

**epServices**  
for premium performance



# Pipette Service Done Right

Eppendorf Pipette Calibration

# »Are Your Results Reliable?«

## Global quality standards assured with premium services by the experts

Your pipettes are high precision instruments, and require regular maintenance and checks to stay in peak performance. Especially the precision and accuracy of your pipettes are important to ensure the quality of your downstream results. When your pipettes are not working in peak condition, your experimental results can come into question.

Therefore, regular maintenance, calibration, and adjustment services by Eppendorf will help identify potential issues, and assure your pipettes and dispensers continue to generate reproducible results. Our new, globally available pipette service portfolio always follows the latest and strict international quality standards for calibration. Various calibration options include a thorough check of the pipette internally and externally, ensuring that wearable parts like O-rings are replaced in a timely manner.

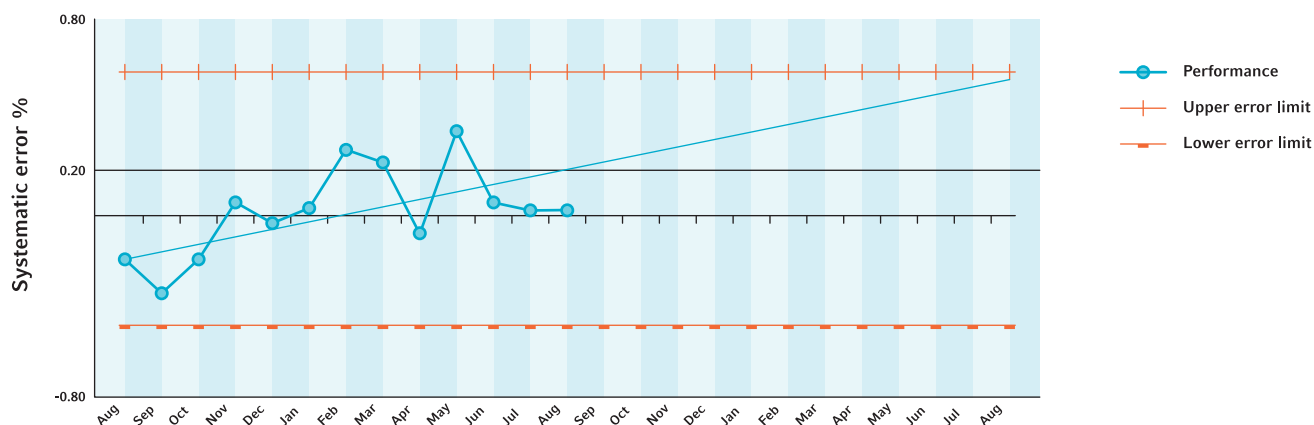


## Calibration Drift Due to Wear and Tear

Month to month over a yearlong testing period, the new pipette in standard lab use is calibrating within the error limits as shown in the graph. However, wear and tear is causing this pipette's calibration to continuously just trend

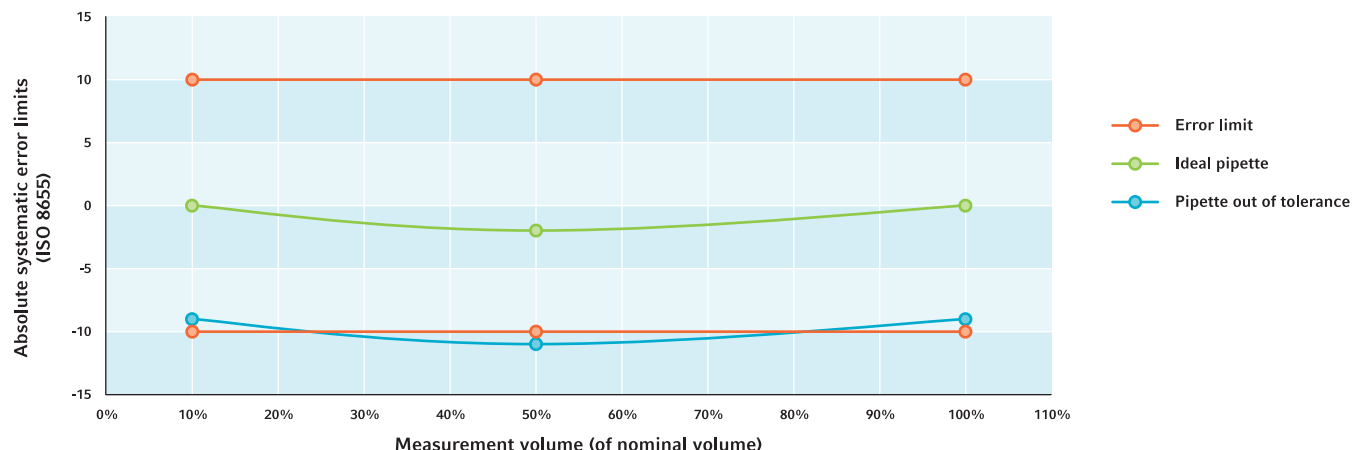
towards the upper limit. Without any maintenance, calibration or adjustment measures, this pipette will eventually fall out of calibration, potentially causing questionable and unreliable results.

