Guide to Different Loading Methods for the ACCQ*Prep* HP125 & HP150

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Overview

The ACCQ*Prep* HP125 and HP150 are HPPLC (High Performance Preparative Liquid Chromatography) systems that offers several different variables regarding loading techniques. These include: choice of sample loop size, AutoInjector Module or manual injection, and the use of an AutoSampler Module.

This technical note is to help summarize the advantages and disadvantages of each method and to give direction to more detailed Application or Technical Notes as necessary.

Sample Loop Size

The AccqPrep comes with a 5mL loop although it can accommodate loops of different sizes.

Loop Size	Part Number
5 mL	299125062

Guidelines for Loop Size

100 µL and 1 mL — Avoid loading more than 50% of the loop size in order to avoid sample loss during the loading process (either Auto or Manual).

Advantages:

- Useful at low flow rates to avoid large sample loop delay.
- Minimized sample dilution.
- Useful for method development on 4.6 mm diameter columns.

Limitations:

- Can't load more than 50% the loop size without sample loss.
- Limited loading capacity.

Above 1 mL — If using an AutoInjector or AutoSampler Module it is possible to load up to 1 mL less than the sample loop size (ie 4 mL for 5 mL loop; 9 mL for 10 mL loop; and 19 mL for 20 mL loop). If injecting manually, avoid loading more than 50% the loop size to avoid sample loss due to variation in operator reproducibility, precision, and accuracy.

Advantages:

- Increased loading capacity.
- Increased amount of sample loop available when using AutoInjector or AutoSampler Module.

Limitations

- Significant sample loop delay at low flow rates.
- Possible band broadening as loop increases.

For loading size optimization you can refer to Application Note #XX *Scouting Pause II: Optimizing Loading Size* for more detailed suggestions.

You can refer to Technical Note 43 *ACCQPrep Sample Loop Maximum Injection Volume* for a more detailed discussion of the injection volume limitations for different loop sizes.

AutoInjector Module

The AutoInjector Module offers a reliable method for automated repeated injections of the same sample. Its consistency from injection to injection not only allows multiple injections without user input, but also a reproducible sequence that gives accuracy down to a 10 µL injection volume. This gives superior results over manual injection techniques where user variability and experience provide inconsistent results.

Advantages:

- Multiple Injections without user feedback.
- Improved peak shape and separation.
- Reproducibility.
- Injection volume down to 10 µL.

Limitations:

- Only one sample at a time.
- Only one injection volume per series of runs.
- Automated wash sequence requires user action.

AutoSampler Module

The AutoSampler module expands upon the advantages and features of the AutoInjector Module. In addition to all the benefits of the AutoInjector, the AutoSampler offers the ability to queue different samples, set up different injection volumes of the same sample, and an automated wash sequence without user action. Additionally, it increases the fraction collection capacity of the ACCQ*Prep* system.

Advantages:

- Multiple different samples.
- Allows different injection volumes or chromatographic methods of the same sample.
- Additional scouting pause feature to optimize conditions.
- Completely automated wash process.
- Additional fraction collection capacity in addition to the benefits of the AutoInjector Module.

You can refer to Technical Note 44 *Minimum Injection Volume on the ACCQPrep* for more detailed information.

Manual Injection

Luer Adapter Port (Valco p/n ZLA-1) — Allows manual injection of sample into the sample loop via syringe.

Limitations:

• Potential loss of sample if port is not flushed after injection.

• Injection volume shouldn't exceed 50% of the loop size using this method no matter the loop due to user variation and experience.

• Inferior reproducibility and technique compared to AutoInjector module.

> ☑ ***Note***
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> Check valve is required on the waste port of the injection valve in order to avoid leakage out of the injection port after injection.

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