

Flash Purification Systems



Instruments

Biotage® Isolera™ Spektra One
Biotage Isolera Spektra Four
Biotage Isolera Spektra LS
Biotage Isolera Prime™
Biotage® FlashMaster Personal
Biotage FlashMaster Personal Plus
Flash 75
Flash 150
Flash 400

Accessories

ELSD-1080
Dry Loading Vessels
Racks
Adapters
and more ...

Powerful, robust, automated flash purification systems

Spend your time creating compounds, not purifying them

From synthetic route to final compound, Biotage delivers innovative solutions to streamline your entire process, enabling you to reach your purification goals faster and easier.

Purification Systems

Today's medicinal chemists are under tremendous pressure to create increasing numbers of new compounds that could potentially be tomorrow's new blockbuster drug. The chemist's knowledge and creativity, combined with experimentation, are key components to finding a successful drug candidate. Biotage automated flash systems offer more intelligent software features that automatically create sample-specific gradients, recommend appropriate cartridge sizes and indicate the fraction location for the compound of interest.

These intuitive systems even track solvent usage and alert users to replenish if volumes are too low to complete a run. All steps are reliably automated leaving chemists free to design and synthesize the next novel compound.

Accessories & Consumables

Accessories and consumables from Biotage include a variety of fraction collection racks, cartridges, cartridge holders, dry load products, method development tools and more.

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Biotage® Isolera™ Family

The Next Generation in Flash Purification

The Biotage Isolera is a family of flash purification systems with intelligent features that enable chemists to easily achieve better separations at scales from milligrams to over 150 g. The new Isolera Spektra enable chemists to purify more compounds in less time and reduce post-process purity analysis. Isolera Spektra doubles chemists' productivity while slashing purification costs 20% or more.

Biotage Isolera Spektra One

- Patented, time-saving TLC-to-gradient included
- Single channel system ideal for 1 to 2 chemists
- Flow rates of 1 to 200 mL/min provides use of 5 to 750 g cartridges
- 10 bar (145 psi) pressure for normal and reversed-phase
- Purify milligrams to 75 g
- Gradient Optimization "GO" reduces solvent use up to 60%
- 4 solvents in a gradient to separate and elute complex samples



Biotage Isolera Spektra Four

The power of Isolera Spektra One with added sequential purification:

- Purifies up to four samples sequentially to boost productivity
- Perfect system for multiple users



Biotage Isolera Spektra LS

- Single sample purification from milligrams to 150 g
- Built-in sample load pump improves large column sample load safety
- Available 500 g dry load vessel improves purification performance
- Available funnel rack increases fraction capacity to 320 L
- Simple scale up from other Isolera systems
- Small footprint that saves bench space



Biotage Isolera Prime™

- Patented TLC-to-Gradient
- Solvent-saving gradient optimization
- Small footprint that saves bench space
- 10 bar (145 psi) pressures for normal and reversed-phase operation
- Choice of fixed or variable UV detectors
- Large, 4.8-L fraction capacity
- 10.4" touch screen





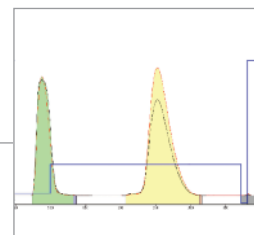
Convenient solvent bottle rack utilizes up to four 4 L bottles



Large, easy-to-read and use touch screen



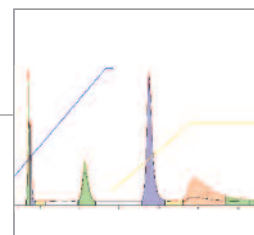
A wide range of removable racks accommodates any laboratory need



The built-in UV detector provides targeted fraction collection



Use the TLC-to-gradient feature for optimal purification



Quaternary gradient capability resolves complex sample mixtures

Biotage® Isolera™ Spektra One and Four

Advanced, intelligent features enable better, faster purification

The Biotage Isolera flash purification family is designed to help purify synthesis reaction mixtures, natural product extracts, and other mixes of organic compounds requiring separation and purification. Two systems are available in several configurations providing purification of milligrams to >150 g.

