

Thermo Scientific  
Dionex UltiMate 3000  
Standard Systems

# Standard Systems more UHPLC for all

Precise • Robust • Versatile

**UHPLC<sup>+</sup>**  
focused

**Thermo**  
SCIENTIFIC

# The new benchmark in HPLC

## UHPLC solutions for any laboratory

### Optimum HPLC

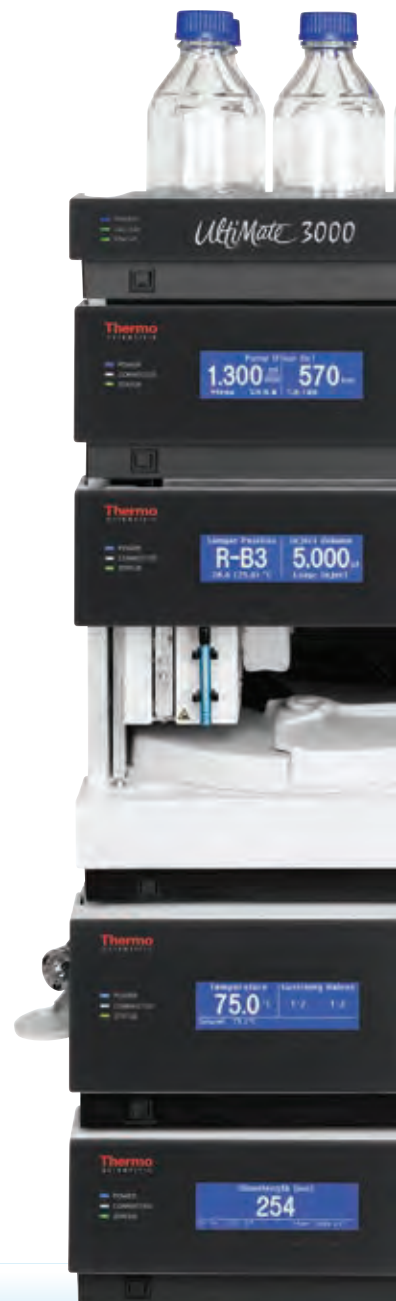
With support for pressures up to 620 bar (9,000 psi) at flow rates of up to 10 mL/min, detector data collection rates up to 100 Hz, and injection cycle times as low as 15 s, the Thermo Scientific Dionex UltiMate 3000 standard systems fully support conventional methods while offering compatibility with UHPLC applications.

### Unsurpassed Versatility

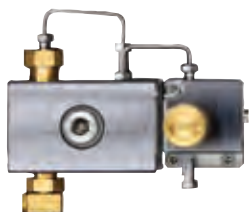
We offer the most complete choice of HPLC instruments in the industry. No matter what your applications are, the UltiMate™ 3000 standard systems can be perfectly configured to meet your demands.

### Unmatched Performance

High-quality components, innovative mechanical, optical and electronic design, and ideally matched instruments assure highest performance. Anytime. Anywhere.



### Reliable Solvent Delivery

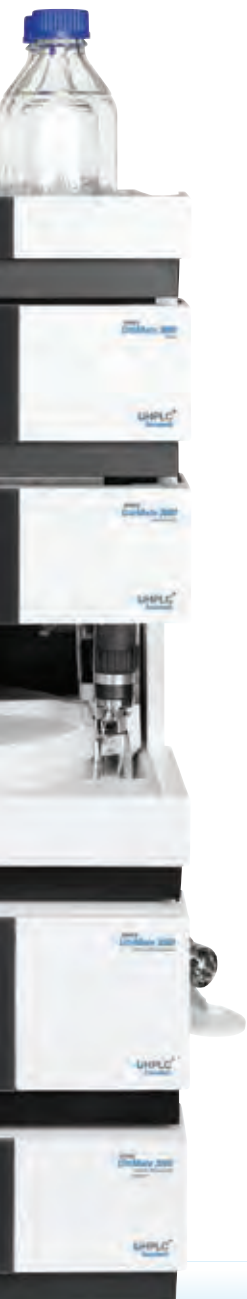


### Advanced Sample Handling



### Optimized





### Superior Reliability

The UltiMate 3000 standard systems with their perfect interplay of industry-leading technology, rigorous quality assurance, and predictive performance monitoring set a new standard of reliability and durability in HPLC.