Example pipette calibration over time



# What Else is Important?

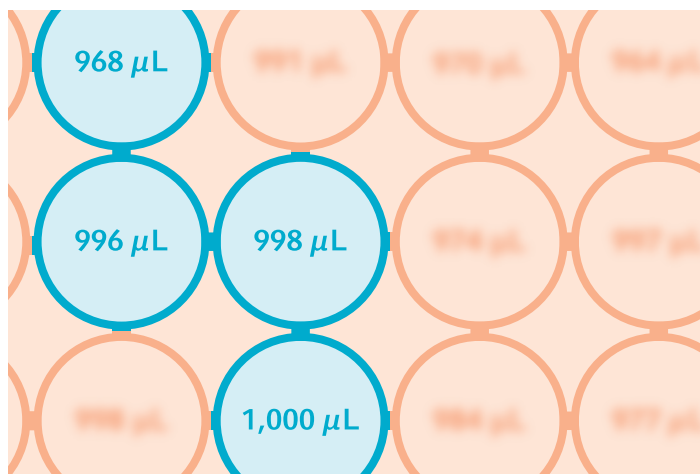
## Calibrating with 3 volumes to compensate for the non-linear correlation of error and volume



ISO 8655 requires 3 volumes to be tested during calibration: Nominal volume, 50% of nominal volume, and lower limit of useful volume or 10% of nominal volume (whichever is the greater). Since the error limits of a pipette are not linear from minimum to maximum volume, it is possible to have the 10% and 100% volumes perform within the systematic error limits while the 50% volume does not.

The graph above demonstrates this phenomenon with the blue line representing a pipette that is out of tolerance. The user would not know that this pipette isn't functioning properly without testing all 3 volumes.

## Calibrating with 10 measurements versus 4 measurements to compensate for deviations



The boxes above represent a set of calibration measurements from a 1.000  $\mu\text{L}$  pipette. On the left, taking only 4 measurements produces an error of 0.3%, well within the pipette's 0.6% error limit. On the right, taking all 10 measurements



produces an error of 1.6%, considerably outside the pipette's 0.6% limits. More confidence in the calibration is produced and the results become statistically more accurate when using 10 measurements as recommended by ISO 8655.

## Why Eppendorf Pipette Service?



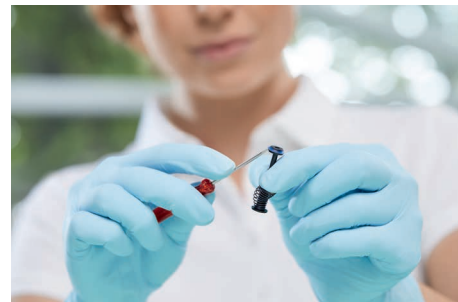
## Beyond ISO Conformity

We maintain over 5000 pipette manufacturer specifications and conform to the manufacturer standard when their specifications are tighter than ISO 8655 standards, if requested by customer.



## Highly Trained Service Technicians

Our highly-qualified technicians go through 200 hours of training and must pass rigorous exams to become certified before servicing pipettes.



## Thorough Maintenance

Our calibration services include a thorough check of the pipette internally and externally, ensuring that wearable parts like O-rings are replaced in a timely manner.



