

Pipetting performance of Thermo Scientific Finnpipette F2 in combination with Thermo Scientific Finntip Flex

Research Group

Thermo Fisher Scientific Oy, Vantaa, Finland

Introduction

The Finnpipette® F2 product family has been designed by taking into account the demands of today's laboratory work and the requirements of the end users. It offers superior comfort, performance, reliability and repeatability in one of the lightest pipettes available.

Finntip® pipette tips combined with Finnpipette liquid handling devices form a complete, optimized pipetting system. Our newest introduction is the innovative Finntip Flex disposable tip family, the latest breakthrough in pipette tip technology. All Finntip Flex tips are molded with diamond polished tooling to give an extra smooth tip surface and improved tip transparency. The smooth tip wall surface prevents liquid retention providing better pipetting precision than non-polished tips. The increased precision is most beneficial with small-volume pipetting where precision values can be improved remarkably.

In this application note we show the pipetting performance of Finnpipette F2 at small volumes. We compared the pipetting results received with original Finntips and with generic pipette tips.

Materials and Methods

Test pipette: Finnpipette F2 1-10 µl
Test tips: Finntip Flex 10 and for comparison generic 10 µl pipette tips from different tip manufacturers
Test liquid: water

Five pipetting series of ten dispensings each were performed with 1 µl and 10 µl test volumes. Forward pipetting technique was used in accordance with the Thermo Scientific internal SOP. The test conditions corresponded to the demands of EN ISO 8655 standard.

Results and Discussion

The pipetting results of Finnpipette F2 1-10 µl with Finntip Flex 10 are displayed in Figures 1 and 2. The figures show that both with 1 µl and with 10 µl, the dispensed volumes stayed within a narrow range and were easily within the specification limits of the pipette. These results indicate that Finnpipette F2 in combination with Finntip Flex forms an optimized pipetting system.

We also used generic pipette tips with Finnpipette F2. Figure 3 shows the imprecision results at 1 µl volume where the differences were most clear. The Finnpipette together with the Finntip performed better than with any of the generic tips. Even though all tested tips fitted the pipette well, it was not a guarantee for optimal pipetting results. It is important to remember that the pipette specifications are only valid for tips specified by the pipette manufacturer.



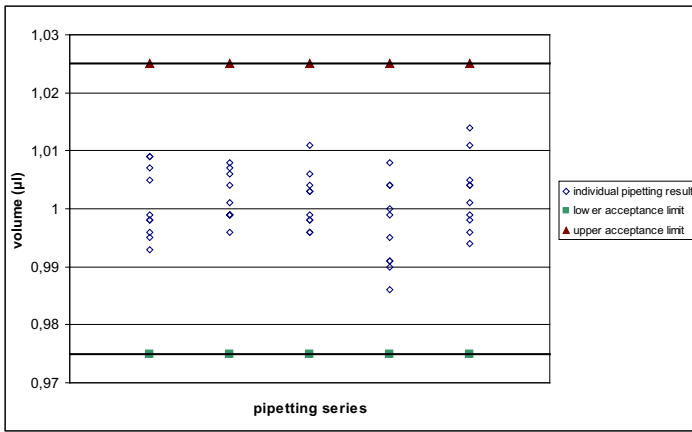


Figure 1. Pipetting results for water at 1 µl volume using Finnpiquette F2 and Finntip Flex 10. The lower and upper acceptance limits are the inaccuracy specifications for the pipette model.

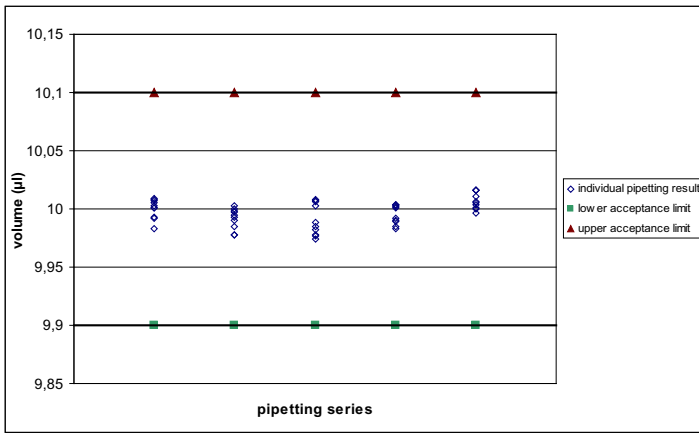


Figure 2. Pipetting results for water at 10 µl volume using Finnpiquette F2 and Finntip Flex 10. The lower and upper acceptance limits are the inaccuracy specifications for the pipette model.

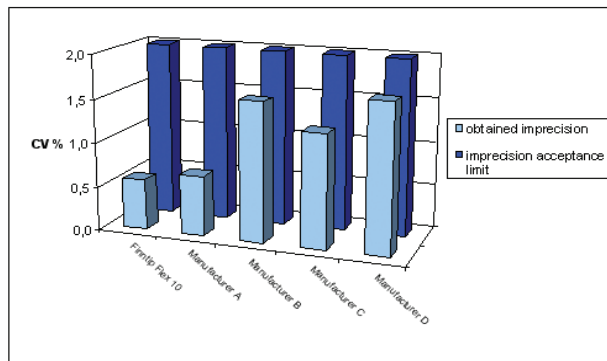


Figure 3. Imprecision results for water at 1 µl volume using Finnpiquette F2 and different tips. The imprecision limit is the acceptance specification for the pipette model.

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Conclusions

In this application note we showed the excellent pipetting performance of the Finnpiquette F2. When using original Finntips, the optimal pipetting performance can be ensured. The imprecision with these tips was better than with any of the tested tips from other manufacturers.

Inaccuracy (systematic error)

Inaccuracy is the difference between the dispensed volume and the selected volume of a pipette.

Imprecision (random error)

Imprecision refers to the repeatability of the pipettings.

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North America:
USA/Canada
 +1 800-522-7763

Europe:
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 +43 1 801 40 0
Belgium
 +32 2 482 30 30
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