

epServices
for premium performance



Pipette Service Done Right

Eppendorf Pipette Calibration

»Are Your Results Reliable?«

Premium services performed by experts ensure global quality standards

Your pipettes are high-precision instruments that require regular maintenance and inspection to stay in peak performance. The precision and accuracy of your pipettes are especially important to ensuring the quality of your downstream results. When your pipettes are not working optimally, your experiment's results might be questionable.

Regular maintenance, calibration and adjustment services performed by Eppendorf experts can help you identify potential issues and ensure your pipettes and dispensers continue to generate reproducible results. Our global pipette services always adhere to the most recent, strict international quality standards for calibration. Calibration options include a thorough internal and external check of the pipette to ensure wearable parts like O-rings are replaced in a timely manner.

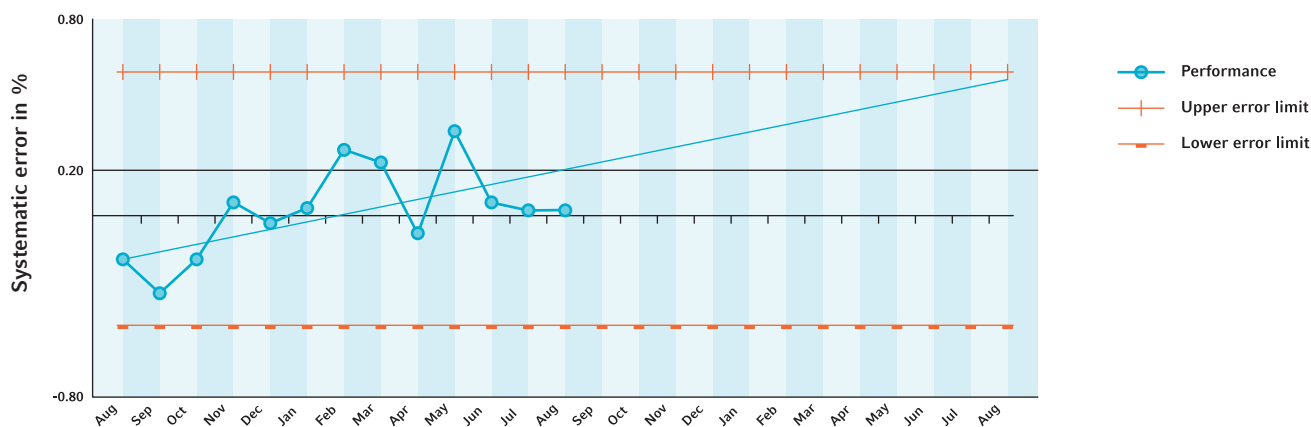


Volume Drift Due to Wear and Tear

From month to month over a yearlong testing period, a new pipette in standard lab use calibrates within the error limits shown in the graph below. But the pipette is also experiencing wear and tear, which can also be seen in the graph below as the continuous trend of the pipette's volume toward the

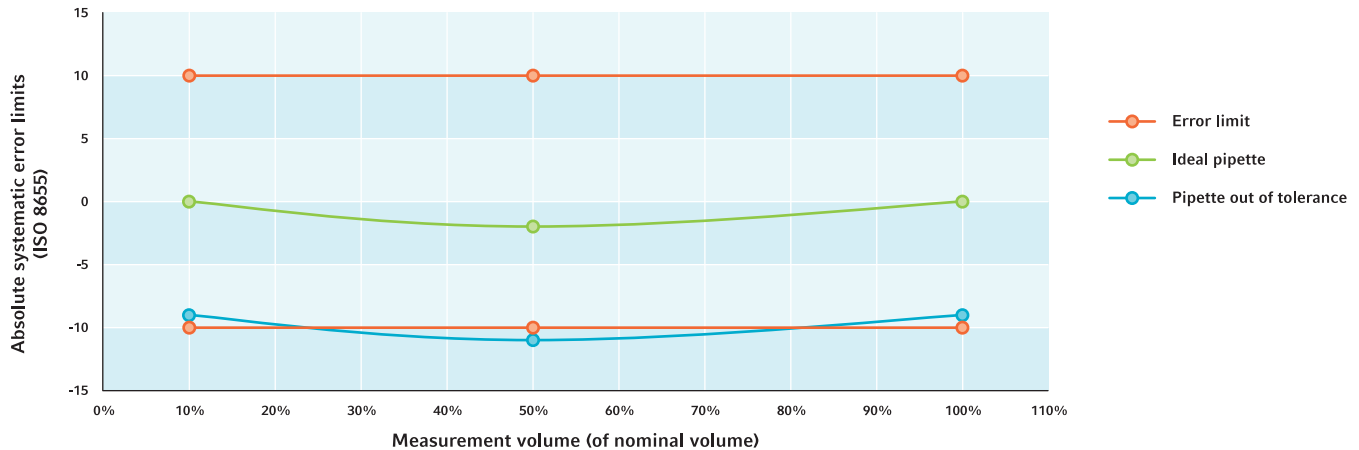
upper limit. Without carrying out any maintenance, calibration or adjustment measures, this pipette will eventually fall out of calibration, potentially causing unreliable or questionable results.