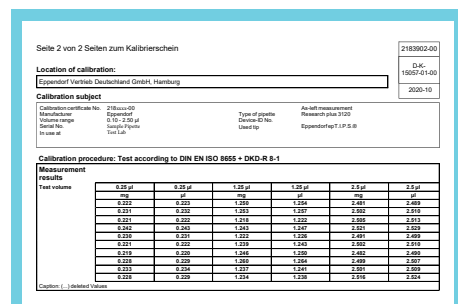
## Fully Accredited Service Centers

In our major markets, ISO/IEC 17025 accredited calibration processes are available in the field or at the service center. As a liquid handling expert partner, we can help you meet any regulatory need.



## Over 60 Years of Experience

Since we released the first piston stroke pipette in 1961, we continue to manufacture and service pipettes with a passion for improving user results.



## Audit-proof Documentation

Our calibration documentation will give you peace of mind due to reduced workload for your qualification and regulatory audit process. Most of our calibration facilities worldwide use our CFR21 part 11 compliant software.



# Eppendorf Calibration Process

## Decontamination

After verifying the customer's declaration of decontamination, all pipettes go through an additional Eppendorf decontamination process before they are forwarded to our calibration facilities.



## Preventive Maintenance and Repair

- > As found examination and calibration if requested
- > Cleaning of external and inner parts and maintenance (lubricating, exchange of wear and tear parts if necessary) of the devices
- > Leak testing
- > Performing necessary repairs



## Calibration and Adjustment

- > Usage of high-precision single- and multi-channel balances fulfilling ISO 8655 requirements
- > Usage of original manufacturer pipette tips
- > Measurement according to ISO 8655
- > Evaluation according to manufacturer specifications (if requested to ISO 8655 or customer SOP error limits)
- > Adjustment, if device is outside of the error limits
- > ISO/IEC 17025 calibration certificate on request.



## Labeling and Packaging

- > Device is packed with calibration certificate and service report ready for shipment
- > Each device is labeled with a calibration service sticker with the calibration date
- > Shipping in secure packaging with our certified shipping partners assures the pipette arrives in peak condition.



# Frequently Asked Questions

## How often should you calibrate a pipette?

> You decide within the scope of your quality standards on the calibration frequency. The frequency of calibration may vary depending on the number of users, the frequency of use of the pipettes, as well as the type of dispensed liquids and the accepted tolerances. A renewal of the conformity by ISO 8655 is recommended at least once per year.

## What is a renewal of a conformity?

> The calibration/renewal of conformity consists of a pipette maintenance and an As-Left calibration. These strictly adhere to ISO 8655 criteria, ensuring that the pipette meets conformity to ISO 8655 requirements or even tighter specifications like manufacturer specifications.

## What happens, if my instrument cannot be repaired?

> We will inform you and offer you an attractive trade-in offer.  
> On request we will dispose your old instrument or send it back to you.

## What is an ISO/IEC 17025 calibration certificate?

> An ISO/IEC 17025 calibration certificate not only contains the data from the calibration protocol, but also contains the measurement uncertainty, and the accreditation confirmation of the lab. The ISO/IEC 17025 calibration certificate with the included raw data information ensures the traceability chain for the calibration.

## Why do I need a calibration without preventive maintenance in addition?

> The As-Is protocol is performed before the As-Left calibration or renewal of conformity including maintenance. This protocol shows the calibration status of the pipette as received from the user, and is indicative of the pipette's performance prior to the renewal of conformity.



> Watch video:  
[www.eppendorf.com/pipette-video](http://www.eppendorf.com/pipette-video)

## Service Center, On-Site Service or On-Site Pick Up!



### Treat your pipettes well with premium services from the expert!

Precision and accuracy of your pipettes are important to ensure the quality of your results. Regular maintenance, calibration, and adjustment services by Eppendorf assure your pipettes and dispensers continue to deliver reproducible results.

Our new and clearly designed calibration services thoroughly check your pipettes inside and out to ensure wearable parts like O-rings are replaced in a timely manner. We offer a range of service options from an economic calibration to a certified calibration service in our ISO/IEC 17025 accredited laboratory located in Sydney.

