

# Calibration and Maintenance

## Calibration Basics

The microPro300 is calibrated following ISO 8655-1:2002 which defines calibration methodology and environmental conditions for piston operated volumetric apparatus, including air displacement pipettes. Our calibration partner, TTE Laboratories (Hopkinton, MA – [www.pipettes.com](http://www.pipettes.com)), provides calibration service for all new instruments we manufacture. Together, we have carefully developed a calibration technique that is tailored for the microPro300. TTE Laboratories staff is fully trained on the calibration procedures for the instrument and TTE is the recommended calibration provider for the microPro300. More information about ISO 8655 can be found [here](#), and [here](#).

## Gravimetric Analysis

The microPro is calibrated using gravimetric analysis techniques. This is the most common and direct pipette calibration method and as such, we do not use optical density measurements in determining instrument performance. Twenty randomly selected channels are tested to ensure that all channels are operating within Avidien's published specification limits for accuracy and reproducibility (CV%). This sample plan has been established following the guidance in ISO 2859-1:1999 (Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection). Calibration is performed and verified at 5 $\mu$ L and 300 $\mu$ L with 5 replicates per measurement. A detailed description of the test procedure and the supporting statistical analysis is available upon request.

## 96 Channel Leak Testing

In addition to gravimetric analysis used in calibration, each instrument is leak tested across all 96 channels. Leak-down testing is performed using new tip cartridge assemblies and a minimum of three replicates are performed. The parameters for this testing and a sample leak test protocol with microPro Controller App program are available upon request.

## Calibration Certificate

Each instrument goes through final calibration at the time of sale, prior to shipping. Your new instrument is supplied with a calibration certificate containing test results and customer and instrument specific information. Avidien Technologies retains copies of the original calibration documentation for a period of five years. Copies are available upon request at any time during that period.

## Preventative Maintenance

Avidien Technologies has developed an effective preventative maintenance routine that is designed to ensure high performance, trouble free operation and long instrument life. Factory preventative maintenance includes:

1. Thorough inspection of selected components that may wear.
2. Lubrication of applicable areas with factory approved lubricants.
3. Replacement of tip cartridge seals.
4. Replacement of pipetting head counter-balance spring.
5. Inspection of software calibration offsets and adjustment as necessary.
6. Full instrument calibration with compliance certificate.

## End User Calibration and Testing Frequency

Recommended leak testing, preventative maintenance and calibration intervals for the microPro300 are based on the frequency of use and criticality of the pipetted volumes.

		<b>Criticality of Transfer Volume</b>		
		High	Medium	Low
<b>Heavy Use</b>	<b>Heavy Use</b>	A	A	B
	<b>Moderate Use</b>	A	B	B/C
	<b>Light Use</b>	A	B/C	C

	<b>6 Months</b>	<b>1 Year</b>	<b>18 Months</b>	<b>2 Years</b>
<b>A</b>	Calibration	PM + Calibration	Calibration	PM + Calibration
<b>B</b>	Leak Test	Calibration	Leak Test	PM + Calibration
<b>C</b>	N/A	Calibration	N/A	Calibration

Any combination of these test processes can be applied to ensure instrument performance that is aligned with your lab's specific quality requirements. In some critical environments, we recommend shortening the intervals to 3 months.