Achieve up to 30% solvent savings with Gradient Optimization "GO"

Step-gradients can be short and powerful providing separations for one or more compounds but can be challenging to develop and optimize. Isolera Spektra provides gradient optimization through new, patent-pending TLC-to-Step Gradient technology. Using solvent and TLC Rf values, Isolera Spektra builds a gradient to separate all the compounds (up to 6) in the sample. This new technology will also provide cartridge selection guidance based on the cartridge loading capacity and purification speed. The step gradient can also be used to isolate a targeted compound reducing run time and solvent use further.

Improve fraction and compound purity with dual-wavelength fractionation

New PDA scanning and λ -All technology detects any UV absorbing compound eluting from a flash cartridge while measuring and displaying each eluting compound's individual UV spectrum. Combined with novel baseline rise correction, yield losses to improper wavelength selection and large fraction volumes are no longer a concern. The PDA spectra can be reviewed and used to determine fraction purity eliminating the need for post-flash purity analysis.

Key Features

- TLC-to-Step gradient
- Gradient Optimization
- Real-time PDA scanning
- 2D and 3D spectral analysis
- Optimized for Biotage® SNAP Ultra cartridges
- λ-All detection
- Baseline correction
- Run counter

Other Advantages

- Flow rates of 1–200 mL/min
- Method evaluation and scale-up on one system
- Fraction capacity up to 9.6 L
- Use up to four solvents in a gradient
- Additive co-solvent capability maintains compound solubility during purification
- Biotage® Isolera™ Spektra Four allows sequential purification of multiple samples

Specifications

Solvent delivery	Two constant volume (3 mL) electric HPFC pumps
Flow rate	1–200 mL/min
Pressure limit	145 psi (10 bar)
UV Detection	Choice of variable wavelength (200–400 nm), fixed (254 nm), or UV-VIS (200–800 nm) detectors
Flow cell path length	0.3 mm
UV collection modes	Single/dual/λ-All wavelengths (variable UV and UV-VIS)
Fractionation modes	Volume, threshold, threshold with volume, low slope, medium slope, custom slope
Collection vessels	Test tubes (13 mm, 16 mm, 18 mm, and 25 mm) and bottles (120 mL, 240 mL, and 480 mL)
Power	100–240 VAC, 50/60 Hz, 4.0 A
System Control & Data Management	On-board computer with 10.4" touch screen interface
Dimensions (W x H x D)	355 mm (14") x 596 mm (23.5") x 497 mm (19.6") add 178 mm (7") with EXP
Weight	30–35 kg (66–77 lb)
Certifications	CE, cTÜVus

Elute complex samples with the Quatro-binary gradient

Use up to four solvents in a single gradient to easily purify samples with diverse polarity. With Quatro-binary gradient capability traditional binary gradients with a limited polarity range can be adjusted to elute very lipophilic and highly polar compounds within a single purification.

Or compound solubility during the separation by adding a constant amount of a co-solvent, acid, or base with the Isolera's advanced pump.

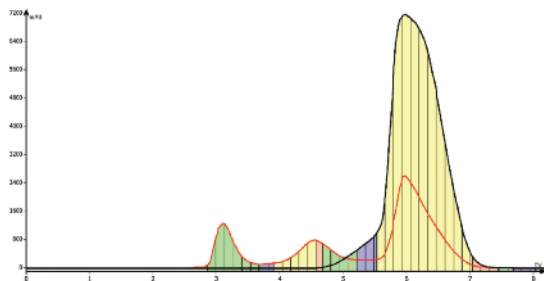


Figure 2. Fractionation using two wavelengths ensures collection of UV absorbing compounds at both wavelengths without sacrificing valuable fraction collection capacity in a “collect all” mode.

Maintain compound solubility with a ternary co-solvent

Isocratically pump a third solvent into any binary gradient to help maintain compound solubility eliminating potential over-pressure issues caused by precipitating compounds.

Enhance productivity with on-the-fly editing

Biotage Isolera methods can easily be edited either in front of the Isolera or 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. Gradient changes can now be made with a simplified graphical interface or through a table layout.

Achieve superior purification with Biotage flash cartridges

The Biotage Isolera Spektra One and Isolera Spektra Four systems can use various styles including Biotage SNAP and Biotage SNAP Ultra with silica masses from 5 to 750 g.



