



Thermo Scientific  
Vanquish Flex UHPLC System

Experience More Flexible  
**UHPLC Technology**

**Thermo**  
SCIENTIFIC

# What is the Vanquish Flex UHPLC System?

“Make or break” decisions are part of the daily laboratory business – from finding new drugs that will save lives, to new products that will make our lives better, or ways to protect us from hazardous pollutants that can be found in what we eat and drink.

The Thermo Scientific™ Vanquish™ Flex UHPLC system helps you to make those decisions, based on results you can trust. The Vanquish UHPLC platform is designed to set new benchmarks on accuracy, precision, and sensitivity in liquid chromatography.

With the Vanquish Flex system we have expanded the capabilities of the Vanquish platform by adding state-of-the-art quaternary solvent blending and versatile detection options to truly reveal the full picture of your sample.



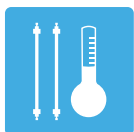
## Drive the separation with more flexibility

- 1000 bar (15,000 psi) of pump pressure and flow rates up to 8 mL/min
- Industry-leading flow and gradient precision
- 4 solvent channels (quaternary solvent mixing)



## Handle the sample with more accuracy

- Up to 23 well plates for 8832 samples
- Excellent injection precision with intelligent sample pre-compression
- Automation of workflows with barcode reading



## Control the separation with more confidence

- Two thermostating modes
- 5 °C to 120 °C temperature range
- Active pre-heating



## Detect the analyte with more versatility

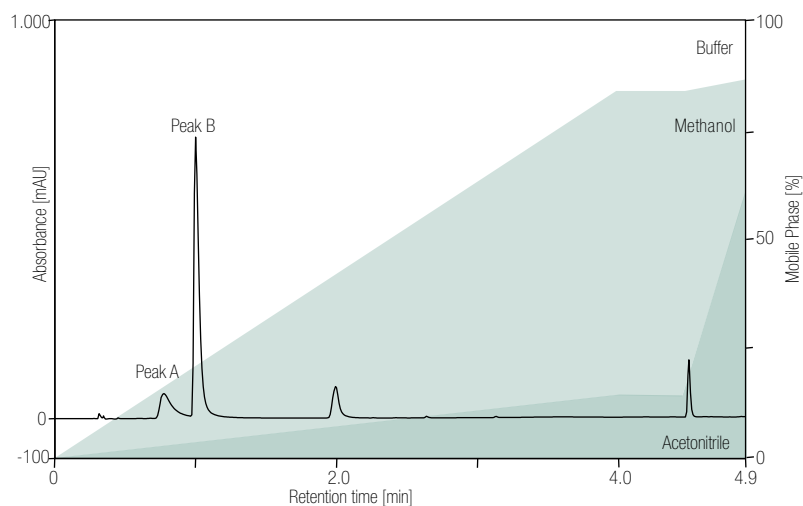
- Highly sensitive and linear Diode Array Detection
- Highly selective and sensitive Fluorescence Detection
- Detect virtually any analyte with Charged Aerosol Detection