Example of a volume drift over time



What Else is Important?

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



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

The graph above demonstrates this phenomenon: The blue line represents a pipette that is out of tolerance. The user would not know this pipette is not functioning properly without testing all three volumes.

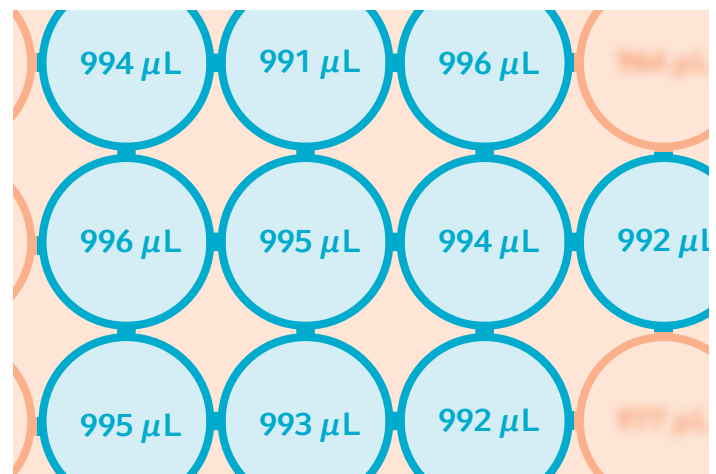
Calibrating with 10 measurements versus 4 measurements to compensate for deviations



Four measurements – average 994.46 μL , -0.55% systematic error

The images above represent a set of calibration measurements from a 1,000 μL pipette. The image on the left shows that taking only four measurements produces an error of -0.55%. As this is within the manufacturer's systematic error limit of $\pm 0.6\%$, the pipette would pass calibration.

On the right, taking all ten measurements produces



Ten measurements – average 993.77 μL , -0.62% systematic error

a systematic error of -0.62%. As this is outside the manufacturer's systematic error limit of $\pm 0.6\%$, the pipette would fail calibration. More confidence in the calibration is produced and the results become statistically more accurate when using ten measurements as recommended by ISO 8655.

Why Select Eppendorf for Pipette Services?



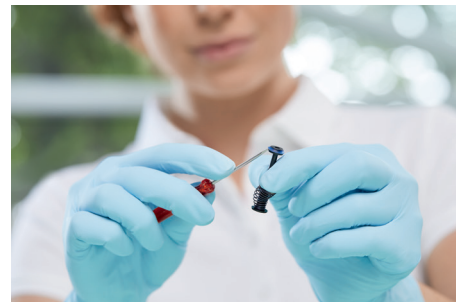
Above and beyond ISO conformity

We maintain over 5,000 pipette-manufacturer specifications and conform to manufacturers' standards when their specifications are stricter than ISO 8655 standards if requested by customer.



Highly trained service technicians

Our highly qualified technicians complete 200 hours of training and must pass rigorous exams to receive certification before they can begin servicing pipettes.



Thorough maintenance

Our calibration services include a thorough internal and external check of the pipette to ensure wearable parts like O-rings are replaced in a timely manner.

eppendorf

Kalibrierschein / Calibration Certificate
 erstellt durch die Kalibrierlaboratorien der
 issued by the Calibration laboratories of the
Eppendorf Vertrieb Deutschland GmbH

Standorte:
 Sakthausweg 1 Im Thal 4 Merseburger Straße 1 Magusstraße 11 Peter-Herren-Straße 2
 22336 Hamburg 62277 Fenzberg 09115 Heideberg 12458 Berlin 65689 Wessling-Berzdorf

akkreditiert nach DIN EN ISO/IEC 17025:2018
 accredited according to DIN EN ISO/IEC 17025:2018

Mitglied im / Member of
 Deutschen Kalibrierdienst **DKD**

2183902-00
 D-K: 15097-01-08
 2020-10
 Kalibrierzeichen
 Calibration mark



epService
Test Report

Issued by: Eppendorf S.r.l. Issued to: VETALUS SPA
 Via R. Bracco 6, 01138 Milano, Italy The accuracy applies to ISO 8655 and ISO 14985. The accuracy is based on ISO 8655-2:2005, Annex A.

