



# 5030 SERIES

## HIGH PRECISION VARIABLE TEMPERATURE AIR BATHS

Easy to Use, Highest Quality Air Baths with Precision Temperature Control



### FEATURES

- Excellent Temperature Stability, Better Than  $0.015^{\circ}\text{C}$  over 24 Hours
- Only Precision Air Bath that Includes a Separate PRT to Report the True Temperature from Anywhere Inside the Bath Chamber
- Cooling Capacity up to  $6^{\circ}\text{C}$  Below Ambient
- Temperature Range  $15^{\circ}\text{C}$  to  $50^{\circ}\text{C}$
- Dual Fan - Forced Air Circulation Ensures Uniform Temperature
- Large Volume Enclosure – Over 82 Liters!
- Enclosure is Fully EMI Shielded!
- Convenient Front Access Door. Side Access Hole for Cables and Probes
- Perfect for Checking Temperature Coefficients of Precision Air Resistors
- 5032 Fully Programmable Via the IEEE-488.2 or RS 232 Standard Interfaces

**GUILDLINE INSTRUMENTS 5030 SERIES** are precision air baths providing uniform constant temperature over a range of operating environments.

To improve measurements and reduce the uncertainty contribution from temperature effects, these high quality Precision Air Baths are an excellent alternative or supplement to traditional fluid baths and laboratory environmental control.

**THE 5031/5032 AIR BATHS PROVIDE A PERFECT CONTROLLED ENVIRONMENT UNDER A WIDE RANGE OF OPERATING TEMPERATURES FOR PRECISION EQUIPMENT SUCH AS THE GUILDLINE 9334A, 9336 9337, AND 7334 RESISTANCE STANDARDS!**

Considerable engineering experience has gone into producing a stable and uniform chamber temperature. This is achieved by forcing air between the front and back shells of the chamber and then up through strategically located openings in the floor, which results in a uniform distribution over the entire chamber.

The 5030 Series allows customers an excellent solution to providing a highly controlled and variable temperature environment for any precision standard in a laboratory environment of  $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . No longer do you need an expensive HVAC system for the entire laboratory.

You can use a Guildline 5030 Air Bath as an alternative to fluid baths. More importantly improve your temperature capabilities for those standards that have high temperature coefficients, such as high resistance and which cannot be used with a fluid bath. ( $100\text{ k}\Omega$  and up).

With a wide operational temperature environment and the high quality design and manufacture, this standard can be used for processes requiring higher stability than provided by industrial grade environmental chambers.

## 5030 Series of Precision Temperature Air Baths

These Precision Air Baths utilize Peltier cooling which allows the operating temperature to be set up to 6 °C below ambient. Incandescent heaters allow operation up to 50 °C. For the 5031 model, the temperature set point is selected using a front panel 4-decade digital switch to the nearest 0.01 °C. For the 5032 model, the temperature is to the nearest 0.001 °C via a front panel keyboard, or IEEE 488.2 and RS 232C interfaces.

The 5030 Series is built like no other Precision Air Bath today! The Air Bath design consists of a heavy duty steel powder coated, EMI shielded, outer cabinet that houses a polished and refined stainless steel inner chamber. The fully recessed door is also double walled with specialized heavy duty mounting hardware and roller stainless steel latches. Inside you will find two removable shelves that allow precision resistance standards and other devices to be positioned and monitored. Operator access to the chamber is via the full size hinged swinging front door. Cables can enter through a 69 mm (2.7") diameter side opening with the option for a second side opening.

Two circulation fans provide excellent circulation plus a measure of redundancy. In the unlikely event of a fan failure, the second fan will continue to allow operation with some reduction in control precision until repair is possible.

These Air Baths have also been designed for ease of field maintenance through the use of modular components and sub-assemblies.



**5030 Series Rear Access**

Shielding!

The Guildline Model 5031/5032 Air Baths are an ideal choice for precision controlled operating environments for standards that cannot be used with a fluid bath.

**5032 Model Shown**



**5032 Optional Window**



Shown left is the swinging rear access door to provide easy maintenance access. 4 heavy duty side handles are also provided for moving the 5030 Series. This Guildline bath has been over-engineered to ensure that it operates properly and accurately, not only during the industry leading 2 year warranty period, but continuously for years to come.

