

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.

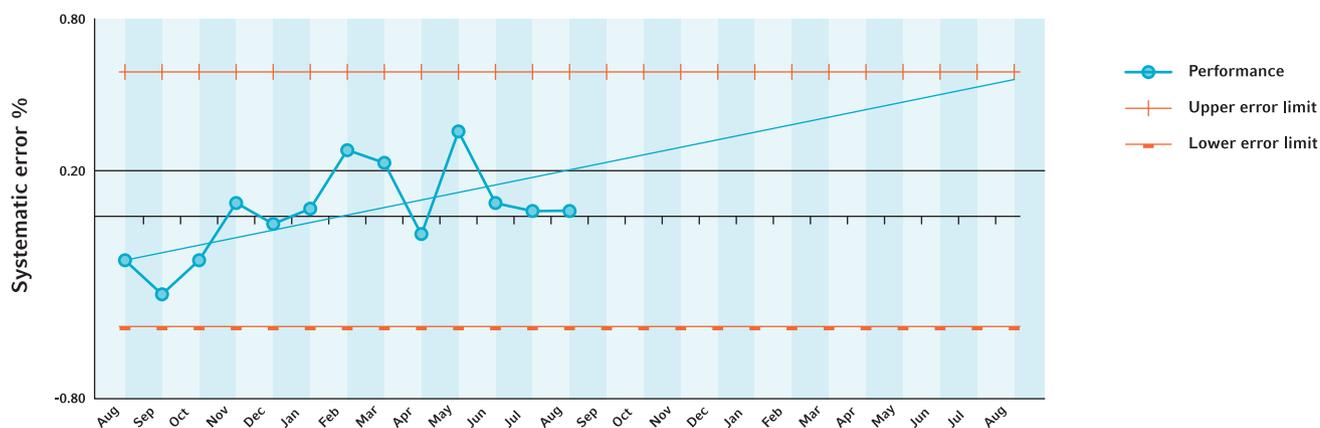


Calibration Drift Due to Wear and Tear

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

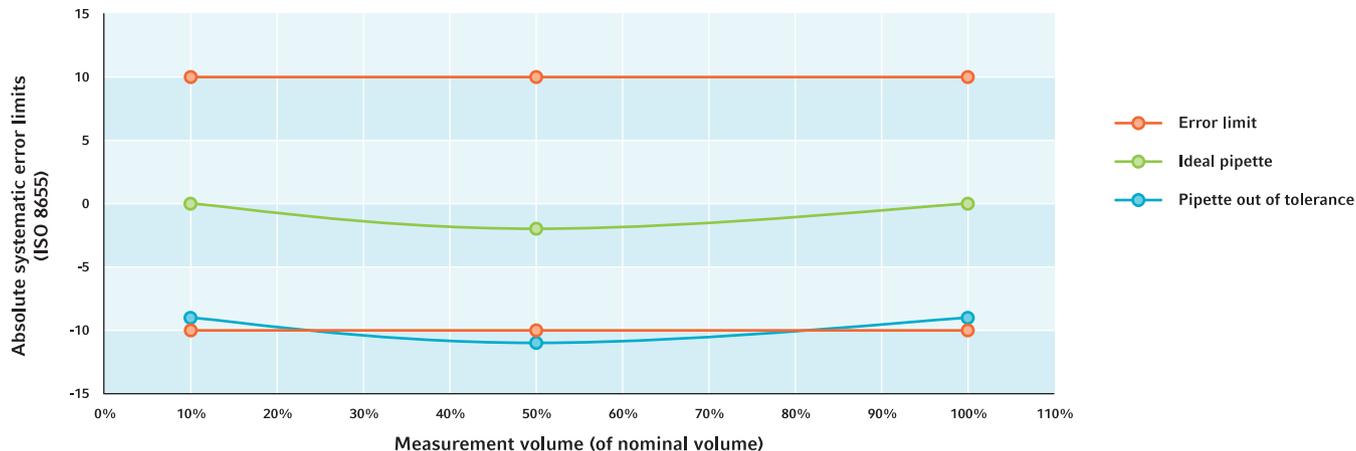
towards the upper limit. Without any maintenance, calibration or adjustment measures, this pipette will eventually fall out of calibration, potentially causing questionable and unreliable results.

Example pipette calibration over time



What Else is Important?

