

## Compact Baths



- Stability and uniformity each better than  $\pm 0.008\text{ }^{\circ}\text{C}$
- Metrology-level performance in lab-friendly sizes
- Convenient use on benchtops or on matching carts

When you only need a circulator or utility bath to control a process within a few degrees or to maintain biological test samples, talk to a utility bath manufacturer. But when you're doing precision thermometer testing, and stability and uniformity are critical to the success of your work, talk to us.

Hart Scientific has been making the world's best-performing temperature baths for almost two decades. With our proven heating/cooling designs and hybrid analog-digital controller, Hart baths apply the most effective technologies that are commercially feasible. These four compact baths are no exception.

### 6330

This bath delivers all the high temperatures you need up to  $300\text{ }^{\circ}\text{C}$  ( $572\text{ }^{\circ}\text{F}$ ). With stability and uniformity at  $300\text{ }^{\circ}\text{C}$  better than  $\pm 0.015\text{ }^{\circ}\text{C}$  and  $\pm 0.020\text{ }^{\circ}\text{C}$  respectively, calibrations can easily be performed at this high temperature with total uncertainty better than  $\pm 0.05\text{ }^{\circ}\text{C}$ . At lower temperatures, stability and uniformity are even better.

The 6330 is only 12 inches wide and less than 19 inches tall, so it fits easily

onto a benchtop without consuming precious space. An optional cart with casters and a storage area raises the 6330 to a convenient height when used on a floor and provides an extra cabinet for lab supplies. With built-in handles, it even lifts easily onto and off of its cart or benchtop. No matter where you want to use this bath—or even if you want to move it around—the 6330 gets there hassle-free.

### 7320 and 7340

Also featuring large work areas, our Model 7320 and 7340 baths cover your needs for low temperature calibrations. The 7320 covers a range from  $-20\text{ }^{\circ}\text{C}$  to  $150\text{ }^{\circ}\text{C}$  and the 7340 reaches even colder temperatures to  $-40\text{ }^{\circ}\text{C}$ . Below  $0\text{ }^{\circ}\text{C}$ , these baths maintain an impressive stability of  $\pm 0.005\text{ }^{\circ}\text{C}$  with uniformities better than  $\pm 0.006\text{ }^{\circ}\text{C}$ . No utility bath performs as well as Hart's compact baths below  $0\text{ }^{\circ}\text{C}$  or at critical room and body temperatures—or even at important higher temperatures such as  $100\text{ }^{\circ}\text{C}$  and  $122\text{ }^{\circ}\text{C}$ .

### 7380

For ultracold temperatures, the 7380 reaches  $-80\text{ }^{\circ}\text{C}$  quickly and maintains a

two-sigma stability of  $\pm 0.006\text{ }^{\circ}\text{C}$  when it gets there. The 7380 is a true metrology bath, not a chiller or circulator. With uniformity to  $\pm 0.008\text{ }^{\circ}\text{C}$ , comparison calibration of temperature devices can be performed with high precision.

Each bath includes an RS-232 serial interface and our Model 9930 Interface-it software for controlling your bath from a PC. With a Hart Scientific thermometer readout, such as a *Black Stack*, and our MET/TEMP II software, automated calibrations can run unattended.

Hart Scientific doesn't make chillers, circulators, or so-called utility baths, and utility bath manufacturers don't make metrology baths. Use the right tools for your work and reap the best possible results. Baths from Hart Scientific are the most stable and uniform of any you'll find. They'll give you results no other bath can.



*With an optional floor cart (including locking casters), your bath can easily be moved to any place you need it. (Available for the 6330, 7320, or 7340. Casters included on the 7380.)*

### Bath fluid affects performance

Hart determines its bath specifications by using selected fluids for particular temperatures. Your application, however, may require different fluids over different temperatures. Considering that fluid characteristics change with temperature, some care must be taken to apply general specifications to your own application.

For example, Hart often uses water to spec baths at  $25\text{ }^{\circ}\text{C}$ . The properties of viscosity, thermal conductivity, and heat capacity make water an ideal fluid at  $25\text{ }^{\circ}\text{C}$ . However, if you want to cover a range from  $-5\text{ }^{\circ}\text{C}$  to  $110\text{ }^{\circ}\text{C}$ , water just won't work. Hart's 5010 silicone oil fluid will more than adequately cover that range, but it may not perform as well as water at  $25\text{ }^{\circ}\text{C}$ . Carefully testing the fluid you use over the range you use can tell you what you need to know for your uncertainty budget.