Biotage[®] Isolera[™] Spektra LS (Large Scale)

From milligrams to over 150 grams on a single system

Biotage Isolera Spektra LS development-scale flash purification system dramatically shortens large-scale purification run-times with flow rates of 50-500 mL/minute. Simply select or create a method, load your sample, and run – it's that easy.

New advanced features include: solvent-saving Gradient Optimization ("GO"), fraction collector bypass, isocratic hold, remote editing, the ability to collect fractions on two separate wavelengths, use of up to four solvents in a single gradient and add a third isocratic co-solvent. A UV-VIS detector increases detection to 200–800 nm.

Accelerate large-scale purification with the 500 mL/min pump

Higher flow rates of 50–500 mL/min dramatically shorten purification runs. When used with Biotage SNAP 1500 g cartridges, the Biotage Isolera Spektra LS can easily and rapidly purify a sample of 150 g or more, dramatically improving chemists' productivity (see Figure 3).

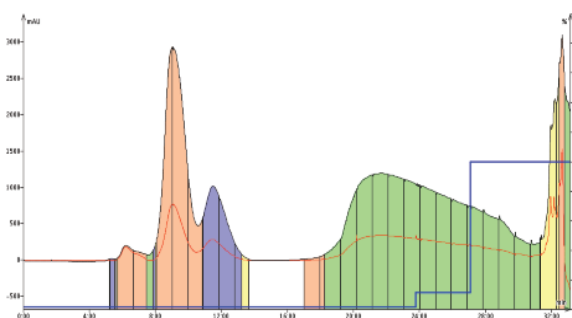


Figure 3. 30 g of a lipophilic oil mixture was purified in only 32 minutes using a Biotage SNAP 1500 g cartridge at a flow rate of 500 mL/min.

Key Features

- TLC-to-Step gradient
- Gradient Optimization
- Real-time PDA scanning
- 2D and 3D spectral analysis
- Optimized for Biotage® SNAP Ultra cartridges
- λ -All detection
- Baseline correction
- Run counter

Other Advantages

- Flow rates of 50–500 mL/min
- Method evaluation and scale-up on one system
- Unique sample loading pump
- Fraction capacity up to 320 L
- Use up to four solvents in a gradient
- Maximize solubility and product recovery
- Leak detector increases safety

Specifications

Solvent delivery	HPFC pumps
Flow rate	50–500 mL/min
Pressure limit	145 psi (10 bar)
UV Detection	Choice of variable wavelength (200–400 nm) or UV-VIS (200–800 nm) detector
Flow cell path length	0.3 mm
UV collection modes	One, two or all wavelengths
Fractionation modes	Volume, threshold, threshold with volume, low slope, medium slope, custom slope
Collection vessels	Test tubes (17.5 mm, 18 mm and 25 mm) and bottles (120 mL, 240 mL, and 480 mL)
Power	100–240 VAC, 50/60 Hz, 4.0 A
System Control & Data Management	On-board computer with 10.4" diagonal touch screen interface
Dimensions (W x H x D)	577 mm (22.7") x 596 mm (23.5") x 497 mm (19.6")
Weight	30–35 kg (66–77 lb)
Certifications	CE, cTÜVus
Funnel Rack Kit Dimensions (W x H x D)	960 mm (37.8") x 1060 mm (41.7") x 660 mm (26.0")
Weight	40 kg (88 lb)

Safely inject large volumes with the unique sample load pump

The Biotage® Isolera™ Spektra LS avoids manual injection issues such as leaks or spills with a built-in peristaltic pump. Made with flexible fluoropolymer tubing, this pump enables liquid samples to be efficiently pumped directly into your Biotage SNAP 750 g or Biotage SNAP 1500 g flash cartridge.

Improve purification efficiency with the DLV-500

For samples requiring pre-adsorption onto a solid support, a 500 g capacity dry load vessel accessory is available. The dry load vessel has an adjustable bed for samples as low as 100 g and mounts directly onto the Biotage Isolera Spektra LS, saving precious space.

Ensure sufficient fraction capacity with the 320-L funnel rack

The Biotage Isolera Spektra LS has a standard capacity of 9.6 liters. For additional fraction capacity (up to 320 L) a funnel rack kit is available. The funnel rack kit comes with two racks (16 funnels each) and a cart with wheels that holds the system, collection vessels, and a leak detector.

