

-80 to 300°C

# Stirred Liquid Baths

## Hydra 798

- Four Models, -80°C to 300°C
- Stability 0.01°C
- Excellent Uniformity

Precision calibration of thermometers calls for the use of stirred liquid calibration baths. The Hydra models set new standards in terms of price to performance ratio. Now Calibration Engineers and Metrologists can choose from a range of baths that offer good immersion depth, parallel tube action, giving the best uniformity and smallest calibration uncertainties, and wide temperature ranges.

Hydra offers these features in a new price class, don't settle for a bath with shallow immersion or simple stirred action when with these Isotech baths provide good depth of immersion and good temperature uniformity along with the other benefits Isotech baths offer.

The immersion depth of 300mm allows the requirements of "Supplementary Information to the ITS-90" to be met. This publication from BIPM recommends immersion depths of 15 to 20cm from -50°C to 50°C, and from 20 to 27cm at 200°C. Many baths in this price range are simply not deep enough to meet this requirement. Rather than simply stirring a square tank of liquid the Hydra uses parallel tube action for superior temperature uniformity. Like other Isotech liquid baths the calibration volume is cylindrical to suit thermometers, not a large square tank. The bath is filled with just 5 litres of liquid reducing filling and ongoing cost of ownership as liquids are replenished. The 798H and 798EHT feature a cooling coil which can be attached to an external source of either cold water or gas to further reduce cool down times.

Hydra benefits from Isotech's experience, it drains faster, is easier to use, is safer, and is more convenient. Accessories allow a wide range of thermometers, for example, to be readily clamped by the Sensor Support and ITS-90 fixed points cells are accommodated with the adjustable cell holder.



### ■ Parallel Tube Action...

Liquid flows up the rear volume of the bath and down the working volume. This action creates very small vertical and axial gradients. This gives the smallest overall uncertainties.

### ■ Heating...

All heating is outside the container. By using a large area nickel foil heater the complete bath wall is heated uniformly.

### ■ Fast Cool Down...

The Hydra cools from ambient to -80°C in just 180 minutes.

### ■ Cooling...

The cooling is built-in and also surrounds the calibration volume creating a low temperature ambient in which the heater can function efficiently.

### ■ Wider Temperature Range...

A unique cooling system cools the unit as well as enabling the bath to heat up to 125°C (121°C is a key sterilization temperature).

