



Fast LC Column User Manual

Guidelines for Optimizing Performance with Pursuit™ XRs^{Ultra} 2.8 & Pursuit™ UPS^{2.4} HPLC Columns

Small particles, especially delivered in small column dimensions (shorter lengths, internal diameters < 3 mm) are being increasingly used for high speed separations. To achieve the high efficiency of separations these columns can deliver, the HPLC system has to minimize system dead-volume and other band broadening contributions. All low-volume columns perform best when used with proper attention to the following factors:

- **Connecting Tubing** – Use the shortest possible lengths of connecting tubing with narrow internal diameters (at most 0.010-inch, 0.25 mm I.D.) to connect the column to the injector and the detector cell. Varian delivers the Pursuit™ UPS^{2.4} columns with a pre-fitted capillary to connect the column to your auto sampler. Please use this adapter to connect the column to your optimized HPLC system.
- **Detector** – Detector flow cells must have a small internal volume, preferably less than 2 µL.
- **Detector Response Time** – The detector response time should be set to the fastest setting (~ 0.1 second) to minimize peak broadening.
- **Injector** – The injection system should be a low-volume design (e.g., Rheodyne® Model 8125).
- **Sample Solvent** – For isocratic separations, the sample should be dissolved in the mobile phase or in a solvent that is weaker than the mobile phase. For gradient separations, the sample should be dissolved in the initial mobile phase or in a solvent substantially weaker than the final mobile phase. Samples should be particulate free. To remove particulates the sample may be filtered through a 0.2 µm filter. Please consult the instrument manufacturer for details.
- **Injection Volume** – For isocratic separations, the volume of sample injected should be kept as small as possible (typically 2 µL or less). Sample volumes are less critical for gradient separations, especially if the sample is dissolved in a weak solvent.



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- For ultrahigh pressure/Fast LC systems it is recommend that only the highest grade of solvents filtered through a 0.2 µm filter are used. Please consult the instrument manufacturer for details.
- Maximum Pressure – Pursuit® UPS ^{2.4} up to 400 bar/5800 psi
- Maximum Pressure – Pursuit® XRs ^{Ultra 2.8} up to 1034 bar/15,000 psi

Please visit <http://www.varianinc.com> for ordering information.