter, 7011 (page 106)
7030	Standard Bath, $-30^{\circ}\text{C}$ to $150^{\circ}\text{C}$	2016-7012	Fluid Level Adapter, 7012 (page 106)
7037	Standard Bath, $-40^{\circ}\text{C}$ to $110^{\circ}\text{C}$ , deep	2019-7030	Fluid Level Adapter, 7030 (page 106)
7040	Standard Bath, $-40^{\circ}\text{C}$ to $110^{\circ}\text{C}$	2016-7037	Fluid Level Adapter, 7037 (page 106)
2001-7008	Automation Package for 7008	2016-7040	Fluid Level Adapter, 7040 (page 106)
2001-7012	Automation Package for 7012	2071	Bath Cart, 7011, 7012 (12.3" H)
2001-7030	Automation Package for 7030	2073	Bath Cart, 7008, 7037, 7040 (8.5" H)
2001-7037	Automation Package for 7037	2027-5901	TPW Holding Fixture (7012, 7037)
2001-7040	Automation Package for 7040	2027-5903	Gallium Cell Holding Fixture (7012)
2001-IEEE	Add for IEEE-488 (requires Automation Package)	2069	8X Magnifier Scope, with mounts (page 106)
2007	Access Cover, 5" x 10", Stainless Steel (7011, 7037, 7040)	7008IR	7008, modified to accept an IR cone
2010	Access Cover, 5" x 10", Lexan (7011, 7037, 7040)	2033	IR Cone (NIST design)



This Hart Model 7008-IR features a NIST-designed cone-shaped target.



See page 18 for triple point of water cells.