### ■ Commercial Grade Chillers...

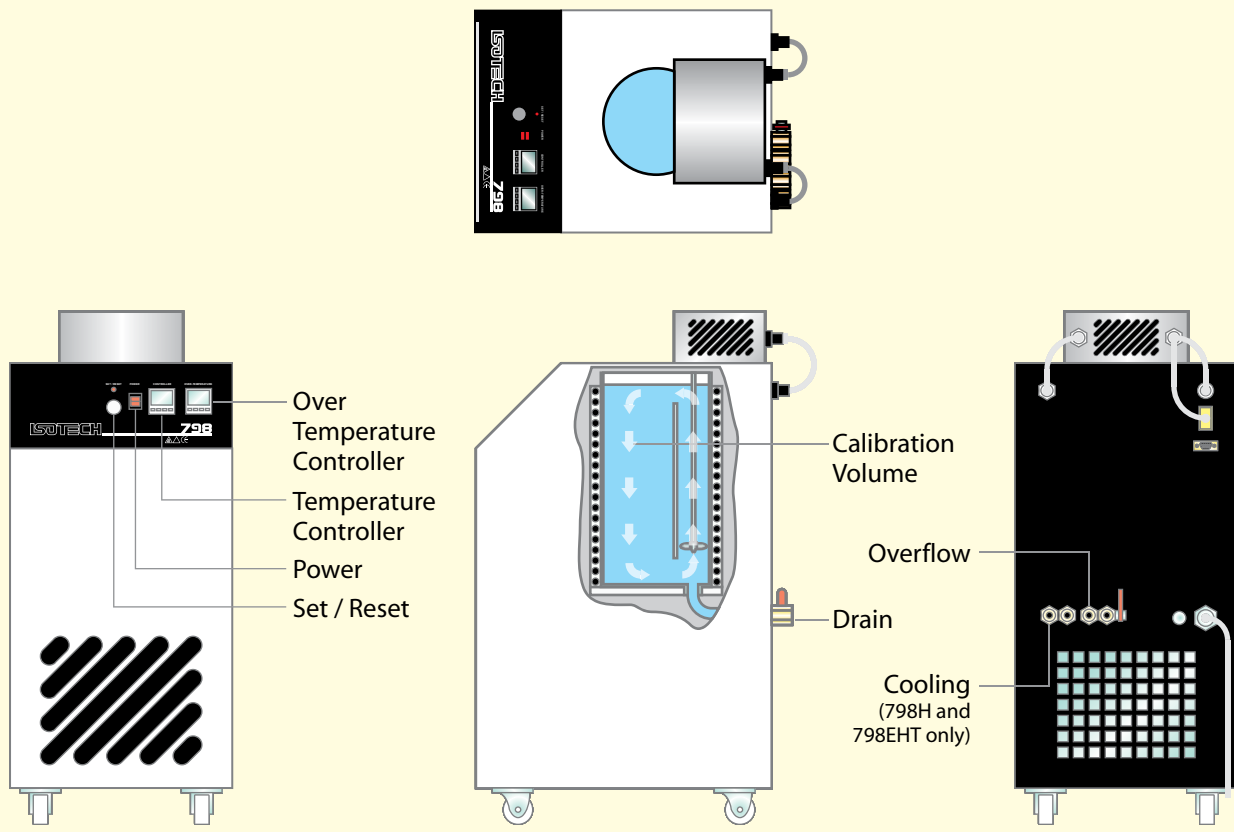
The chillers are one third horse power commercial grade units, not cheaper domestic grade as used by some manufacturers.

### ■ Calibration Depth...

Double the depth of some baths. The Hydra Range has up to 300mm depth of immersion.

### ■ Circular Design...

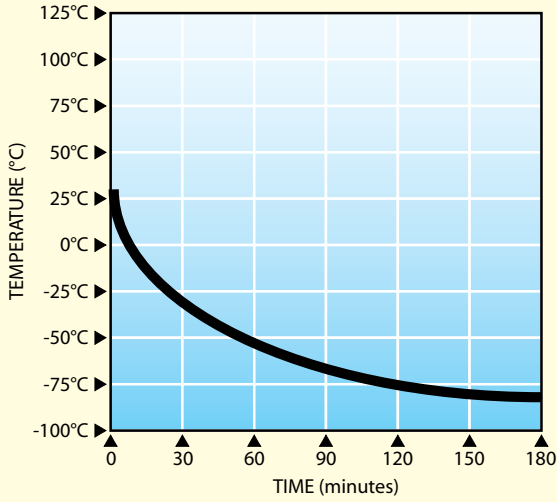
The circular design eliminates 'cold corners' found in tank shaped calibration baths.



