

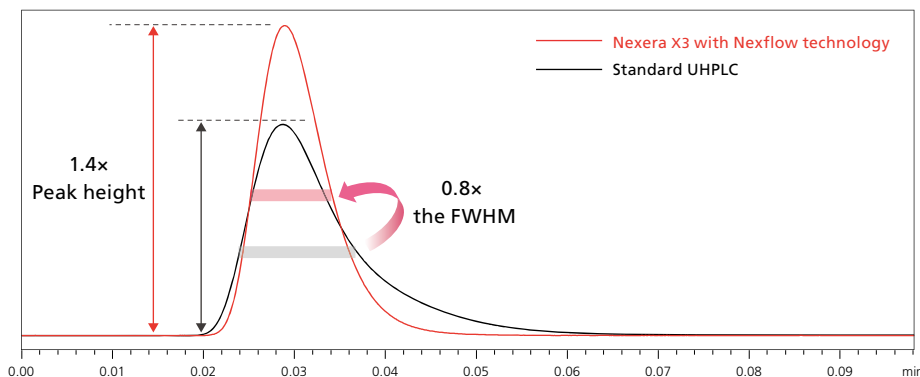
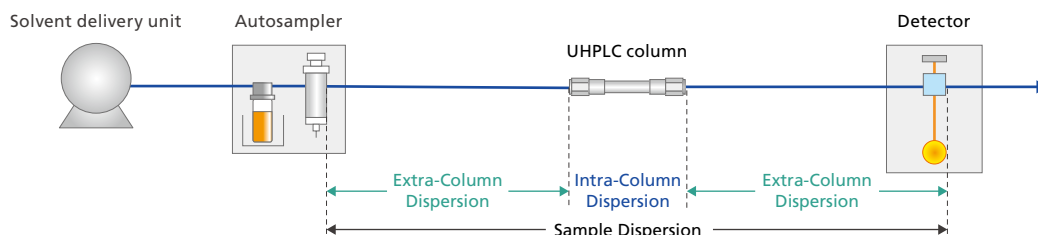
Answering the Demand for UHPLC Analysis with a Higher Degree of Separation and Higher Sensitivity

Nexflow™ Technology Improves UHPLC Analysis Performance

Proprietary Technology Minimizes Extra-Column Dispersion

Columns utilized in ultra high performance liquid chromatography (UHPLC) must suppress intra-column dispersion, provide excellent chromatographic separation, and support high-speed, high-separation analysis. However, the phenomenon of extra-column peak band dispersion often counteracts the enrichment of component peaks obtained with the column. The Shimadzu Nexflow technology* for the Nexera™ system minimizes the phenomenon of extra-column dispersion, without changing the inner diameter or length of the piping in the UHPLC system. By suppressing peak band dispersion, UHPLC analysis with a high degree of separation and high sensitivity is achieved.

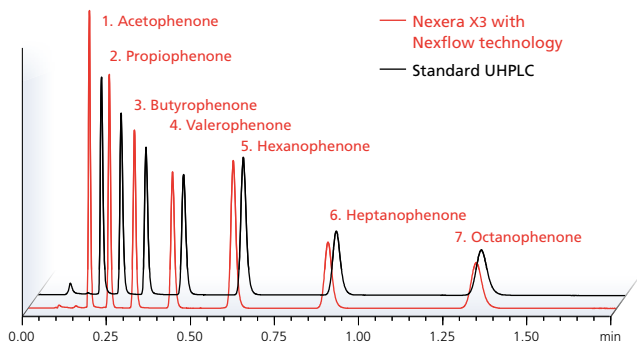
* This is optional for the Shimadzu Nexera system. The effectiveness differs depending on the analysis conditions. For details, check with your Shimadzu representative.



Comparison of Extra-Column Dispersion in Flow Injection Analysis (No Column)

Maximizing Column Performance

Suppressing extra-column dispersion of the sample maximizes the column's inherent performance. The number of theoretical plates can be improved for components only weakly retained in isocratic analysis, in which extra-column dispersion dominates.



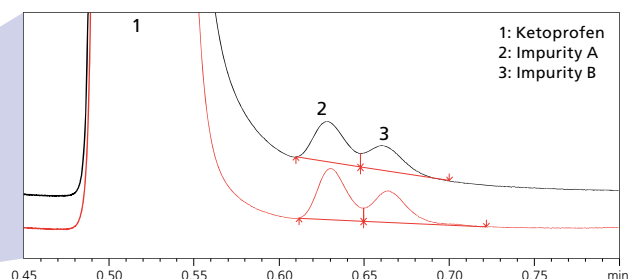
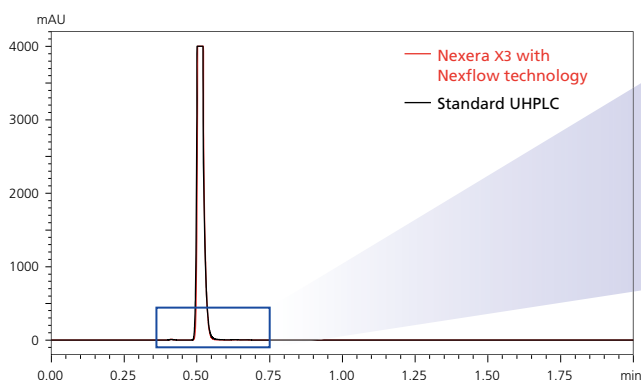
Peak	Ratio of number of theoretical plates (%)
	Nexflow technology/Standard UHPLC
1	177
2	162
3	146
4	131
5	120
6	113
7	109

Column : ODS column (50 mm × 2.0 mm I.D., 2.2 μm)
 Mobile phase : Water/Acetonitrile = 35/65 (v/v)
 Flowrate : 1.0 mL/min
 Column temperature : 40 °C

Detection : 245 nm (PDA detector)
 Sample : Mixed sample of 7 Alkylphenones
 Injection volume : 1 μL

Improves Separation by Suppressing Dispersion

Minimizing extra-column dispersion improves the separation of adjacent peaks, improving the accuracy of qualitative analysis.



	Resolution between Peaks 2 and 3
Nexflow technology	0.929
Standard UHPLC	0.743

Column : ODS column (50 mm × 2.0 mm I.D., 1.6 μm)
 Mobile phase : 0.1 % Aqueous Formic Acid Solution/
 Acetonitrile = 45/55 (v/v)
 Flowrate : 0.5 mL/min
 Column temperature : 40 °C

Detection : 254 nm (PDA detector)
 Sample : Ketoprofen
 Injection volume : 0.5 μL

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