

How can autosampler vials cause missed injections in HPLC - FAQ

HPLC instrument manufacturers require specific “Fit and Form” specifications for vials used in their autosamplers.

These specifications include minimum and maximum vial dimensions for height, neck, shoulder and outer dimensional width to prevent jamming the autosampler. If vials are within these specifications jamming problems due to the vials shouldn't occur.

However, most modern autosamplers have an injection sequence program that may “seek the internal bottom” of the vial during startup. This is designed to deliver reproducible injection volumes and to prevent injector damage from the needle hitting the internal bottom of the vial. The instrument program then “learns where the vial bottom” is and/or it “creates” an internal bottom position from the sample startup vial. The needle will then be able to travel the optimal distance for best injection reproducibility.

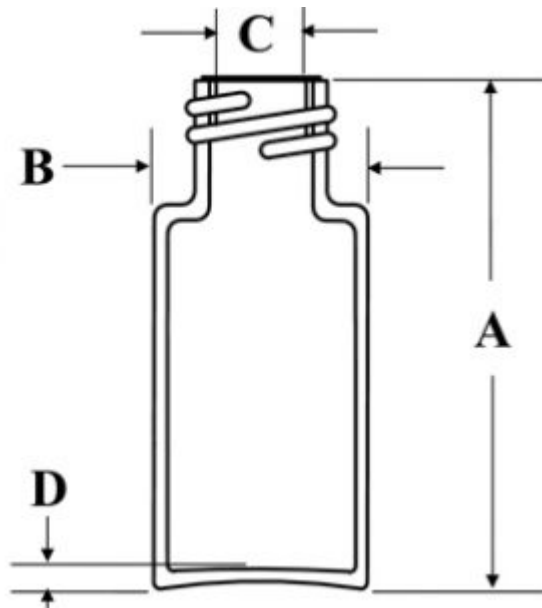
The internal vial bottom height can vary from vial to vial as most vial manufacturers do not manufacture with this standard, focusing only on outer “Fit & Form”. Common low cost autosampler vials will have a variable convex shape on their inner bottom causing it to be out of spec for the injector. If the inside bottom of the vial or insert is not fully consistent from vial to vial, insert to insert the auto injector could sense “an out of spec” bottom and skip the injection or cause an error message. Needles in older injectors may hit the vial or insert bottom which can potentially damage



the needle and injector or cause vial/insert breakage and sample loss.

It is the manufacturing consistency of the “internal bottom height” that is critical. The AQ™ and RSA™ brands of vials and inserts are manufactured to hold all these tolerances and designed and manufactured with and for a market leading HPLC instrument that requires precision internal dimensions.

The RSA™ and AQ™ vials undergo quality control testing for internal dimensions as well as outer dimensional control. These tight consistent vial tolerances will prevent today’s high tech autosamplers from skipping injections due to an out of spec vial and provide you with Consistency Assurance.



Critical Dimensions of Autosampler Vials

- A Height
- B Width
- C Internal Opening
- D Bottom Height, Internal

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