### Unparalleled Ease of Use

Getting from samples to results is faster and easier than ever before. Rich, intelligent functionality with Operational Simplicity™, and powerful data analysis tools will increase the efficiency of your workflow and boost overall lab productivity.

### More than a System

With a full range of services from highly efficient installation processes and comprehensive training programs, to qualification and validation services, we want to provide you with more than a system.

## One complete solution for LC and UHPLC

#### Fluidics



#### High-Performance Columns



#### Unlimited Detection



#### Intelligent Software



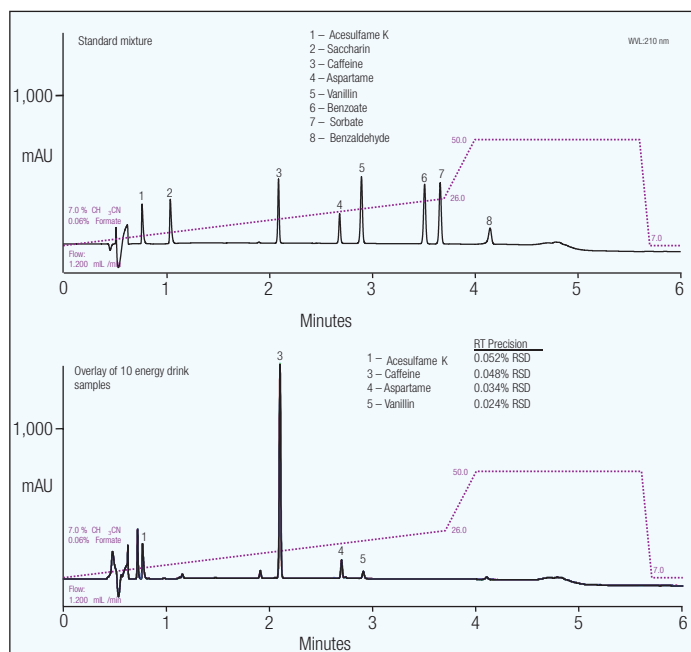
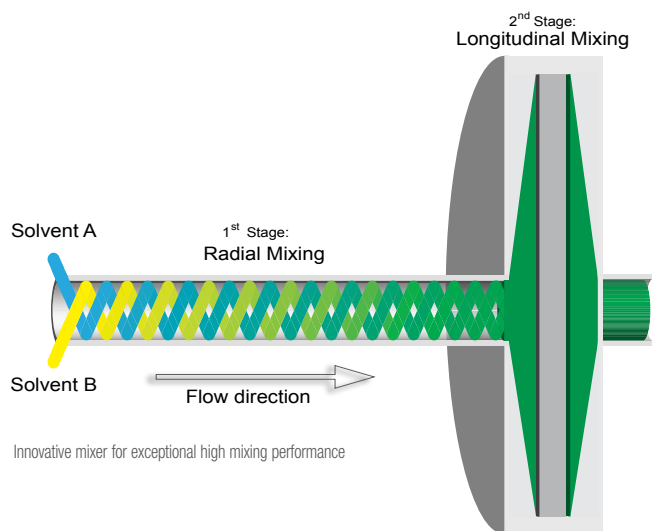
# Unmatched performance

## precise. robust. versatile.

### Reliable Solvent Delivery

The UltiMate 3000 SD pump family offers the most complete choice in the industry and is the right solution for a wide range of applications. All models combine unrivaled flow and gradient performance with outstanding reliability and durability.