Purify 75 g to 150 g with SNAP 750 g and 1500 g cartridges

Biotage SNAP 750 g and SNAP 1500 g cartridges maximize productivity by providing the highest sample loading capacity, fastest throughput and superior large-scale separations as shown in Figure 4.

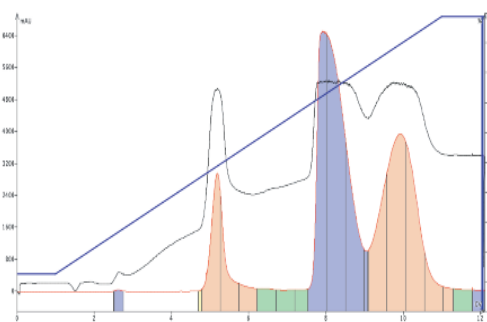


Figure 4. 80 g (>10% load) of a crude reaction mixture with a TLC $\Delta CV < 1$ was separated with high resolution on a Biotage SNAP 750 g cartridge at 200 mL/min.



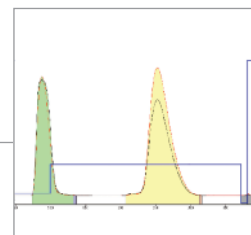
Convenient solvent bottle rack utilizes up to four 4 L bottles



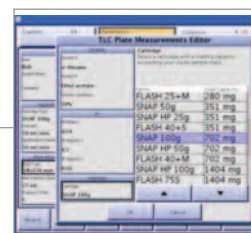
Large, easy-to-read and use touch screen



A wide range of removable racks accommodates any laboratory need



The built-in UV detector provides targeted fraction collection



Use the TLC-to-gradient feature for optimal purification



Performs both normal- and reversed-phase purification

Biotage® Isolera Prime™

The new standard in value-priced flash purification systems

Biotage Isolera Prime is the new standard in value-priced flash purification systems delivering a full range of features and cost-saving benefits. This flexible system is upgradeable and grows with the needs of laboratories and universities where value is especially important. Biotage Isolera Prime is compatible with Biotage flash cartridges, including the new high performance Biotage® SNAP Ultra and value-priced Biotage ZIP™ cartridges.

Value

The Biotage Isolera Prime delivers more than just the basics. Also included are a patented TLC-to-Gradient feature that eliminates method development guesswork and a solvent-saving gradient optimization function that reduces solvent use by up to 60%.

Flexibility

The Biotage Isolera Prime can be upgraded and customized to any laboratory's requirements with the addition of a range of accessories, including external dry-loading vessels, leak detector, fraction racks and cartridge holders.

Performance

The Biotage Isolera Prime system with flow rates up to 100 mL/min can perform purification scale-up quickly and easily as seen in Figure 1. The software is designed so that any completed method can be recalled for use with a different cartridge, rack, collection parameters, etc, just with a few clicks.

Advantages

- Value based system with a full range of features
- Solvent-saving Gradient Optimization can reduce solvent use up to 60% lowering system
- Upgradeable and grows to your needs
- 145 psi (10 bar) pressure capability enables both normal-phase and reversed-phase purification
- Patented TLC-to-Gradient feature eliminates method development guessing and re-runs
- Two UV detector options to address different application needs
- Holds four solvents providing binary gradient flexibility

Specifications

Solvent delivery	Constant volume electric HPFC pump
Flow rate	5–100 mL/min.
Pressure limit	145 psi (10 bar)
UV detection	Choice of variable dual-wavelength (200–400 nm) or fixed (254 nm) detector
Flow cell path length	0.3 mm
UV collection modes	Single wavelength, Dual wavelength (variable UV)
Fractionation modes	Volume, threshold, threshold with volume, low slope, medium slope, custom slope
Collection vessels	Test tubes (13, 16, 18 and 25 mm) Bottles (120, 240 and 480 mL)
Power	100–240 VAC, 50/60 Hz, 4.0 A
System control and data management	On-board computer with 10.4" diagonal touch screen interface
Dimensions (W x H x D)	355 mm x 596 mm x 497 mm (14 in. x 23.5 in. x 9.6 in.)
Weight	30 kg (66 lbs.)
Certifications	CE, cTÜVus

