

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.

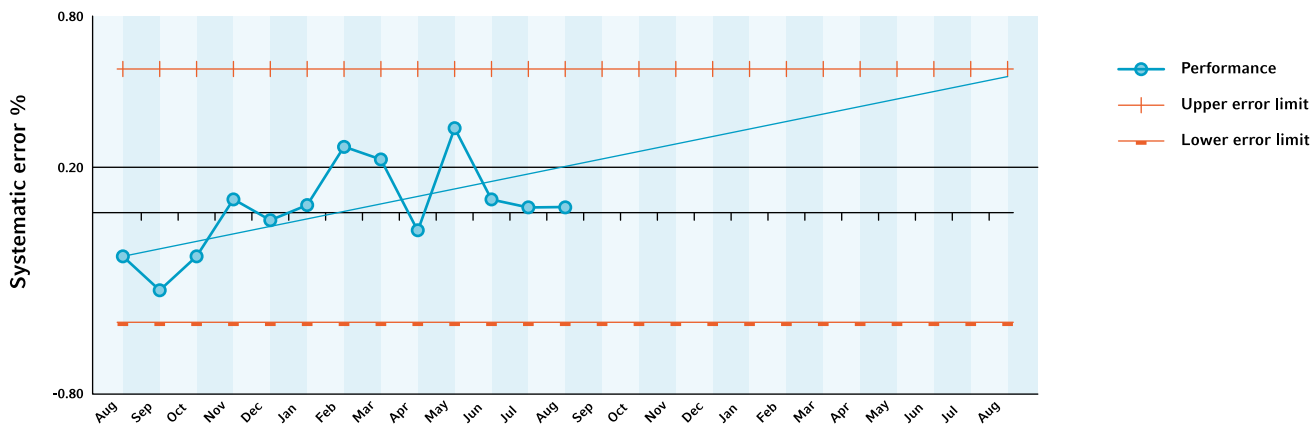


## Calibration Drift Due to Wear and Tear

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

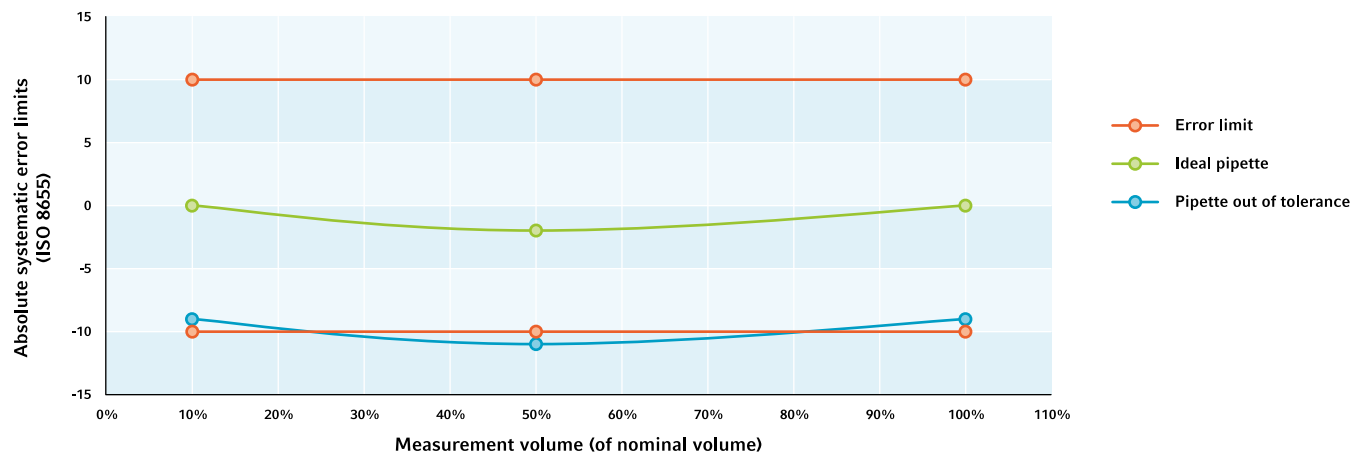
towards the upper limit. Without any maintenance, calibration or adjustment measures, this pipette will eventually fall out of calibration, potentially causing questionable and unreliable results.