- Wide operating flow rate range up to 10 mL/min at pressures of up to 620 bar
- SmartFlow™ ensures optimal performance independent of mobile phase composition
- SpinFlow™ mixing technology perfectly balances gradient delay volume against mobile phase mixing efficiency



Fast analysis of soft drink additives at 515 bar with excellent retention time precision of < 0.001 min SD

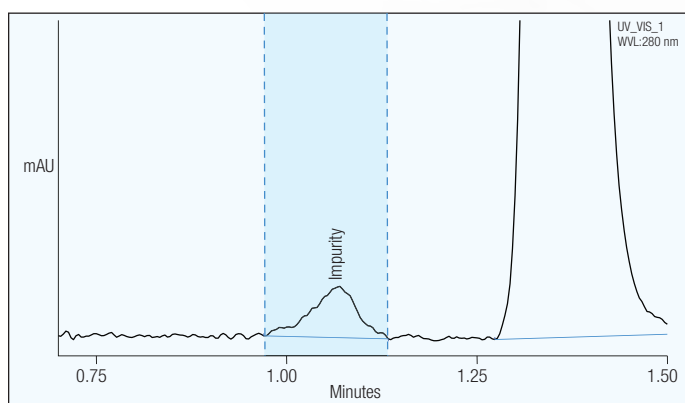
Pump Type	Application Examples
Isocratic	Routine isocratic methods
Binary Gradient	Fast LC, LC-MS
Quaternary Gradient	Routine gradient methods, method development, small scale purifications
Dual-Gradient	Routine and advanced chromatographic methods, productivity solutions, multidimensional methods

Sample Position	Inject Volume
R-A15	5.000 $\mu$ l
Sample 4.0 (4.0) %	Loop-Load

## Advanced Sample Handling

The innovative UltiMate 3000 autosamplers ensure reliable, precise, and accurate injections over a wide range of injection volumes. The patented temperature control protects thermally sensitive samples by eliminating temperature gradients in the sample compartment.

- Reliable, precise, and accurate injections
- Cycle times as low as 15 s
- Flexible formats, 384 well plates to 10 mL vials
- Available also with fractionation and re-injection option



Fractionation of a byproduct during a 1.5 min run

**Every column  
and every  
sample  
fits**

Autosampler Type	Application Examples
Analytical Sampler	Conventional LC methods
Analytical Sampler with Fractionation Option	Offline 2D-LC methods, fractionation and re-injection directly into MS, small scale purifications
Semipreparative Sampler	Semipreparative purifications

The Thermo Scientific Dionex WPS-3000 autosampler series supports an industry-leading range of sample formats



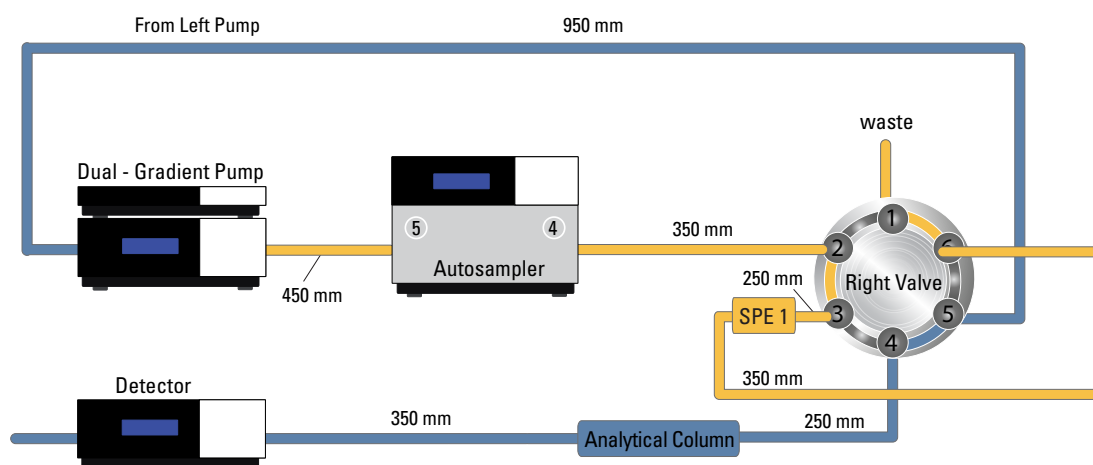


# Operational simplicity unparalleled ease of use

## Precise Thermostating for Any Column

The Thermostatted Column Compartment uses large-area Peltier elements and a fan-based forced-air design to provide efficient cooling and heating. This design ensures fast equilibration upon startup, after opening the front door, and after changing the set temperature.