# Drive the Separation



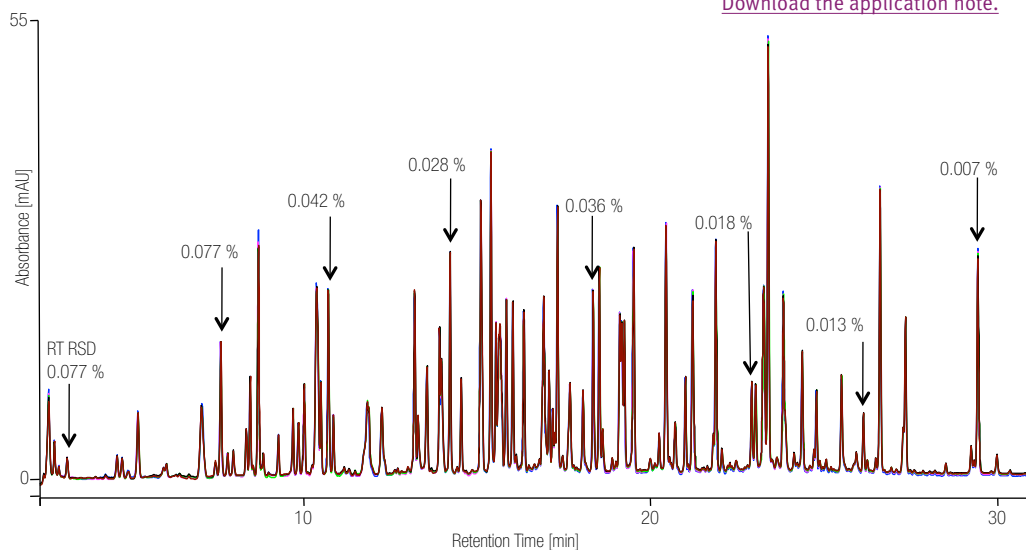
The Vanquish Flex system with quaternary gradient pump enables challenging separations with gradients up to four different solvents. Our SmartFlow™ pumping technology with automatic compensation for changing eluent compressibility ensures excellent flow and gradient precision, independent of eluent composition up to 1000 bar.

- Obtain the highest data confidence from excellent retention time precision
- Rely on maximum flow accuracy by ultraprecise piston drives
- Enjoy maximum application compatibility from the biocompatible fluidics and UHPLC pressures



Complex analysis of drug samples with ternary (buffer, methanol, acetonitrile) gradient allows the critical peak pair separation, marked with A and B.

[Download the application note.](#)



Five replicate injections in peptide mapping of a BSA tryptic digest.

[Download the application note.](#)

# Handle the Sample

The Vanquish system combines maximum injection precision with huge sample capacity and high-throughput capabilities.

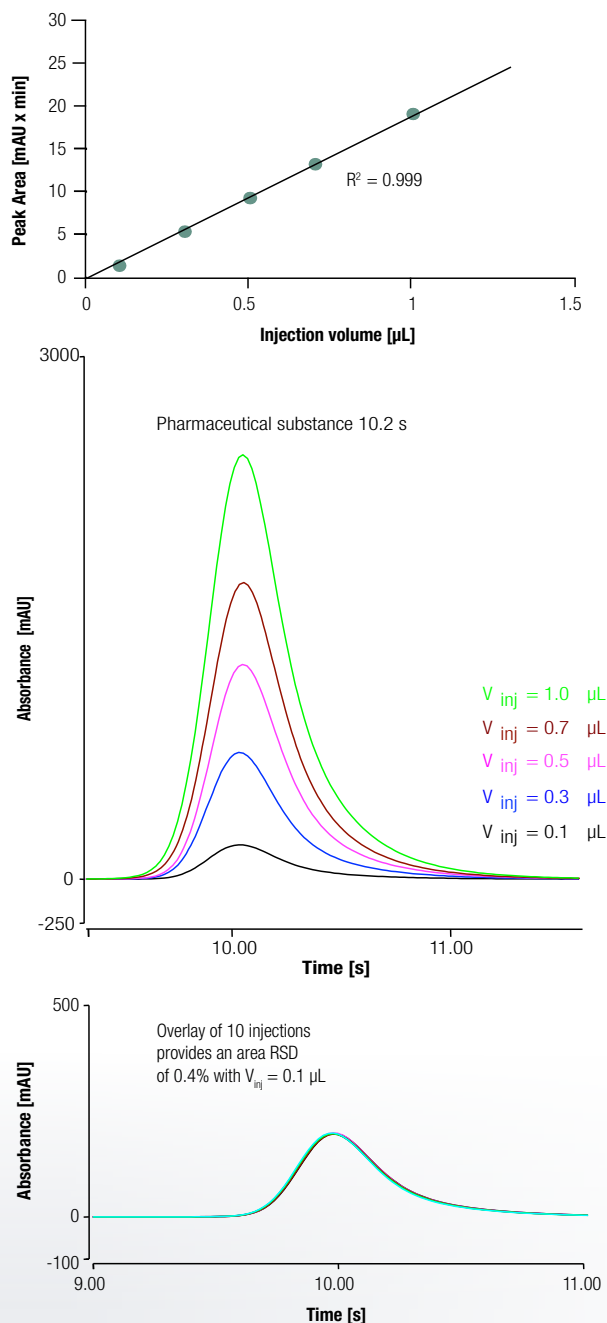
The fully biocompatible fluidics is consequently optimized for the highest ruggedness and uptime even under the toughest system pressure and eluent conditions.

