

# Biotage Flash Purification Systems

Pure Compounds in a Flash



# Flash Purification Systems

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## Pioneers of Flash Purification

Biotage, pioneers of flash purification, have a proven record of innovation that began twenty years ago with the development of the first packed flash columns and first microprocessor controlled purification systems.

The pioneering works of Biotage continues to this day with the introduction of the Isolera™ Dalton, the world's first truly automated mass-directed flash purification system, and Biotage® SNAP Ultra flash columns, capable of unparalleled sample loading options and outstanding performance compared to standard flash columns.



## Your partner for purification

This brochure presents the extensive range of instrumentation for flash purification from Biotage. To complement these products Biotage also offers a complete range of flash consumables, including columns in a variety of sizes packed with irregular and spherical silica, making Biotage your one-stop partner for your flash purification needs. The extensive range of flash columns includes:

- » Spherical silica – Snap Ultra and Biotage® ZIP Sphere columns containing high surface area spherical particles for increased loading, reduced solvent use and highest performance on the market
- » Irregular silica – Biotage® SNAP and ZIP columns for routine purifications and robust, reliable performance.
- » SNAP – Seven flexible loading options for the most versatile sample introduction capabilities on the market.
- » ZIP – Simple column design for easy, no fuss purification.



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# Biotage Flash Purification Systems Overview

Spend Your Time Creating Compounds, Not Purifying Them

System	Description	Key Features	System	Description	Key Features
<b>Isolera™ Dalton</b> 	Top of the range chromatography system with mass-directed purification and the most powerful market leading software	<ul style="list-style-type: none"> <li>» Integrates mass identification with flash purification</li> </ul>	<b>Isolera™ Prime</b> 	Entry level chromatography system	<ul style="list-style-type: none"> <li>» Robust fully automated system with basic features</li> </ul>
<b>Isolera™ Spektra</b> 	Advanced software upgrade for Isolera™ One, Four and LS.	<ul style="list-style-type: none"> <li>» TLC-to-Step gradient calculator</li> <li>» Photodiode array detects simultaneously at all wavelengths</li> <li>» Baseline correction</li> <li>» 3D chromatogram</li> </ul>	<b>Isolera™ ELSD-1080</b> 	Evaporative light scattering detector	<ul style="list-style-type: none"> <li>» Highly sensitive</li> <li>» Useful for compounds not visible in UV</li> <li>» Detects compounds that don't fly by mass spectrometry methods</li> </ul>
<b>Isolera™ Spektra One</b> 	Fully automated chromatography system	<ul style="list-style-type: none"> <li>» Variable/two wavelength UV detection</li> <li>» Ideal for one or two users</li> <li>» Purifies milligrams to 75 grams</li> </ul>	<b>Biotage® Flash 75 and Flash 150</b> 	The original semi-automated system for large scale flash purification	
<b>Isolera™ Spektra Four</b> 	Four-cartridge chromatography system	<ul style="list-style-type: none"> <li>» Multi-user capacity with four cartridges in a sequence</li> <li>» Two wavelength/variable UV detection</li> <li>» Purifies milligrams to 75 grams</li> </ul>	<b>Biotage® Flash 400</b> 	Process scale flash purification for kilogram quantities of materials.	<ul style="list-style-type: none"> <li>» Approved for use in cGMP</li> <li>» explosion proof</li> <li>» ATAC compliance</li> <li>» Normal and reversed phase or custom packing available</li> </ul>
<b>Isolera™ Spektra LS</b> 	Fully automated chromatography system for automated purification of up to 500 grams	<ul style="list-style-type: none"> <li>» Built in sample load pump</li> <li>» Purifies up to 500 g</li> </ul>			





Isolera™ Spektra inside!  
See page 8.

## Flash Chromatography by Biotage

### Speed, Purity and Resolution

Isolera™ Spektra flash chromatography instruments are simply the most technologically advanced flash purification systems available. They demonstrably separate more pure compounds in less time from synthesis reaction mixtures, natural product extracts and other mixes of organic compounds.