- Holds up to 12 columns to facilitate automated method development
- Freely configurable switching valves for advanced chromatographic techniques
- UHPLC+ solution kits facilitate advanced workflows such as on-line SPE-UHPLC



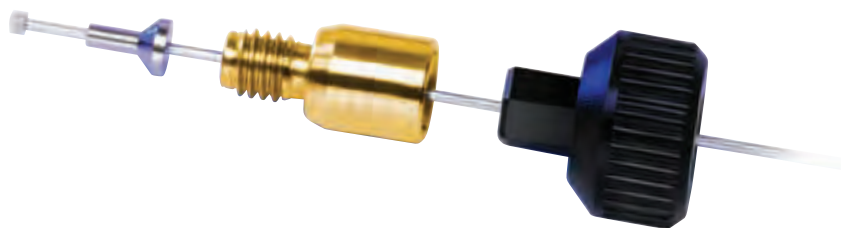
On-line SPE-LC for increased sensitivity, reproducibility, and sample throughput of methods

Advanced Solutions	Benefits
On-line SPE-LC	Increased sensitivity, reproducibility and sample throughput of methods with on-line sample preparation
Inverse Gradient LC	Uniform response with the Thermo Scientific Dionex Corona Charged Aerosol Detector
Parallel Setup	Increased throughput by running two distinctive methods on a system at the same time
Tandem Operation	Increased throughput by automatic alternation between two different methods
Application Switching	Increased throughput by automatic alternation between two different methods
Off-line 2D-LC	Increased resolution with two-dimensional LC

## Revolutionary Fitting System

The Thermo Scientific Dionex Viper fitting system does away with problems experienced with conventional fitting systems. It provides a perfect fit each time and ensures superior chromatographic performance.

- Provides zero-dead-volume fingertight connections
- Works with virtually any valve and any column from any manufacturer

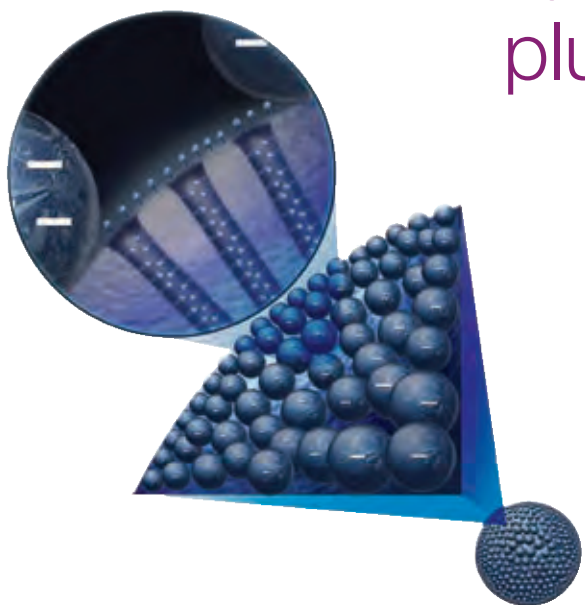


## High Performance Columns

Thermo Scientific columns meet the stringent requirements of modern HPLC and LC/MS methods, providing exceptionally high column efficiencies, symmetrical peaks, and exceptional ruggedness. A range of columns from general purpose to unique specialty columns are available, based on:

- Fully porous and solid core ultra-pure silica substrates
- Innovative bonding for a wide range of column selectivity
- Quality manufacturing and stringent QC to ensure consistent performance

# Turnkey solutions—including plumbing and software

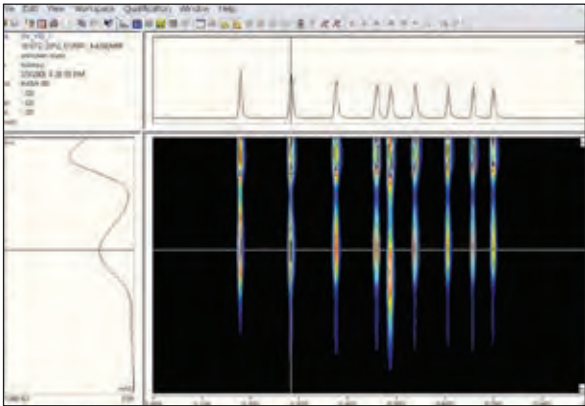


# Unique detection

## more data-rich results

### Wide Detection Versatility

The UltiMate 3000 detector family covers a wide detection principle range. This makes it convenient to choose the optimum detection type for your application requirements in terms of sensitivity, specificity, and precision.