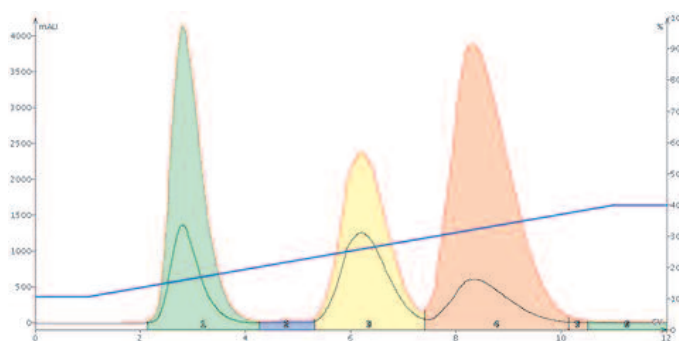
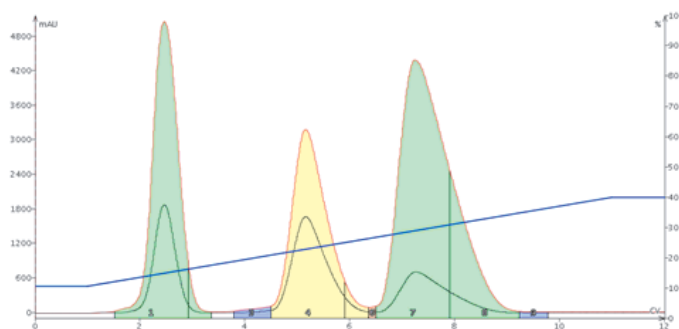


Figure 1. The Biotage Isolera Prime system provides scale-up capability with just a few clicks. In this example, a Biotage ZIP 5 g cartridge was used to purify a 150 mg sample. This separation was then scaled 24 x to a Biotage ZIP 120 g by simply by creating a new method from the 5 g cartridge result file and changing the cartridge size in the method; the flow rate adjusts automatically with the new cartridge selection. Simply efficient.



Biotage® FlashMaster Personal Family

Easy-to-use, affordable, entry-level flash chromatography systems

The Biotage FlashMaster Personal and Biotage FlashMaster Personal Plus offer purification simplicity in a small-scale design. Their compact size ensures efficient utilization of fume hood space while centralizing synthesis and purification resources. Biotage FlashMaster Personal and Biotage FlashMaster Personal Plus strike a balance of economy, performance and reliability which makes them perfect entry-level flash chromatography systems for medicinal chemists.



Optional Accessories

- Biotage SNAP cartridge adapter

Biotage FlashMaster Personal

- Single-column design for simplified purifications
- Pumping system eliminates solvent volume restrictions
- Adjustable flow control provides precise, reproducible separations
- Small footprint uses bench space efficiently
- Disposable columns eliminate column assembly, packing and cleaning
- Utilizable for ISOLUTE®, Biotage ZIP™, Biotage® SNAP Ultra and Biotage SNAP cartridges

The Biotage FlashMaster Personal System is designed to handle a wide variety of cartridge sizes, from 2 g to 100 g. The system offers precise flow rates and is not prone to flow rate variations often seen on gas pressure driven systems. Solvent volumes are not limited, and users can change solvents and perform step gradients without stopping the system.



Optional Accessories

- Biotage SNAP cartridge adapter

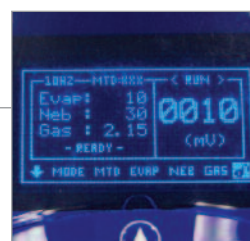
Biotage FlashMaster Personal Plus

- Two columns for an extended range of applications
- Reproducible pump driven solvent delivery
- Easy-to-use, no programming needed to operate
- Compact size for efficient use of hood space
- Uses easy-to-install pre-packed ISOLUTE flash columns
- Utilizable for ISOLUTE, Biotage ZIP, Biotage SNAP, and Biotage SNAP Ultra cartridges

The Biotage FlashMaster Personal Plus is an integrated flash chromatography system for compound purification following organic synthesis. The system can accommodate two ISOLUTE or Biotage SNAP flash chromatography cartridges and features:

- Solvent pump
- Flow rate control
- Valve for selecting one or two column operation
- Valve for on-line loading of liquid samples