An optional See through door is available for the 5032 Series (shown right). This provides a clear view of the standards in the chamber while under operation and still maintains superb EMI

## 5030 Series of Precision Temperature Air Baths

*The 5032 Series provides comprehensive and complete control via the front panel or remotely from a connected computer. The 5032 is the only precision Air Bath model available today with a complete proportional controller that allows users to refine control and setups for their needs, not ours! For manual control, this model provides an easy to use keypad with a vacuum fluorescent multi-line display. The display is used to indicate the instrument status and to show the current temperature and associated statistics. The display can be set to show the control point temperature, or the actual temperature anywhere inside the bath via the auxiliary probe provided with the air bath.*

### 5032 Programmable Interface Control

#### Main Menu Selections

- Help
- Measurement Display
- Display Setup
- Numerical Trend
- Measurement History
- Channel Setup
- Calibration
- Diagnostics
- Temperature Control
- RS232 Setup
- GPIB Setup
- Password Functions



The Guildline 5032 features rich menu options and keyboard controls that are vastly superior when compared to the competition. The competition provides very limited menu operation that only allows the set point temperature to be set, and only displays the control temperature, not the real temperature inside their bath.

Guildline's temperature monitoring of the inside of the bath is provided through the front panel display using a second precision temperature probe. Competitive baths require that a customer purchase a separate digital thermometer and temperature probe to monitor the inside bath temperature. This increases the cost for the customer and requires maintenance and calibration of a 2<sup>nd</sup> instrument. This separate 5032 temperature probe also provides redundancy in measurements and real temperature from inside the precision Air Bath. We provide the extras - right down to allowing visual indication of heater control - as this is what makes the 5030 Series a true Laboratory Grade Standard!

### Don't be fooled by competition statements that their air baths are equivalent to a Guildline Air Bath!

While the competition claims to use a metrology based design, a simple and quick review of their model shown to the right contradicts this claim.

A visual inspection will show that the competition uses inexpensive door handles and locks, a sheet metal outer shell, and a door that does not allow a tight fit on the inner chamber. Unlike the Guildline 5030 which uses a recessed door design, the competition provides a flat door fitting with an inexpensive foam seal. This approach provides poor EMI shielding, and the gasket can easily be torn. Hinge locks are simply screwed in with no reinforcement which allows the metal to bend and be torn from the mounting. Rear access point for cable connections means you must allow for rear access to the unit (must stand out from wall). The 9300A front display shows only the temperature reported by the controller, not the actual temperature inside the air bath, and the reported temperature is heavily filtered. In addition, the competition has very limited menu options and remote operational commands.

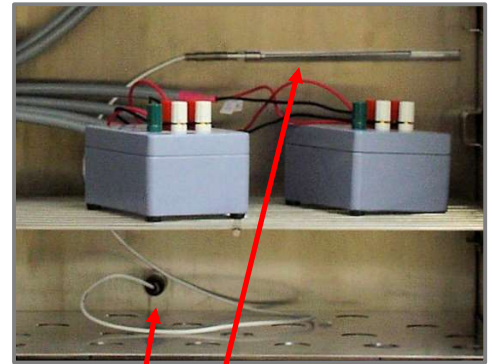


Ask for a copy of our Air Bath Competitive analysis and see just how good the 5030 Series stacks up against the competition!

## 5030 Series of Precision Temperature Air Baths

As previously mentioned, the Guildline 5030 Series provides a Metrology Grade design with the quality, features and functions no other bath manufacturer provides.

When you look at the ability to monitor temperature, the 5032 does not only depend on the control PRT. The control PRT typically provides the temperature outside of the inner chamber at a location where the heat/cooling is applied. The control PRT, whether the 5032 or a competitive Air Bath, does not provide the real temperature inside the air bath where the standards are located. This is why the 5032 incorporates a 2<sup>nd</sup> PRT that a user can place inside the chamber, in any position that is most advantageous to the measurement. A plug-in port is already available for the 2<sup>nd</sup> PRT and connects it directly to the system controller, providing complete auxiliary measurement capability. This is integrated functionality that MI or other manufactures cannot provide. Rather than tell you that they do not have this capability, they will tell you that all you need to do is buy another temperature standard to perform this monitoring capability. This means another standard to buy, program, calibrate, write software for and support – just to meet what the model 5032 can provide with no additional standards. With competitive air baths, a customer has to incur extra costs for an external digital thermometer and probe, along with associated support and calibration costs.