### Flexible UV-Vis Absorbance Detection

Three different detector types with a wide range of flow cells provide full flexibility in UV-vis detection at a data collection rate of up to 100 Hz. The Diode Array Detector is the best choice for maximum application flexibility combined with full wavelength spectra acquisition. The Variable Wavelength Detector offers the best noise, drift, and linearity performance.



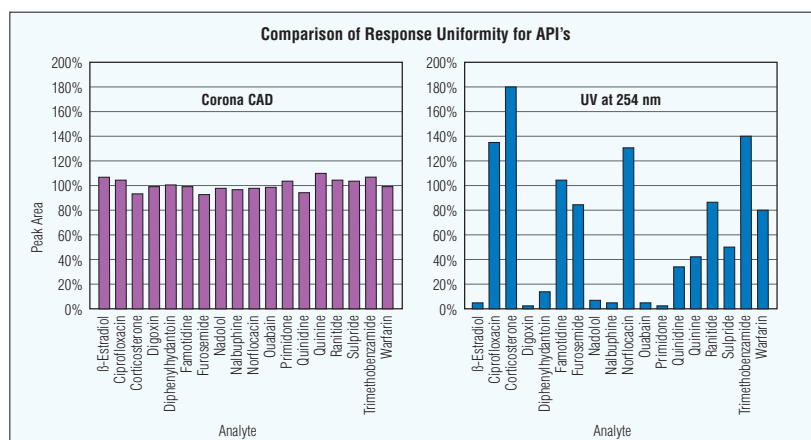
Detection Type	Application Examples
UV-Vis Absorbance (DAD, MWD, VWD)	Standard detection for UV-vis absorbing analytes
Fluorescence (FLD)	Highly sensitive and selective detection of fluorescent analytes
Refractive Index (RI)	Detection of weak UV-vis absorbing analytes in isocratic elution
Charged Aerosol (CAD)	Universal detection for all non-volatile and semi-volatile analytes
Electrochemical (ECD)	Oxidizable or reducible analytes
Single-Quad Mass (MS)	Ionizable analytes



## Charged Aerosol Detection – A Near Universal Detection Technology

Charged aerosol detection is a unique detection technology for nonvolatile or semivolatile analytes providing consistent response independent of chemical structure. The Thermo Scientific Dionex Corona Charged Aerosol Detector creates new opportunities for method development, QA/QC, and bioanalytical chemistry.

- Wide dynamic range
- Suitable for isocratic and gradient applications
- Inverse gradient solution for uniform response and universal calibration



Response directly proportional to the amount of analyte independent from optical properties

## Sensitive Fluorescence Detection

The Thermo Scientific Dionex UltiMate FLD-3000 Fluorescence Detector series sets a new industry standard in terms of innovative technology, detection performance, and application versatility. A unique Dual-PMT option ensures maximum sensitivity across the entire detection range.



## Enhanced Electrochemical Detection

The Thermo Scientific Dionex Coulochem III is an electrochemical detector with unrivaled sensitivity in amperometric or coulometric detection. It features advanced techniques such as pulsed amperometric detection and cyclic voltammetry.



# Streamlined all chromatography workflows delivering results instantly



## Intelligent Chromatography Software

Thermo Scientific Dionex Chromeleon 7 is the next-generation chromatography data system from Thermo Fisher Scientific. Using Operational Simplicity™ as its guiding design principle, Chromeleon™ 7 takes you from samples to results in the shortest time possible.