As-let measurement result: OK not OK

Model: Eppendorf Pipette plus 0.2 µl to 10 µl	Version: Eppendorf epT.P. 0.2-10 µl version 0.1-05p4
Serial Number: 2155039	Work Order: WC000210481-2
Internal Customer ID: 1.1	Revision Number: 68807015164739400V1.0
Calibration Volume Range: 1 µl to 10 µl	Date of Calibration: 2020-10-15 10:28:00

Calibration Details:	Calibration Hardware:
Method: ISO 8655-2:2005, Annex A	Balance Model: Mettler Toledo XP06PC
Type of the Test Liquid: de-ionised water	Balance Serial Number: 804302414
Batch of the Test: B1	Balance Last Calibration Date: 2021-05-02
Reference Temperature: 20.00 °C	Climate Box Model: 100040-401176
Air Temperature: 20.20 °C	Climate Box Serial Number: 4 01176
Barometric Pressure: 990.43 hPa	Climate Box Last Calibration Date: 2021-05-02
Relative Humidity: 57.71 %	
Cubic Thermal Coefficient: 1	

Correction of weighing values 100 volume based on ISO 8655-2:2005 Annex 2
 Calibration: Technicians: Milan - 2020-10-15
 Operator of Pipette: City Code

Fully accredited Service Centers

In our major markets, ISO 17025-accredited pipette calibration processes are available both in the field or in an Eppendorf Service Center. As an expert partner in liquid handling, 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 gives you peace of mind by reducing the workload for your qualification and regulatory audit process. Most of our calibration facilities worldwide use software that complies with CFR21, part 11.

Eppendorf Calibration Process

Decontamination

After verifying the customer's declaration of decontamination, Eppendorf sends all pipettes through an additional decontamination process before forwarding them to our calibration facilities.



Preventive Maintenance and Repair

- > Pipette is examined and calibrated as found, if requested
- > Outer and inner parts are cleaned and maintained (replace wear-and-tear parts and lubricate, if necessary)
- > Device is tested for leaks
- > Performing necessary repairs



Calibration and Adjustment

- > High-precision, single- and multichannel balances fulfilling ISO 8655 requirements are used
- > Original manufacturer pipette tips are used
- > Measurements made according to ISO 8655
- > Evaluations carried out according to manufacturer's specifications (if requested, on the basis of ISO 8655 or customer SOP error limits)
- > Adjustments made if device is outside of its error limits
- > ISO 17025 calibration certificate available on request.



Labeling and packaging

- > Device is packed with calibration documentation and service report ready for shipment
- > Each device receives a calibration service sticker with the calibration date
- > Pipette shipped in secure packaging with our certified shipping partners to assure it arrives in peak condition.



Frequently Asked Questions

How often should you calibrate a pipette?

> You decide on the frequency of calibration within the scope of your quality standards. The frequency of calibration may vary depending on the number of users, the frequency of pipette use, the type of liquids dispensed and accepted tolerances. The recommendation is to carry out the renewal of conformity according to ISO 8655 at least once per year.

What is renewal of conformity?

> Calibration/renewal of conformity consists of pipette maintenance and as-left calibration. These services strictly adhere to ISO 8655 criteria, ensuring the pipette meets conformity to ISO 8655 requirements or even stricter specifications like manufacturers' specifications.

What happens, if my instrument cannot be repaired?

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

What is an ISO 17025 calibration certificate?

> A calibration certificate compliant with ISO 17025 not only contains the data from the calibration protocol, but also includes the measurement uncertainty and the accreditation confirmation of the service center. The ISO 17025 calibration certificate along with the raw data ensure traceability for the calibration.