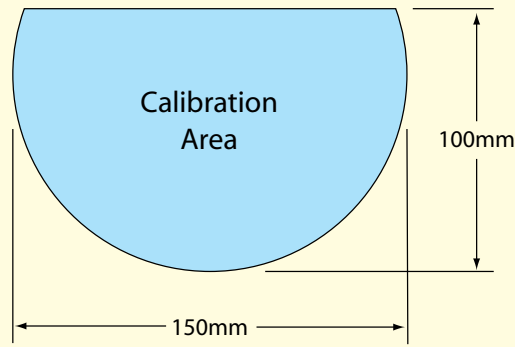
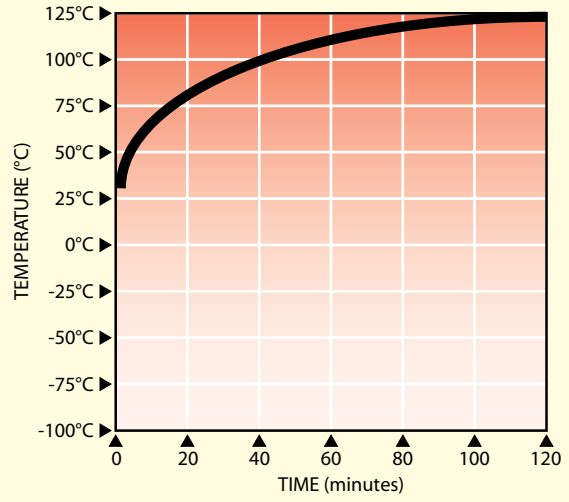
Model	798L	798M	798H	798EHT
Temp Range	-80°C – 125°C	-40°C – 125°C	30°C – 200°C	30°C – 300°C
Volume	150mm Diameter, 300mm Deep (5 litres)			
Absolute Stability	±0.030°C (Methanol, -80°C)	±0.017°C (Methanol, -40°C)	±0.015°C (Oil, 125°C)	±0.015°C (Oil, 250°C)
Vertical Uniformity	±0.002°C (Oil, 50°C)	±0.002°C (Oil, 50°C)	±0.002°C (Oil, 125°C)	±0.005°C (Oil, 200°C)
Heating time	25°C to 200°C < 60 minutes (C10 Oil)			
Cooling time	Ambient to -80°C < 130minutes (Methanol)			
Communications	Includes Serial Interface, PC Cable and Software			
Dimensions	405mm Wide, 610mm Deep, 940mm High (870mm to Top Panel)			
Weight	59kg	46kg	33kg	33kg
Safety	Compliant to CE Regulations			
Power	2.5kW 110V 50/60Hz or 230V 50/60Hz	1.5kW 110V 50/60Hz or 230V 50/60Hz	800W 110V 50/60Hz or 230V 50/60Hz	800W 110V 50/60Hz or 230V 50/60Hz
<b>How to Order</b>	798L	798M	798H	798EHT

Refer to Evaluation Report for Full Details

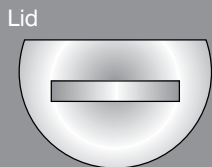
### Cool Down Graph



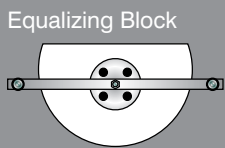
### Heat Up Graph



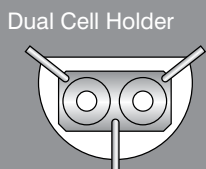
**Accessories** - Refer to 'Liquid Selection Guide' on page 73 for information on liquids and important Health and Safety Information



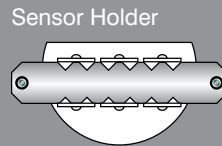
798-05-01 Liquid Volume Lid  
*Included*



- 798-05-02A Aluminium Equalizing Block, 4 pockets, 8mm diameter, 160mm deep
- 798-05-02B Copper Equalizing Block, 4 pockets, 8mm diameter, 160mm deep
- 798-05-02C Special Aluminium Equalizing Block *To suit customer requirements.*
- 798-05-02D Special Copper Equalizing Block *To suit customer requirements.*



798-05-03 Standard Dual Cell Holder  
*Includes interchangeable Cell adaptors*



798-05-04 Thermometer Support Kit  
*Holds up to 12 sensors between 3mm diameter and 8mm diameter*

#### Fixed Point Cells

- 17724 Mercury Triple Point Cell  $-38.8344^{\circ}\text{C}$
- B12 Water Triple Point Cell  $0.01^{\circ}\text{C}$
- 17401 Gallium Melt Point Cell  $29.7646^{\circ}\text{C}$
- 17401M Slim Gallium Melt Point Cell  $29.7646^{\circ}\text{C}$
- 17668ML Indium Freeze Point Cell  $156.5985^{\circ}\text{C}$