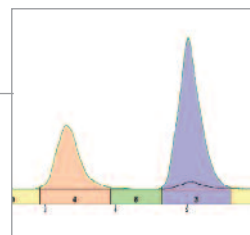
Accessories



Digital display



Intuitive and simple interface



Peltier heater/cooler provides evaporation between 10° C and 80° C

Biotage® Isolera™ ELSD-1080

Evaporative Light-Scattering Detection for flash chromatography

The ELSD-1080 is a universal detector designed for use with Isolera flash purification systems when purifying organic compounds that are undetectable with UV or visible light. Flash chromatography with detection and fractionation is now possible when purifying **carbohydrates, steroids, lipids, terpenes** and other UV-transparent compounds (see Figure 5).

Compounds eluting from a flash cartridge enter the ELSD-1080 where they are mixed with nitrogen to nebulize the sample components creating small droplets. The nebulizer is heated and begins to evaporate the solvent and the nitrogen carries the sample into the Peltier heater where the remaining solvent is evaporated leaving small sample particles in the nitrogen stream. While migrating through the evaporator, light is shone perpendicular to the "sample flight path" and a sensor measures how many particles are present and triggering fraction collection.

Advantages

- **Flexibility** – high sensitivity provides superb responses, able to detect virtually any compound
- **Sub-ambient operation** provides detection capability for highly volatile compounds with operation at temperatures as low as 10° C up to 80° C
- **Reproducible** below 2% with reliable and accurate results
- **Independent temperature controls** for both nebulizer and evaporator provides optimization capability for normal-phase solvent systems
- **Compact size** that requires minimal bench space
- **Compatible and portable** – operates with other Biotage Isolera systems

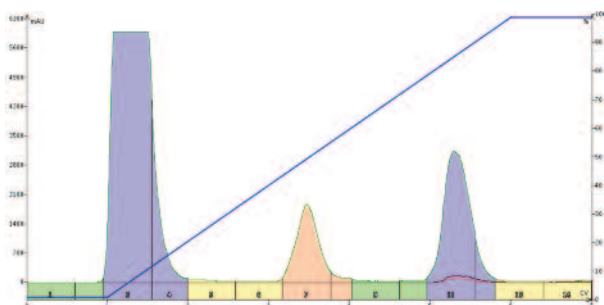
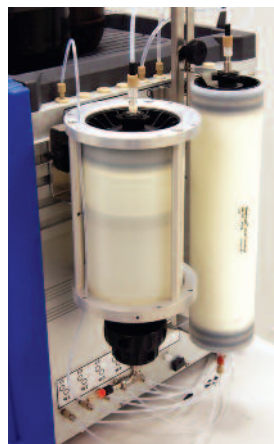


Figure 5. Purification of UV-transparent carbohydrates dextrose, maltodextrin, and poorly UV-absorbent aspartame using an Biotage Isolera Four and a 12 g Biotage SNAP KP-C18-HS cartridge. With low wavelength UV (200 nm) only aspartame is detected.

Accessories



DLV-030



DLV-500

Advantages

- Improved sample separation
- Higher loading capacity
- Increased fraction purity

DLV Accessories

- Replacement barrels and frits
- DLV holders

SIM Accessories

- Replacement frits
- Replacement filter

Dry Loading Vessels (DLV)

Improve purification results with higher sample loads

One of the most common flash purification challenges is dealing with hard-to-dissolve crude samples. Because polar solvents cause poor chromatographic results when used as injection solvents in normal-phase flash chromatography, other sample load options are needed.

A commonly used option is dry loading, which involves dissolving the sample in a suitable solvent, mixing with an inert, clean, dry adsorbent such as silica, alumina, or diatomaceous earth, and drying the slurry. The dried sample is then loaded into an empty vessel and inserted ahead of the purification cartridge. By drying the mixture, the polar solvent is removed and will have no impact on the purification.

Biotage external Dry Load Vessels (DLV)

Biotage® SNAP and Flash cartridges are designed with a built-in ability to dry load a sample within the cartridge.

Sometimes, the amount of adsorbent required to download exceeds the cartridge's dry load capacity. When that situation arises, the Biotage DLV systems provide a solution.