#### The Biotage Approach to Flash Chromatography

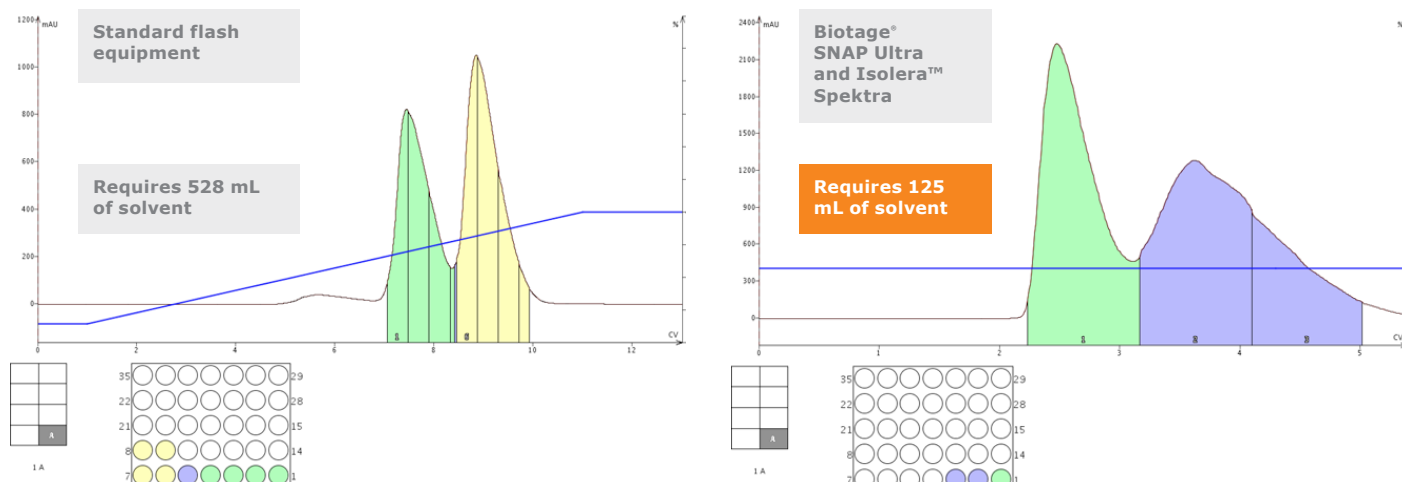
Our customers routinely perform the most challenging chromatographic separations typically reserved for the most expensive high pressure systems. Time for separation can be reduced by at least 50%.

#### How it's Done

- » 2 x increase in loading capacity
- » 2 x increase in flow rate
- » Chromatography focused on compound of interest

Isolera™ Flash Chromatography Systems recommend appropriate cartridge size based on the sample. Solvent use is minimized with optimized gradients, and advanced compound detection makes sure that your purified compound is delivered at the end of the run.

Biotage Flash Cartridges are the highest loading, lowest back pressure cartridges available. Our silica and packing techniques minimize fines (small pieces of silica) in the cartridges. When fines are removed, solvent flows freely through the media, exerting less back pressure allowing higher flow rates. Our proprietary HP-Sphere silica has 50% higher loading capacity than standard silicas.



**Figure 1.** Methyl and butyl paraben were separated using standard equipment (left) target fractions, using 528 mL solvent – and with Biotage® SNAP Ultra with Isolera® Spektra (right), using only 125 mL solvent.

## Superior Results with Biotage Flash Cartridges

'Forget the 1% rule.' Chemists all start with the rule of thumb, "I need 100 grams of silica to purify 1 gram of material". But with Isolera and a single TLC plate result you can save time and solvent because, the right sized cartridge is recommended.

## Method Editing

Isolera methods are created based on your needs. When you have 100 mg or less sample and don't want to run a TLC, you simply open a default method and press run. If you have more than

100 mg, separations can take more than 30 minutes and consume a liter or two of solvent. In that case you can prepare a single TLC and use our TLC to gradient capability to compute the ideal cartridge size and gradient slope. For larger quantities, to cut further purification time, and use the minimum amount of solvent, Isolera Spektra systems uses the data from two TLC plates.

Methods can easily be edited either on the touch screen or remotely from the comfort of your office. Edit the gradient (click & drag points and segments), flow rate, collection volume, fraction wavelengths and modes, and add more collection racks if you need to – all while the run is in progress.

## Advanced Solvent Management Options

Ever had to add a modifier to your solvents to improve solubility or alter pH to improve separations? Isolera One and Four systems allow the isocratic introduction of a third solvent, effectively blending the modifier into the mobile phase at a constant rate throughout the chromatographic separation. Say for example you need to add 5% of a base to improve your separation. With Isolera, you simply enter the solvent blend and drop a pick up tube into your base solvent. Later if you find that a 3% blend is better, just enter a new value, it's that easy.