# Compact Baths

**FLUKE**®

Hart Scientific®

Specifications	6330	7320	7340	7380
Range	35 °C to 300 °C	–20 °C to 150 °C	–40 °C to 150 °C	–80 °C to 100 °C
Stability	±0.005 °C at 100 °C (oil 5012) ±0.010 °C at 200 °C (oil 5017) ±0.015 °C at 300 °C (oil 5017)	±0.005 °C at –20 °C (ethanol) ±0.005 °C at 25 °C (water) ±0.007 °C at 150 °C (oil 5012)	±0.005 °C at –40 °C (ethanol) ±0.005 °C at 25 °C (water) ±0.007 °C at 150 °C (oil 5012)	±0.006 °C at –80 °C (ethanol) ±0.010 °C at 0 °C (ethanol) ±0.010 °C at 100 °C (oil 5012)
Uniformity	±0.007 °C at 100 °C (oil 5012) ±0.015 °C at 200 °C (oil 5017) ±0.020 °C at 300 °C (oil 5017)	±0.005 °C at –20 °C (ethanol) ±0.005 °C at 25 °C (water) ±0.010 °C at 150 °C (oil 5012)	±0.006 °C at –40 °C (ethanol) ±0.005 °C at 2 5 °C (water) ±0.010 °C at 150 °C (oil 5012)	±0.008 °C at –80 °C (ethanol) ±0.012 °C at 0 °C (ethanol) ±0.012 °C at 100 °C (oil 5012)
Heating Time <sup>†</sup>	250 minutes, from 35 °C to 300 °C (oil 5017)	80 minutes, from 25 °C to 150 °C (oil 5012)	60 minutes, from 25°C to 150°C (oil 5012)	25 minutes, from 25 °C to 100 °C (oil 5010)
Cooling Time	n/a	100 minutes, from 25°C to –20°C (oil 5012)	110 minutes, from 25°C to –40°C (ethanol)	130 minutes, from 25 °C to –80 °C (ethanol)
Stabilization Time	15–20 minutes			
Temperature Setting	Digital display with push-button data entry			
Set-Point Resolution	0.01°; 0.00018° in high-resolution mode			0.01°
Display Resolution	0.01°			
Digital Setting Accuracy	±0.5°C			
Digital Setting Repeatability	±0.01°C			
Access Opening	94 x 172 mm (3.7 x 6.8 in)			86 x 114 mm (3.25 x 4.5 in)
Working Area	81 x 133 mm (3.2 x 5.25 in)			86 x 114 mm (3 x 4 in)
Depth	234 mm (9.25 in)			178 mm (7 in)
Wetted Parts	304 stainless steel			
Power	115 VAC (±10 %), 50/60 Hz, 7 A or 230 VAC (±10 %), 50/60 Hz, 3.5 A, specify	115 VAC (±10 %), 60 Hz, 15 A or 230 VAC (±10 %), 50 Hz, 8 A, specify, 1400 VA		115 VAC (±10 %) 60 Hz, 16 A or 230 VAC (±10 %), 50 Hz, 8 A, specify
Volume	9.2 liters (2.4 gal)			4 liters (1 gal)
Size (WxDxH)	305 x 546 x 470 mm (12 x 21.5 x 18.5 in) off cart; 305 x 546 x 819 mm (12 x 21.5 x 32.25 in) on cart	305 x 622 x 584 mm (12 x 24.5 x 23 in) off cart; 305 x 622 x 819 mm (12 x 24.5 x 32.25 in) on cart		305 x 610 x 762 mm (12 x 24 x 30 in)
Weight	19 kg (42 lb.)	35.4 kg (78 lb.)		52 kg (115 lb.)
Automation Package	Interface- <i>it</i> software and RS-232 included (IEEE-488 optional)			

<sup>†</sup>Rated at nominal 115 V (or optional 230 V)

## Ordering Information

<b>6330</b>	Compact Bath, 35 °C to 300 °C	<b>7340</b>	Compact Bath, –40 °C to 150 °C
<b>2020-6330</b>	Spare Access Cover, SST, 6330	<b>2020-7320</b>	Spare Access Cover, SST, 7320/7340
<b>2076-6330</b>	Floor Cart, 6330 (343 mm [13.5 in] H)	<b>2076-7320</b>	Floor Cart, 7320/7340 (229 mm [9 in] H)
<b>2001-IEEE</b>	IEEE-488 Interface	<b>2001-IEEE</b>	IEEE-488 Interface
<b>7320</b>	Compact Bath, –20 °C to 150 °C	<b>7380</b>	Compact Bath, –80 °C to 100 °C
<b>2020-7320</b>	Spare Access Cover, SST, 7320/7340	<b>2020-7380</b>	Spare Access Cover, SST, 7380
<b>2076-7320</b>	Floor Cart, 7320/7340 (229 mm [9 in] H)	<b>2125-C</b>	IEEE-488 Interface (RS-232 to IEEE-488 converter box)
<b>2001-IEEE</b>	IEEE-488 Interface		