Example pipette calibration over time



# What Else is Important?

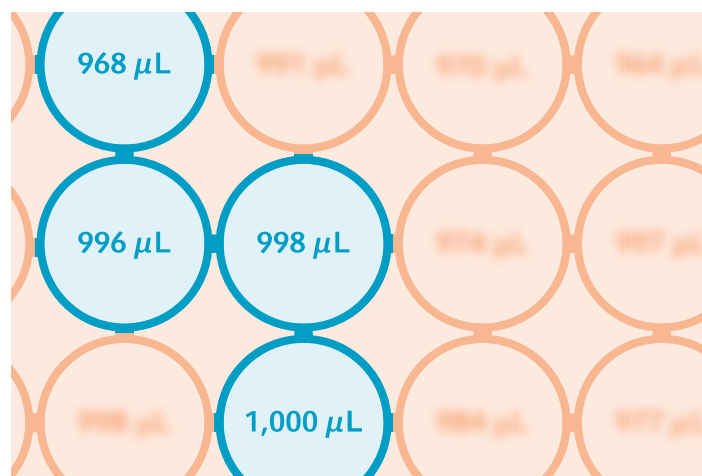
## Calibrating with 3 volumes to compensate for the non-linear correlation of error and volume



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



4 measurements – avg. 997 µL, 0.3% error

The boxes above represent a set of calibration measurements from a 1.000 µL 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



10 measurements – avg. 984 µL, 1.6% error

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.

**Kalibrierschein / Calibration Certificate**  
 erstellt durch die Kalibrierlaboratorien der  
 Eppendorf Vertrieb Deutschland GmbH

Standorte:  
 Steinhilberweg 1 22339 Hamburg    Im Thal 4 82377 Penzberg    Mannheimer Straße 1 69115 Heidelberg    Magnusstraße 11 12489 Berlin    Peter-Herren-Strasse 2 50389 Wessling-Berzdorf

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

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

2183902-00  
 D-K  
 1505741-00  
 2020-10

## Fully Accredited Service Centers

In our major markets, ISO 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.

Seite 2 von 2 Seiten zum Kalibrierschein

2183902-00  
 D-K  
 1505741-00  
 2020-10

Location of calibration:  
 Eppendorf Vertrieb Deutschland GmbH, Hamburg

Calibration subject:  
 Calibration certificate No. 2183902-00    Type of pipette: Piston stroke    As-built measurement: Revision plus 3/22  
 Calibration range: 0.10 - 2.50 µl    Device ID No.:    User ID: Eppendorf/ep7.F.P.S.B.  
 Serial No.:    Serial Prefix:    User ID:  
 In use at:    Test Lab:

Calibration procedure: Test according to DIN EN ISO 8655 + DKD-R 8-1

Test volume	0.25 µl	0.50 µl	1.00 µl	1.50 µl	2.0 µl	2.5 µl
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.50	0.50	0.50	0.50	0.50	0.50	0.50
1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.50	1.50	1.50	1.50	1.50	1.50	1.50
2.00	2.00	2.00	2.00	2.00	2.00	2.00
2.50	2.50	2.50	2.50	2.50	2.50	2.50
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.50	0.50	0.50	0.50	0.50	0.50	0.50
1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.50	1.50	1.50	1.50	1.50	1.50	1.50
2.00	2.00	2.00	2.00	2.00	2.00	2.00
2.50	2.50	2.50	2.50	2.50	2.50	2.50
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.50	0.50	0.50	0.50	0.50	0.50	0.50
1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.50	1.50	1.50	1.50	1.50	1.50	1.50
2.00	2.00	2.00	2.00	2.00	2.00	2.00
2.50	2.50	2.50	2.50	2.50	2.50	2.50

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## 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 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 17025 calibration certificate?

> An ISO 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 17025 calibration certificate with the included raw data information ensures the traceability chain for the calibration.