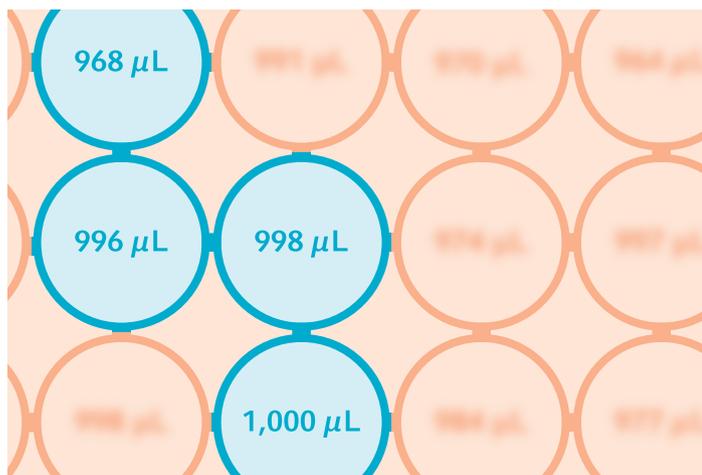
Calibrating with 3 volumes to compensate for the non-linear correlation of error and volume



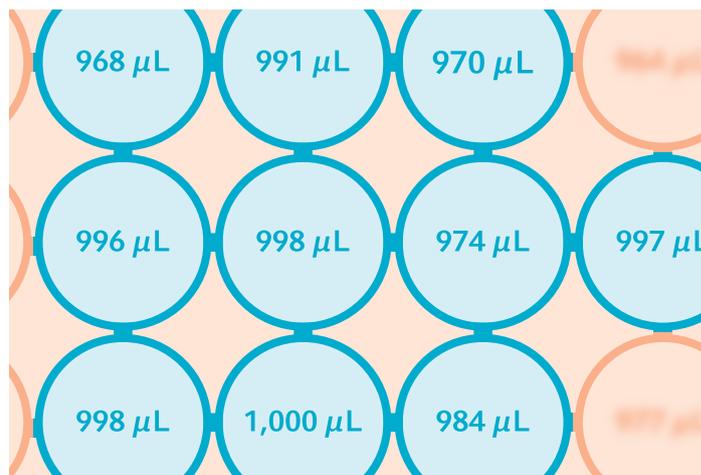
ISO 8655 requires 3 volumes to be tested during calibration: Nominal volume, 50% of nominal volume, and lower limit of useful volume or 10% of nominal volume (whichever is the greater). Since the error limits of a pipette are not linear from minimum to maximum volume, it is possible to have the 10% and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



10 measurements – avg. 984 µL, 1.6% 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

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
issued by the Calibration laboratories of the
Eppendorf Vertrieb Deutschland GmbH

Standorte:
 Barkhusenweg 1 Im Thal 4 Merheimer Straße 1 Magusstraße 11 Peter-Herten-Straße 2
 22336 Hamburg 62277 Fenzberg 69115 Heidelberg 65689 Wiesbaden-Sieddorf

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




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

D-K: 15007-01-00
2020-10
Kalibrierzeichen
Calibration mark



Selle 2 von 2 Seiten zum Kalibrierschein

2183902-00
D-K:
15007-01-00
2020-10

Location of calibration:
Eppendorf Vertrieb Deutschland GmbH, Hamburg

Calibration subject
 Calibration certificate No. 2183902-00 As MR measurement
 Manufacturer Eppendorf Researchline 7.5D
 Volume range 0.10 - 2.00 µl Device ID No.
 Serial No. 150070000 Serial No. Eppendorf T.P. 5.8

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

| Test volume | 0.20 µl | | 0.25 µl | | 0.50 µl | | 1.00 µl | | 2.00 µl | | 2.50 µl | |
|-------------|---------|------|---------|------|---------|------|---------|------|---------|-------|---------|-------|
| | mg | µg | mg | µg |
| 0.20 | 0.200 | 200 | 0.250 | 250 | 0.500 | 500 | 1.000 | 1000 | 2.000 | 2000 | 2.500 | 2500 |
| 0.25 | 0.250 | 250 | 0.313 | 313 | 0.625 | 625 | 1.250 | 1250 | 2.500 | 2500 | 3.125 | 3125 |
| 0.30 | 0.300 | 300 | 0.375 | 375 | 0.750 | 750 | 1.500 | 1500 | 3.000 | 3000 | 3.750 | 3750 |
| 0.35 | 0.350 | 350 | 0.438 | 438 | 0.875 | 875 | 1.750 | 1750 | 3.500 | 3500 | 4.375 | 4375 |
| 0.40 | 0.400 | 400 | 0.500 | 500 | 1.000 | 1000 | 2.000 | 2000 | 4.000 | 4000 | 5.000 | 5000 |
| 0.45 | 0.450 | 450 | 0.563 | 563 | 1.125 | 1125 | 2.250 | 2250 | 4.500 | 4500 | 5.625 | 5625 |
| 0.50 | 0.500 | 500 | 0.625 | 625 | 1.250 | 1250 | 2.500 | 2500 | 5.000 | 5000 | 6.250 | 6250 |
| 0.55 | 0.550 | 550 | 0.688 | 688 | 1.375 | 1375 | 2.750 | 2750 | 5.500 | 5500 | 6.875 | 6875 |
| 0.60 | 0.600 | 600 | 0.750 | 750 | 1.500 | 1500 | 3.000 | 3000 | 6.000 | 6000 | 7.500 | 7500 |
| 0.65 | 0.650 | 650 | 0.813 | 813 | 1.625 | 1625 | 3.250 | 3250 | 6.500 | 6500 | 8.125 | 8125 |
| 0.70 | 0.700 | 700 | 0.875 | 875 | 1.750 | 1750 | 3.500 | 3500 | 7.000 | 7000 | 8.750 | 8750 |
| 0.75 | 0.750 | 750 | 0.938 | 938 | 1.875 | 1875 | 3.750 | 3750 | 7.500 | 7500 | 9.375 | 9375 |
| 0.80 | 0.800 | 800 | 1.000 | 1000 | 2.000 | 2000 | 4.000 | 4000 | 8.000 | 8000 | 10.000 | 10000 |
| 0.85 | 0.850 | 850 | 1.063 | 1063 | 2.125 | 2125 | 4.250 | 4250 | 8.500 | 8500 | 10.625 | 10625 |
| 0.90 | 0.900 | 900 | 1.125 | 1125 | 2.250 | 2250 | 4.500 | 4500 | 9.000 | 9000 | 11.250 | 11250 |
| 0.95 | 0.950 | 950 | 1.188 | 1188 | 2.375 | 2375 | 4.750 | 4750 | 9.500 | 9500 | 11.875 | 11875 |
| 1.00 | 1.000 | 1000 | 1.250 | 1250 | 2.500 | 2500 | 5.000 | 5000 | 10.000 | 10000 | 12.500 | 12500 |