- Rely on your results thanks to unsurpassed sample dosage precision with intelligent pre-compression
- Take advantage of maximum sample integrity by an innovative air stream cooling, even in challenging environments
- Enjoy incredibly easy method transfer and unlimited application flexibility by customizable gradient delay volume
- Forget about tedious sample configuration thanks to the automated barcode reader

## Get more through the Chromeleon CDS driven Charger Module

This module is an intelligent, fully integrated robotic unit for environmentally controlled sample management and automated sample loading into the Vanquish system.

- Change your samples at any time while the barcode reader automatically inventories each plate or rack
- Monitor and manage reliably an inventory of up to 9 sample racks, deep well plates, or 20 shallow well plates (15 mm height) in SBS format



Injection linearity and precision of a pharmaceutical substance.



# Control the Separation



Temperature rules retention, selectivity and efficiency in your chromatography performance. And the Vanquish system is your key to pave the way to maximum efficiency and resolution through an exceptional temperature control.

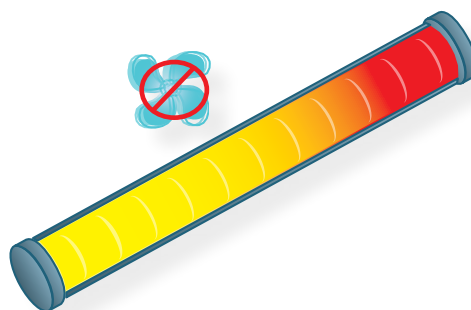
- Perfectly align eluent and column temperature by our unique active pre-heating concept
- Benefit from the unique choice between still air and forced air thermostating capabilities
- Extend your workflow capabilities with up to three independent column chambers and multiple switching valves
- Track your column records with the new column ID system fully integrated with Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System (CDS) software

## Why Temperature Control Matters

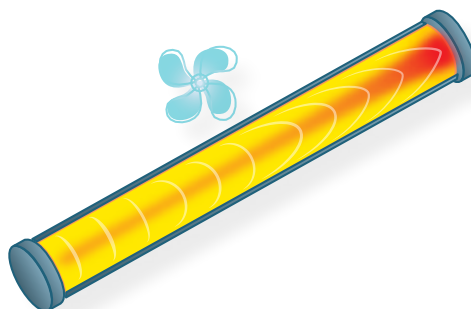
Hosting the LC column means much more than simply “hold and heat”.

Pressure and viscosity lead to frictional heat inside the column. This might interfere with the chromatography if not dissipated adequately.

The Vanquish column compartment is designed to offer two thermostating modes and their hybrid versions to match all application needs.



Ensure best efficiency by keeping the frictional heat within the column — boost your separation speed and resolution by still air thermostating.

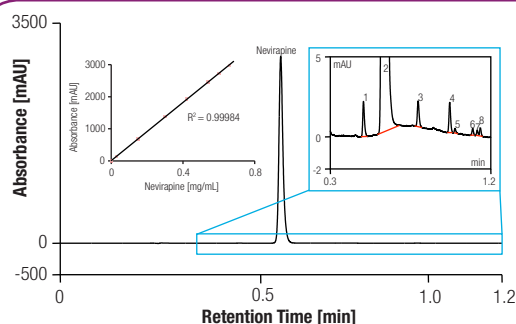


Enjoy seamless method transfer by gaining constant separation temperature through removing frictional heat — use forced air thermostating to even mimic other column thermostats.