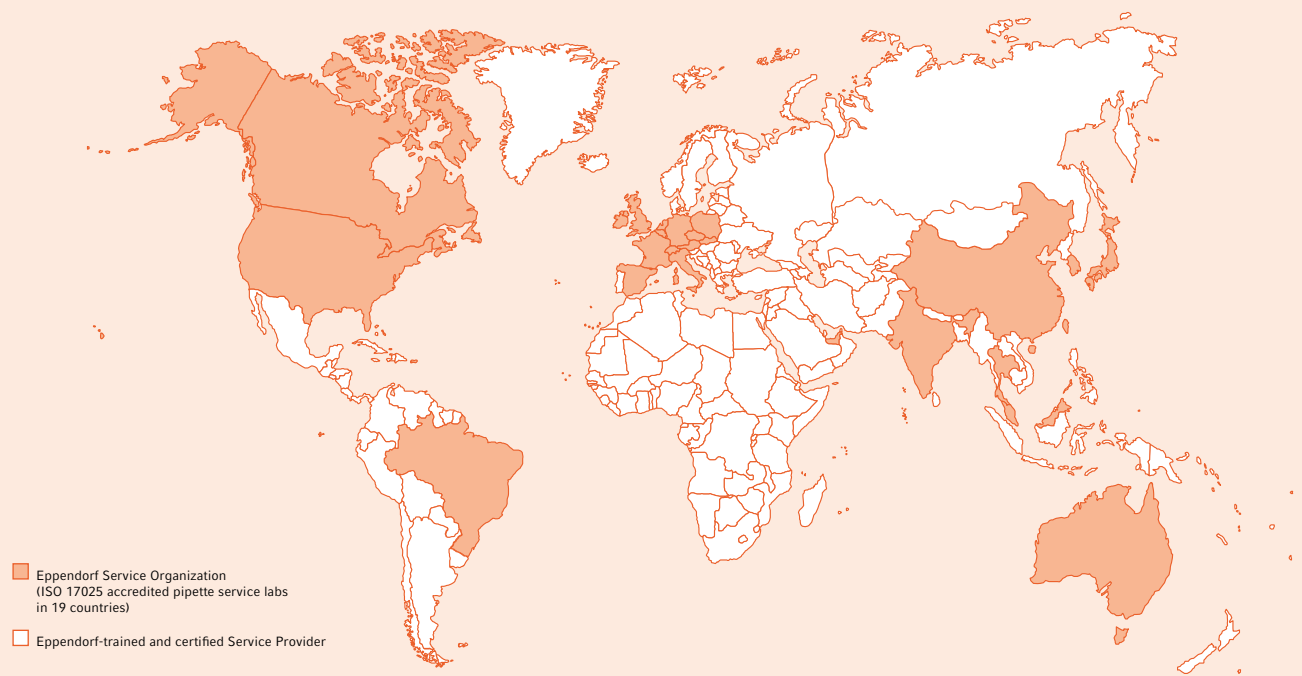
## Why do I need a calibration without preventive maintenance in addition?

> 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)

## Worldwide Pipette Calibration Services



Eppendorf's pipette service spans the globe through a series of ISO 17025 accredited corporate service centers and Eppendorf trained and authorized service providers.

Standardizing on Eppendorf's pipette service ensures that your pipetting results are consistent and reproducible across any geography.

## Service Center or On-Site Service



Please contact your local Eppendorf Service Center for more information on our service offering – a range of options from economic calibration to calibration in ISO 17025 accredited laboratories in our major markets. For fastest return times, field service or pick-up service are available in many countries.

# Pipette Calibration Service

## Calibration Services – Ordering information

Service	Calibration measurements »As Is«	Calibration measurements »As Left«	Decontamination from outside*2	Checking, cleaning, lubricating** before calibration	Single channel pipette/dispenser	8-channel pipette	12-channel pipette	16-channel pipette	24-channel pipette
ISO 8655 without Preventive Maintenance	10 per test volume*1		included		0082 000 140	0082 000 161	0082 000 162	0082 000 181	0082 000 182
ISO 8655 including Preventive Maintenance		10 per test volume*1	included	included	0082 000 142	0082 000 165	0082 000 166	0082 000 185	0082 000 186
3x4 without Preventive Maintenance	4 per test volume*1		included		0082 000 139	0082 000 159	0082 000 160	0082 000 179	0082 000 180
3x4 including Preventive Maintenance		4 per test volume*1	included	included	0082 000 141	0082 000 163	0082 000 164	0082 000 183	0082 000 184

## Calibration Service Packages – Ordering information

Service	Calibration measurements »As Is«	Calibration measurements »As Left«	Outside decontamination*2; checking, cleaning, lubrication**	ISO 17025 Accreditation calibration certificate	Single channel pipette/dispenser	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		0082 000 234	0082 000 235	0082 000 236	0082 000 237	0082 000 238
ISO 17025 including Preventive Maintenance		10 per test volume*1	included	included	0082 000 143	0082 000 167	0082 000 168	0082 000 187	0082 000 188
ISO 17025 Advanced	4 per test volume*1	10 per test volume*1	included	included*3	0082 000 227	0082 000 228	0082 000 229	0082 000 230	0082 000 231
ISO 17025 Professional	10 per test volume*1	10 per test volume*1	included	included	0082 000 220	0082 000 221	0082 000 222	0082 000 223	0082 000 224

## Additional Services – Ordering information

ISO 17025 Calibration Certificate	0082 000 211
Advanced Documentation, Excel file for calibration information on all pipettes/dispensers per order	0082 000 212

## Additional Services Charges

On-site calibration services in your own laboratory	inquire
Labor Charge, 15 min. of repair services, time unit of one technician	0082 000 210

\*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.  
 \*4 Internal parts

Service offers may differ by country.

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

We ensure our stringent and validated procedures are followed, for Eppendorf and other brand pipettes:



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.

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)