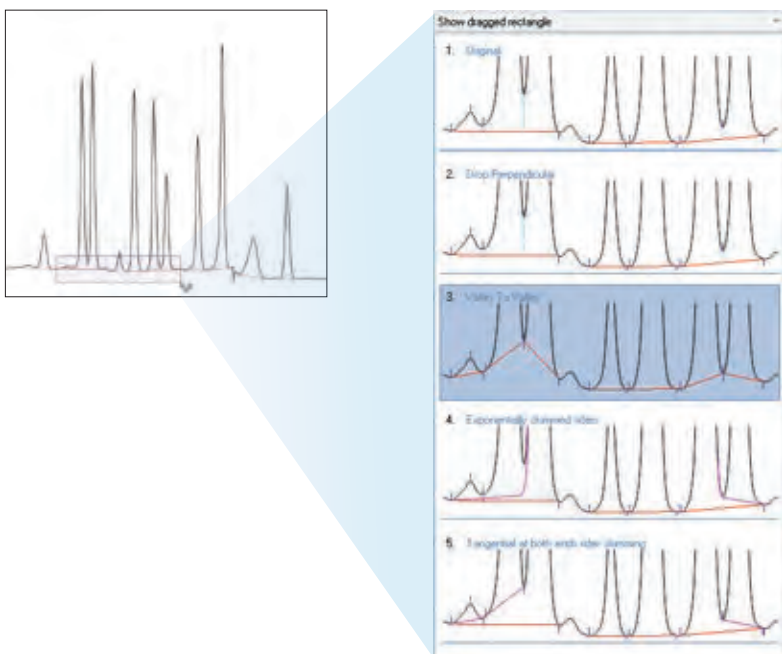
Innovative **eWorkflows** enable anyone to start chromatographic analyses and generate results with just a few selections. eWorkflows automatically create sequences containing the correct instrument conditions, data processing parameters, and reporting templates. Samples are run automatically, processed immediately, and reported instantly.



# From sample to results in less clicks

Chromeleon's automatic integration updates and dynamic data processing reduce the analyst's effort and display the results immediately.

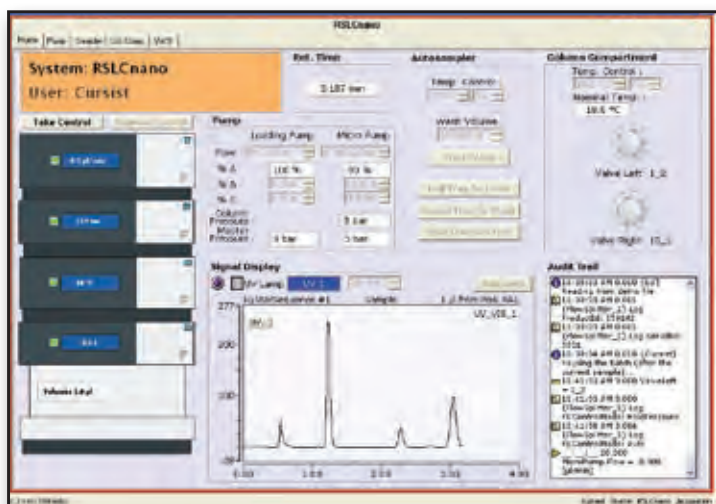
The unique and innovative integration tools, **Cobra™** peak detection wizard and **SmartPeaks™** integration assistant, enhance the user experience and make detection and integration easy and straightforward.



## Software for Mass Spectrometry

DCMSlink is a free, control-only software package, providing fully integrated single-point control of any of our LC systems through Thermo Scientific Xcalibur software, and mass spectrometry control software from other leading manufacturers.

Learning new software is held to a minimum with the MS software as the single user interface. Using DCMSlink to connect your instrument to various MS software packages, the full benefits of the UltiMate 3000 single and dual pump systems are ready to support your MS applications.



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

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**Australia** +61 3 9757 4486  
**Austria** +43 1 616 51 25  
**Benelux** +31 20 683 9768  
+32 3 353 42 94  
**Brazil** +55 11 3731 5140

**China** +852 2428 3282  
**Denmark** +45 36 36 90 90  
**France** +33 1 39 30 01 10  
**Germany** +49 6126 991 0  
**India** +91 22 2764 2735

**Ireland** +353 1 644 0064  
**Italy** +39 02 51 62 1267  
**Japan** +81 6 6885 1213  
**Korea** +82 2 3420 8600  
**Singapore** +65 6289 1190



*Thermo Scientific Dionex products are designed, developed, and manufactured under an ISO 9001 Quality System.*

**Sweden** +46 8 473 3380  
**Switzerland** +41 62 205 9966  
**Taiwan** +886 2 8751 6655  
**UK** +44 1276 691722  
**USA and Canada** +847 295 7500

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