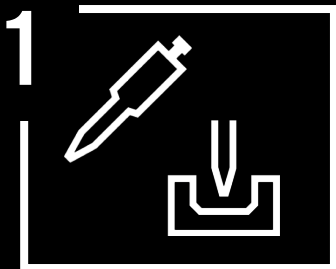


ISO 8655:2022 and the Pipette-Tip System

ISO 8655:2022 contains updated requirements for producing and in-use control of piston-operated volumetric apparatus (POVA), replacing the 1st edition from 2002. ISO 8655:2022 consists of nine parts in total. Here, we describe the main points about **Part 2: Pipettes**

The Pipette and Tip Make One System

ISO 8655:2022 states that a pipette and a tip are considered as one system. Every Pipette-Tip combination must be tested and shown to meet the requirements described in the standard.



Pipette Tips

It is recommended that the tip manufacturer proves that the system (Pipette-Tip combination) meets the requirements and maximum permissible errors of ISO 8655.

- Tips are single use – they shall not be cleaned and reused
- Attach the tip only once – it may be used for several replicates once it has been attached
- Multi-channel pipette tips have maximum tolerance for varying in spacing from their nominal axes – new limit for <100 µL volume pipette tips



Every Pipette-Tip combination must be tested and shown to meet the requirements and maximum permissible errors described in ISO 8655:2022.



Use Sartorius tips with Sartorius pipettes.

Tip manufacturers do not always notify pipette producers about changes to their tips. For the most reliable performance, it is best to use Sartorius tips with Sartorius pipettes.

Tip Manufacturer Must Provide:

1. Manufacturer and model name of the pipette(s) for which the tips are proved to fulfill the requirements
2. Chemical compatibility and sterilization data
3. Nominal volume

Pipette Manufacturer Must Provide:

1. Usable volume range, basis of adjustment (Ex), and maximum permissible error limits
2. List of tips that can be used with the pipette
3. Suggested basis of routine testing
4. Information on care, cleaning, sterilization, and, upon request, chemical compatibility

Maximum permissible errors

ISO 8655 standard specifies accuracy and precision limits as both absolute (µl) and relative (%) values. To work according to the standard, all instruments must meet the minimum performance limits.

Limits (random and systematic errors) are given for **100%, 50%, and 10%** of the nominal volume.

Multi-channel pipettes have their own table - notice the different limits compared to single channel pipettes!

Electronic Pipettes

Electronic motorized air displacement pipettes are considered in ISO 8655:2022 Part 2.

- Recognizes variety of operating modes
- Speed setting should be visible in the calibration certificate
- Method for testing multi-dispensing mode (in addition to pipetting mode)



ISO 8655:2022 recognizes the mode and speed settings of electronic pipettes.

Learn more at www.sartorius.com



Webinar: Future-Proof your Lab Environment with Versatile Pipette Calibration Solutions



Blog: Five Things You Should Know about the New Pipette Calibration ISO 8655:2022



Whitepaper: Gravimetric Calibration and Testing of POVA acc. to Part 6 and 7 of ISO 8655: 2022



Webinar: How Does the Revision of ISO 8655 Affect the Quality Control of My Pipettes?



Infographic: Tips and Standards for Pipette Calibration with ISO8655