You can also use up to four solvents in a single gradient to easily purify samples with diverse polarity. With this quaternary gradient capability, traditional binary gradients with limited polarity can be adjusted quickly to additionally elute very lipophilic and highly polar compounds within a single purification.



**Figure 2.** The Isolera™ is fully compatible with Biotage® SNAP, Biotage® SNAP Ultra, ZIP® and Biotage ZIP® Sphere cartridges.

## Isolera™ Spektra One



<b>System</b>	<b>Isolera Spektra One</b>
<b>Solvent Delivery</b>	Two constant volume (3 mL) electric HPFC pumps
<b>Flow Rate</b>	1–200 mL/min
<b>Pressure Limit</b>	145 psi (10 bar)
<b>Sample Interval</b>	Milligrams–75 grams
<b>UV Detection</b>	Choice of variable wavelength (200–400 nm), fixed (254 nm), or UV-VIS (200–800 nm) detectors
<b>Flow Cell Path Length</b>	0.3 mm
<b>UV Collection Modes</b>	Single/dual/ $\lambda$ -All wavelengths (variable UV and UV-VIS)
<b>Fractionation Modes</b>	Volume, threshold, threshold with volume, low slope, medium slope, custom slope or via external detection
<b>Collection Vessels</b>	Test tubes (13 mm, 16 mm, 18 mm, and 25 mm) and bottles (120 mL, 240 mL, and 480 mL)
<b>Power</b>	100–240 VAC, 50/60 Hz, 4.0 A
<b>System Control &amp; Data Management</b>	On-board computer with 10.4" capacitive touch screen interface
<b>Dimensions (W x H x D)</b>	355 mm (14") x 596 mm (23.5") x 497 mm (19.6"). Add 178 mm (7") with EXP
<b>Weight</b>	30–35 kg (66–77 lbs)
<b>Certifications</b>	CE, cTÜVus

## Isolera™ Spektra Four



<b>Isolera Spektra Four</b>
Two constant volume (3 mL) electric HPFC pumps
1–200 mL/min
145 psi (10 bar)
Milligrams–75 grams
Choice of variable wavelength (200–400 nm), fixed (254 nm), or UV-VIS (200–800 nm) detectors
0.3 mm
Single/dual/ $\lambda$ -All wavelengths (variable UV and UV-VIS)
Volume, threshold, threshold with volume, low slope, medium slope, custom slope or via external detection
Test tubes (13 mm, 16 mm, 18 mm, and 25 mm) and bottles (120 mL, 240 mL, and 480 mL)
100–240 VAC, 50/60 Hz, 4.0 A
On-board computer with 10.4" capacitive touch screen interface
355 mm (14") x 596 mm (23.5") x 497 mm (19.6"). Add 178 mm (7") with EXP
30–35 kg (66–77 lbs)
CE, cTÜVus

## Isolera™ Spektra LS



### Isolera Spektra LS

HPFC pumps

50–500 mL/min

145 psi (10 bar)

–

Choice of variable wavelength (200–400 nm) or UV-VIS (200–800 nm) detector

0.3 mm

One, two or all wavelengths

Volume, threshold, threshold with volume, low slope, medium slope, custom slope or connect external detector

Test tubes (17.5 mm, 18 mm and 25 mm) and bottles (120 mL, 240 mL, and 480 mL)

100–240 VAC, 50/60 Hz, 4.0 A

On-board computer with 10.4" diagonal touch screen interface

577 mm (22.7") x 596 mm (23.5") x 497 mm (19.6")

30–35 kg (66–77 lbs)

CE, cTÜVus

## Isolera™ Prime



### Isolera Prime

Constant volume electric HPFC pump

5–100 mL/min

145 psi (10 bar)

–

Choice of variable dual-wavelength (200–400 nm) or fixed (254 nm) detector

0.3 mm

Single wavelength, Dual wavelength (variable UV)

Volume, threshold, threshold with volume, low slope, medium slope, custom slope

Test tubes (13, 16, 18 and 25 mm) Bottles (120, 240 and 480 mL)

100–240 VAC, 50/60 Hz, 4.0 A

On-board computer with 10.4" diagonal touch screen interface

355 mm x 596 mm x 497 mm (14 in. x 23.5 in. x 9.6 in.)

30 kg (66 lbs.)

CE, cTÜVus