# Detect the Analyte

## High-Performance Detection Options

Three integrated detection technologies are available for the Vanquish Flex UHPLC system. All of them are designed for optimum UHPLC support by featuring high data collection rates of up to 200 Hz.



High-speed pharmaceutical impurity analysis combining wide linear range and excellent sensitivity.

## Industry-Leading UV Detection

The LightPipe™ technology of the Diode Array Detector provides you with an unmatched detection experience.

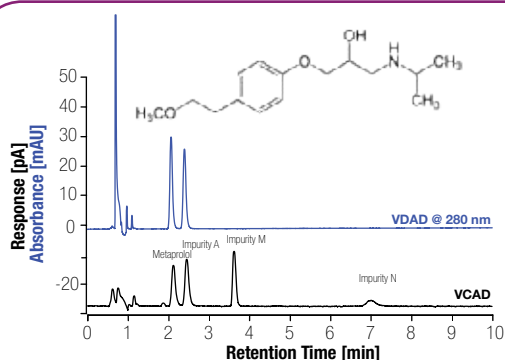
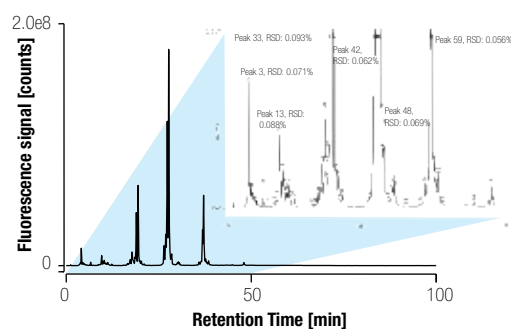
- Wide linear range and excellent S/N to support the most challenging impurity profiling assays
- Full 3D spectrum acquisition at all data collection rates
- LightPipe technology combining long light paths with low peak dispersion

## Powerful Fluorescence Detection

The Vanquish Fluorescence Detector offers you selectivity and sensitivity from multiple measurement features.

- Highly flexible through fast wavelength switching and fluorescence field acquisition
- Dual-PMT available for detection up to 900 nm
- Temperature-controlled, biocompatible flow cells

Glycan separation, overlay of six replicates.



Separation of metoprolol from impurities.

## Unique Charged Aerosol Detection

Provides near universal response for label-free detection of non-chromophoric substances.

- Adjustable evaporation temperature for non- and semi-volatile samples
- FocusJet™ Concentric Nebulizer generates consistent aerosol for improved sensitivity
- The combination with UV detection leaves no peak unseen

# Your Tool of Choice for Method Transfer

The Vanquish Flex system supports method transfer processes by offering hardware features to recreate essential physical parameters rather than emulate them.

- Adjust the Vanquish Flex system fluidics easily to reflect your original extra-column and delay volumes
- Benefit from two versatile thermostating modes for an effective recreation of your original separation
- Control your Vanquish Flex system features with the built-in Operational Simplicity™ of Chromeleon CDS version 7.2 or higher



## Delivering Powerful Separations

The Vanquish UHPLC platform is designed around the column, the core to every LC separation. Our growing family of Accucore Vanquish and Validated for Vanquish UHPLC columns, partnered with the Vanquish UHPLC platform ensure superb chromatographic separations, even for the highest pressure applications.



## The Gold Standard Chromatography Data System Software

The Vanquish Flex system perfectly integrates with our industry-leading Chromeleon CDS. Designed with Operational Simplicity in mind, Chromeleon CDS realizes the Vanquish promise of easier interaction, delivering a new UHPLC experience.



## World-leading Mass Spectrometry

Our UHPLC systems integrate seamlessly with our best-in-class mass spectrometers. Whatever your analytical goal needs—the maximum quantitative performance of the Thermo Scientific Triple Quadrupole MS or the specificity and confidence of high-resolution, accurate-mass (HRAM) detection of Thermo Scientific Orbitrap™-based MS - the Vanquish UHPLC systems will take your LC/MS analyses to the next level.

[www.thermoscientific.com/vanquish](http://www.thermoscientific.com/vanquish)

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