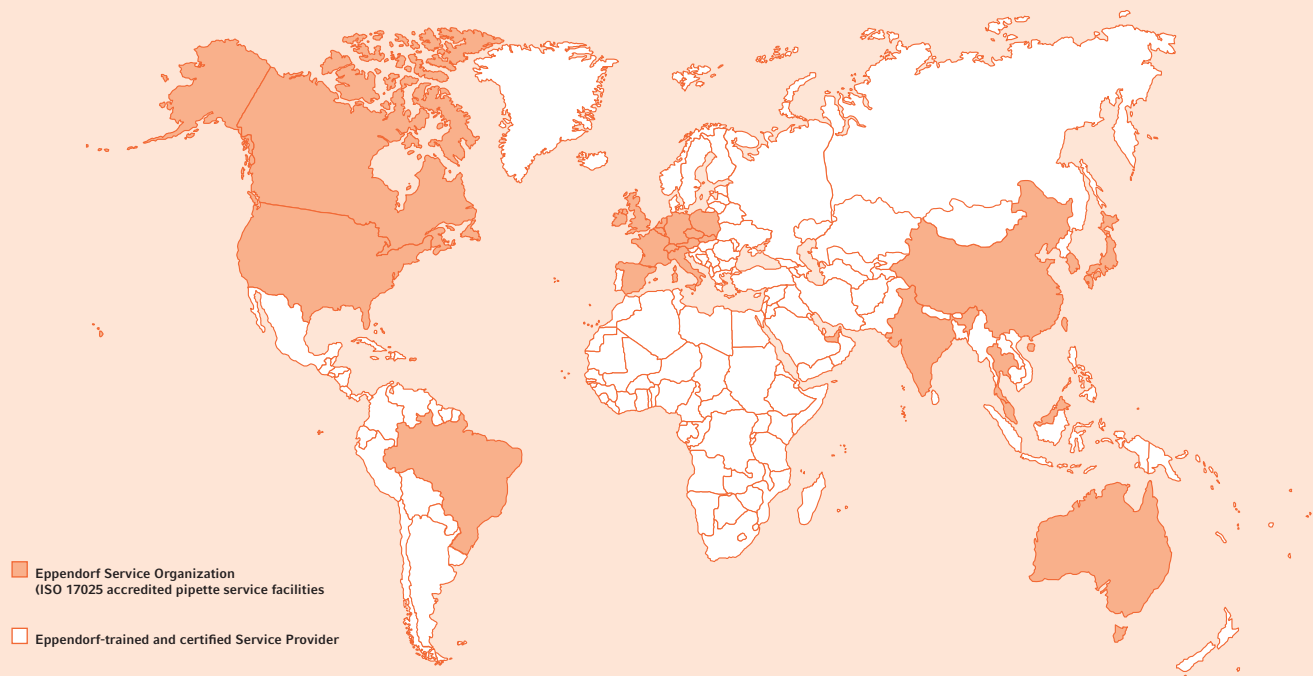
Why do I need calibration without also including preventive maintenance?

> 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 indicates the pipette's performance prior to renewal of conformity.



> Watch video:
www.eppendorf.group/pipette-video

Worldwide Pipette Calibration Services



Eppendorf offers pipette services around the globe through its ISO 17025-accredited corporate service centers and Eppendorf-trained and authorized service providers.

Eppendorf pipette services are standardized to ensure your pipetting results are consistent and reproducible no matter where in the world you are located.

Service Center or On-Site Services



Please contact your local Eppendorf Service Center for more information about our pipette services, which range from cost-effective calibration to calibration services carried out in facilities accredited according to ISO 17025 and located in our major markets. For fast return times, Eppendorf offers on-site and pick-up services in many countries.

Pipette Calibration Service

Calibration Services – Ordering information

Service	Calibration measurements »As Is«	Calibration measurements »As Left«	Outside decontamination ²	Checking, cleaning, lubricating ⁴ before calibration	Single channel pipette/dispenser	4-channel pipette	6-channel pipette	8-channel pipette	12-channel pipette	16-channel pipette	24-channel pipette
ISO 8655 including PM⁵		10 per test volume ¹	included	included	0082000142	0082000342	0082000343	0082000165	0082000166	0082000185	0082000186
3×4 including PM⁵		4 per test volume ¹	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 ² checking, cleaning, lubricating ⁴	ISO 17025 Accreditation calibration certificate ³	Single channel pipette/dispenser	4-channel pipette	6-channel pipette	8-channel pipette	12-channel pipette	16-channel pipette	24-channel pipette
ISO 8655 Verified	4 per test volume ¹	10 per test volume ¹	included		0082000234	0082000324	0082000325	0082000235	0082000236	0082000237	0082000238
ISO 17025 Without PM⁵	10 per test volume ¹			included	0082000304	0082000305	0082000306	0082000300	0082000301	0082000302	0082000303
ISO 17025 Advanced	4 per test volume ¹	10 per test volume ¹	included	included	0082000227	0082000322	0082000323	0082000228	0082000229	0082000230	0082000231
ISO 17025 Professional	10 per test volume ¹	10 per test volume ¹	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

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



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 17025

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

Download a decontamination form at www.eppendorf.com/epServices.

Your local distributor: www.eppendorf.com/contact

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www.eppendorf.com/epservices