Close-up Inside View of Model 5032 PRT and PRT Port (connection)

Not only does this 2<sup>nd</sup> direct plug-in PRT come standard with every 5032 Precision Air Bath – but the supporting menu structure is already in place and is built into the 5032 Bath. You can simply monitor the interior bath temperature, compare the PRT temperature to the Controller Temperature Setpoint, and perform other temperature comparisons.

### Guildline Model 5032 – Designed Specifically for Metrology Laboratory and Precision Applications!

Dual Fan Control providing the most uniform air flow available, precision integral proportional controller, 2<sup>nd</sup> PRT to measure the temperature anywhere inside the bath, dual- wall construction with special insulation between the walls, the highest quality stainless interior with painted powder coat EMI exterior, stainless steel hardware, recessed door and special gasket for true EMI protection – the model 5032 will provide you with the best in quality and control today, tomorrow and into the future.

5030 SERIES GENERAL SPECIFICATIONS			
Chamber Capacity	82 dm <sup>3</sup> (2.9 cu. ft)	Port Opening Diameter	3.375" (86 mm)
Exterior Dimensions (H x W x D)	864 mm	533 mm	660 mm
	34"	21"	26"
Chamber Dimensions (H x W x D)	610 mm	381 mm	356 mm
	24"	15"	14"
ENVIRONMENTAL			
Operating		Storage	
18 °C to 40 °C	20 % to 50 % RH	-20 °C to 60 °C	15 % to 80 % RH
Power Supply	115, 230 VAC ± 10 %	Line Frequency	50 or 60 Hz ± 10 %
Volt/Amps	200 VA	Weight	78 kg (172 lbs)

## 5030 Series of Precision Temperature Air Baths

SPECIFICATIONS	5031	5032
Chamber Temperature Range	15 °C to 50 °C, (Minimum to 6 °C below ambient)	
Temperature Set Point Accuracy	± 0.06 °C over 24 hours. ± 0.08 °C over 1 year	
Set Point Resolution	0.01 °C	0.001 °C
Temperature Stability	± 0.015 °C for 23 °C ± 2 °C over 24 hours; ± 0.06 °C over 1 year	
	± 0.03 °C for Full Temperature Range over 24 hours; ± 0.06 °C over 1 year	
Temperature Uniformity	± 0.2 °C relative to chamber center, 5 cm minimum from walls for +15 °C to +42 °C	
Temperature Attenuation	± 0.04 °C/°C of ambient temperature	
Heating Rate	6 °C/hour	25 °C/hour
Cooling Rate	5 °C/hour, above ambient temperature 2 °C/hour, below ambient temperature	
Cold Power On Stabilization	6 hours to within ±0.1 °C of set point	3 hours to within ±0.1 °C of set point
Over Temperature Protection	Automatic shutdown if temperature exceeds 55 °C ± 4 °C	
Maximum Power Dissipation of unit under test (set point above ambient)	5W maximum (Both Models)	
MODEL 5032 ADDITIONAL SPECIFICATIONS		
Auxiliary PRT Temperature Monitor Accuracy (Bath Interior)	0.0015 °C at 23 °C ± 5 °C	
Menu Selections/Setups	13 Selections including: Self Help, Measurement Display, Display Setup, Numerical Trend, Measurement History, Channel Setup, Calibration, Diagnostics, Temperature Control RS 232 Setup, GPIB Setup, Password Edit, Password Lockout	
Programmable Proportional Controller	Temperature Monitor Accuracy	± 0.025 °C
	Temperature Monitor Resolution	0.001 °C
	Programming	IEEE-488.2      RS232C
	Programming Language	SCPI (Standard Code Programmable Interchange)

ORDERING INFORMATION	
5031	Precision Temperature Air Bath, with Manual Thumbwheel Front Panel
5032	Precision Temperature Air Bath, with Programmable Display, IEEE & RS232
/CC	Calibration Certificate (Included)
/OM	Operational Manual (Included)
/Report	Report of Calibration (Optional Charge)
/Wind	Adds Window Front to the 5032 Model Only
/Port	Adds 2nd Port (on Right Side) of either model
*Other Precision Leads Are Available – Call and tell us your requirements	

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