

Achieving Excellence in Pipette Calibration

Comprehensive Solutions for Meeting ISO 8655:2022 Requirements with Sartorius

August 2024 | Author by Myriam Gueye - Segment Marketing Manager



ISO 8655:2022 and Sartorius Solutions for Pipette Calibration

ISO 8655:2022 is an essential update for laboratories looking to ensure the accuracy and reliability of their volumetric pipetting values. This international standard, which defines the requirements for the calibration and verification of Piston-Operated Volumetric Apparatus (POVA), has been revised to include stricter guidelines and clarified reference measurement procedures.

ISO 8655:2022 makes significant changes to improve the accuracy of POVAs.

- It is now divided into 10 parts for more comprehensive coverage of POVA calibration and testing.
- Introduction of two distinct methods for determining volume: a gravimetric (Part 6) and a photometric (Part 8), with an overview of the alternatives in Part 7.
- Part 9 introduces manually operated precision laboratory syringes.
- Tolerances are set as a proportion of the nominal volume of the apparatus, making measurements more accurate, particularly for small volumes.
- The pipette and tip are a single system that must comply with the maximum permissible errors.
- The tips must be validated by their manufacturer to ensure compatibility with the pipette.

Sartorius, a leader in laboratory metrology field, offers complete solutions to meet the requirements of this new standard. Sartorius' gravimetric checking and calibration services are ISO 8655 compliant, ensuring reliable and qualified results for pipettes, dispensers, dilutors and burettes.*

*Check availability in your country

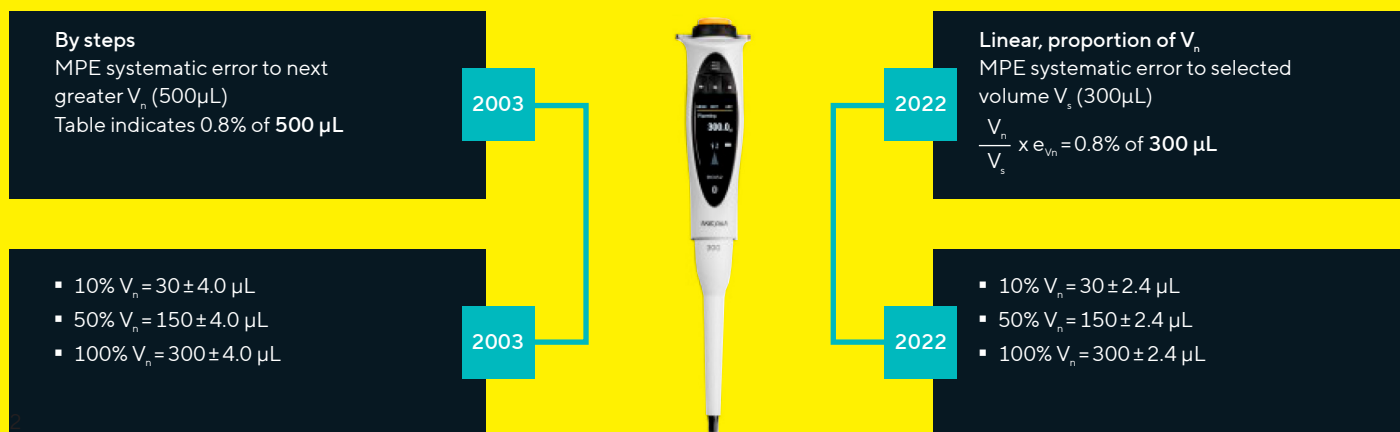
Figure 1: Picus® 2 Electronic Pipette Calibration with Cubis® II Balance, Evaporation Trap and Ingenix Software



Sartorius' Cubis® II balances can be equipped with an evaporation trap and can be used with the built-in **Pipette Check QApp** app to guide the user through the complete pipette verification process, following the recommendations of ISO 8655:2022. For increased traceability, the Advanced Pipette Calibration module in the Ingenix software suite is ISO 8655:2022 and CFR 21 part 11 compliant, provides simplified management and tracking of pipette fleet calibration.

Example for a Nominal Volume $V_n = 300 \mu\text{L}$, According to ISO 8655-2

Figure 2: Example of Impact on MPE Accuracy – ISO 8655:2003 vs ISO 8655:2022



For multichannel pipettes calibration, Sartorius has developed Speedcal Mobile, a **proprietary system** that enables fast and compliant verification and calibration of multichannel pipettes in less than 10 minutes. The Speedcal Mobile can control 4, 8 or 12 channels simultaneously, determining the volumes dispensed by a multichannel pipette in real-world conditions. Easy to transport or set up permanently in your lab, the Speedcal Mobile can connect to **Ingenix Advanced Calibration** software suite for compliance tailored to pipette volume, environmental conditions, and channel count.

Figure 3: *Speedcal Mobile System for Unique and Simultaneous Verification of up to 12 Channels*



To ensure the accuracy and compliance of pipettes in the laboratory, the use of the right quality of water is essential. According to ISO 8655-6, it is imperative to use at least "Grade 3" water, as defined in ISO 3696, as a test liquid when checking pipettes. This is where the Sartorius Arium® Advance EDI becomes an essential ally for metrology laboratories.

The Arium® Advance EDI maximizes laboratory efficiency with its easy-to-use color touchscreen that displays the quality and temperature of the water produced in real time. No matter your water source, the **Arium® Advance EDI** fits perfectly thanks to its innovative bag technology, ensuring type 2 water at all times.

Figure 4: *Arium® Advance EDI – Water Production Adapted to Your Needs*



Sartorius offers a complete solution for pipette calibration and supports laboratories that aspire to outsource or internalize the verification and control of their POVAs.

Visit our webpage [ISO 8655 | Sartorius](#)

Frequently Asked Questions: [Piston-Operated Volumetric Apparatus | Sartorius](#)

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