Caption: 1 - Selected Values

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.

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.

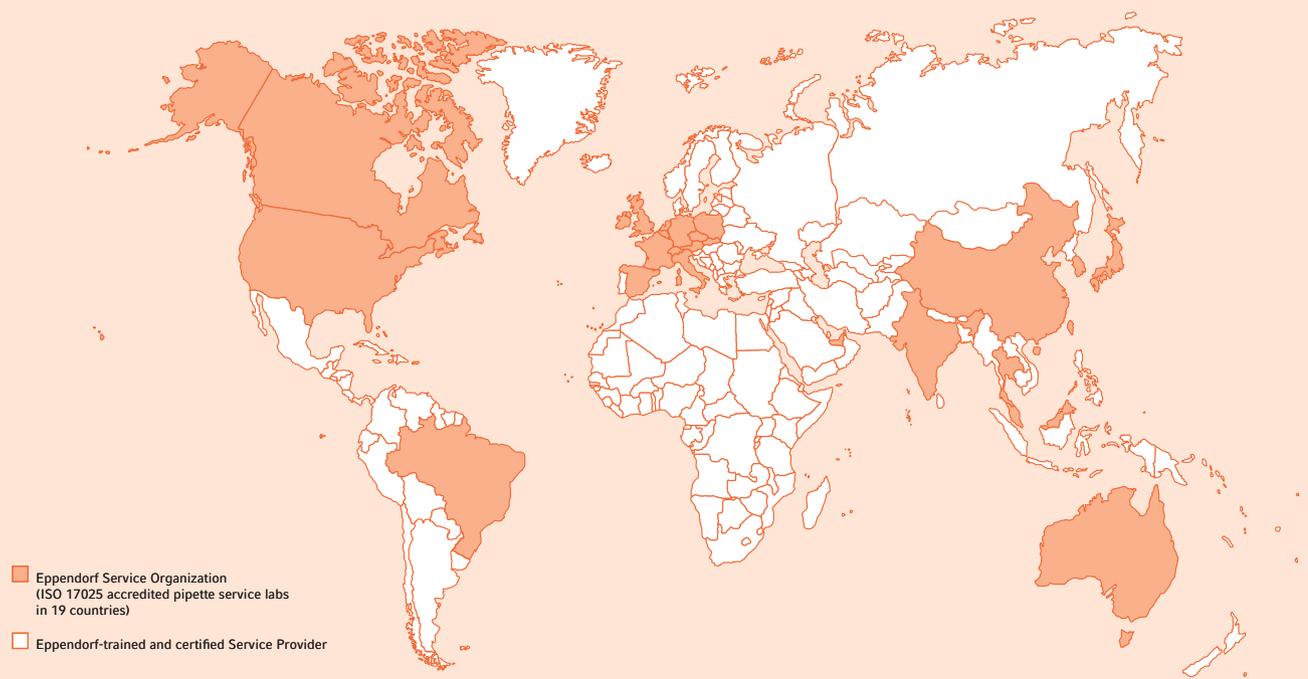
Why do I need a calibration without preventive maintenance in addition?

> 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

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 | | | | 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 | | | | 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*4 | 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 without Preventive Maintenance | 10 per test volume*1 | | | included | 0082 000 304 | 0082 000 300 | 0082 000 301 | 0082 000 302 | 0082 000 303 |
| 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/decontamination.

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
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eppendorf@eppendorf.com · www.eppendorf.com

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