### Why choose us?

- > Highly qualified and experienced technical staff
- > Backed by 60 years of liquid handling experience
- > Accredited to local and international standards
- > Superior customer service and support
- > Unmatched in-house turnaround time
- > Range of calibration options where pipette performance can be evaluated according to Manufacturer specifications, ISO 8655 or customised specifications

### Need your pipettes calibrated? Get excited...

With a wide range of options available, on-site service options, on-site pick up options and fast return times, contact your local Eppendorf Service Center for more information.

**Get what you want - Know what you get! Contact: [service@eppendorf.com.au](mailto:service@eppendorf.com.au)**



Qualification and  
Certification

#### ISO 8655

ISO 8655 defines the standard criteria by which a pipette should be calibrated and which maximum permissible error limits should be used at each volume. ISO 8655 criteria includes measurements at 3 volumes, 10 measurements at each volume, and controls for room environment.

#### ISO/IEC 17025

The ISO/IEC 17025 accreditation provides the high level of competence and compliance with strict quality rules. ISO/IEC 17025 criteria include a traceability chain for measurement equipment, measurement uncertainty values, and approved quality standards.

# Pipette Calibration Service

## Calibration Services – Ordering information

Service	Calibration measurements »As Is«	Calibration measurements »As Left«	Outside decontamination <sup>2</sup>	Checking, cleaning, lubricating <sup>4</sup> before calibration	Single channel pipette/dispenser	4-channel pipette	6-channel pipette	8-channel pipette	12-channel pipette	16-channel pipette	24-channel pipette
<b>ISO 8655 including PM<sup>5</sup></b>		10 per test volume <sup>1</sup>	included	included	0082000142	0082000342	0082000343	0082000165	0082000166	0082000185	0082000186
<b>3 x 4 including PM<sup>5</sup></b>		4 per test volume <sup>1</sup>	included	included	0082000141	0082000340	0082000341	0082000163	0082000164	0082000183	0082000184

## Calibration Service Packages – Ordering information

Service	Calibration measurements »As Is«	Calibration measurements »As Left«	Outside decontamination <sup>2</sup> checking, cleaning, lubricating <sup>4</sup>	ISO 17025 Accreditation calibration certificate <sup>3</sup>	Single channel pipette/dispenser	4-channel pipette	6-channel pipette	8-channel pipette	12-channel pipette	16-channel pipette	24-channel pipette
<b>ISO 8655 Verified</b>	4 per test volume <sup>1</sup>	10 per test volume <sup>1</sup>	included		0082000234	0082000324	0082000325	0082000235	0082000236	0082000237	0082000238
<b>ISO 17025 Without PM<sup>5</sup></b>	10 per test volume <sup>1</sup>			included	0082000304	0082000305	0082000306	0082000300	0082000301	0082000302	0082000303
<b>ISO 17025 Advanced</b>	4 per test volume <sup>1</sup>	10 per test volume <sup>1</sup>	included	included	0082000227	0082000322	0082000323	0082000228	0082000229	0082000230	0082000231
<b>ISO 17025 Professional</b>	10 per test volume <sup>1</sup>	10 per test volume <sup>1</sup>	included	included	0082000220	0082000320	0082000321	0082000221	0082000222	0082000223	0082000224

## Additional Services – Ordering information

**Advanced Documentation**, Excel file for calibration information on all pipettes/dispensers per order 0082000212

**On-site verification services in your own laboratory** Inquire

## Additional Services Charges

**Labor Charge of repair services** Assessment fee will apply if repairing options are not accepted Inquire

<sup>1</sup> 10%, 50% and 100% of nominal volumes for variable volume instruments. <sup>2</sup> Pipettes and dispensers and package equipment need to be decontaminated before sending in. <sup>3</sup> ISO 17025 accreditation calibration certificate is included in the second calibration after the maintenance where applicable. <sup>4</sup> Internal parts. <sup>5</sup> Preventative Maintenance. <sup>6</sup> Only available for new pipettes accredited calibration. <sup>^</sup> All prices in AUD and exclude GST.



Qualification and Certification

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Download a decontamination form at [www.eppendorf.com/epServices](http://www.eppendorf.com/epServices).

Your local distributor: [www.eppendorf.com/contact](http://www.eppendorf.com/contact)

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[www.eppendorf.com/epservices](http://www.eppendorf.com/epservices)