The Biotage DLV product line includes three capacity ranges: 1–30 g (DLV-030), 10–70 g (DLV-070), and 50–500 g (DLV-500). The DLV-030 holds up to 30 g of adsorbent and is typically used with cartridges up to 120 g. The DLV-070 (70 g capacity) is useful with cartridges up to 400 g while the DLV-500 (500 g capacity) is used with the large purification cartridges (750 g+). All Biotage DLV products can be used with Biotage® Isolera™ systems and Biotage® SNAP cartridges.

Safe and simple to use

Biotage DLV products are attached on Biotage Isolera systems by use of a cartridge holder that can be mounted directly above the purification cartridge. The DLV barrels are designed with Luer outlets for simple attachment to Biotage SNAP cartridges and other Luer inlet cartridges and hold pressures >100 psi (7 bar). An adjustable plunger provides zero dead volume, high pressure seal ensures user safety.

Dry loading for Flash 75 and 150 cartridges

Flash 75 and 150 systems use a Biotage® SIM (Sample Introduction Module) for sample dry loading. SIMs are stainless steel vessels which are placed between the solvent reservoir and the cartridge. The SIM can be filled with pre-absorbed compound or viscous liquid samples. The absorbed compounds are then eluted with solvent and separated in the Flash cartridge. Viscous liquid samples are moved into the Flash cartridge using compressed air. Several sizes are available to meet differing load requirements including SIM 100, SIM 200, SIM 500, SIM-1000 and SIM-2000.

Accessories



Racks/Trays

Fraction collection racks are available from 13x100 mm test tubes to 480 mL bottles. For larger collection volumes a funnel rack is available. For a complete list see page 18 of this brochure.



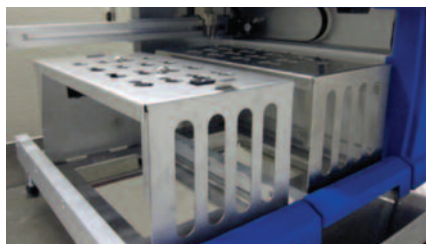
Cartridge Holders

Designed for simple attachment onto Biotage Isolera systems, these cartridge holders accommodate 10 g, 25 g, 50 g, 100 g, 340 g, 750 g and 1500 g Biotage SNAP® cartridges. A Biotage FLASH+® cartridge holder is also available.



Leak Detector

The Biotage Isolera leak detection system is designed with safety in mind. Unlike vapor sensing devices with unreliable solvent vapor sensitivity, the Biotage Isolera leak detector's sensitive, solvent-resistant (refractive index RI) monitor instantly signals the Biotage Isolera flash system to stop pumping if any liquid – volatile or non-volatile – is detected thus protecting the chemist, system, and lab from potential hazards. The leak detection system is available for both standard and extended bed Biotage Isolera systems.



Funnel Rack Kit

Designed for use with the Biotage® Isolera™ Spektra LS, the funnel rack kit provides up to 320 L of fraction capacity. The kit includes two 16-position final racks, a portable cart and grounding cables. Inert, static-resistant funnel tubes are also available.



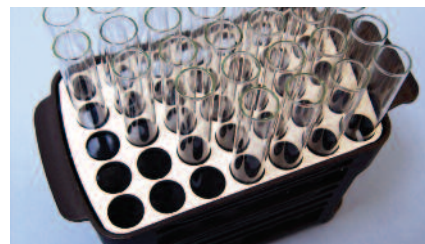
Bottle Caps and Replacement Septa

These 38-430 caps are modified with a hole to allow use of Biotage Isolera and SP solvent line tubing. A silicone gasket reduces evaporation.



SNAP Cartridge Adapter/Holder for FMP

A simple adapter converts Biotage® FlashMaster systems to Biotage SNAP compatibility. This fully adjustable adapter allows Biotage SNAP cartridges from 10 g to 100 g to be installed and used.



Rack Guides

These 0.5 mm thick polypropylene overlays come in four sizes for use with Biotage Isolera 13, 16, 18, and 25 mm test tube racks. They are laser-etched on both sides to represent "S" and "Z" collection patterns.



ELSD Flow Splitter Kit

The new Biotage flow splitter kit is used with flow limited external detectors such as an ELSD. Made of stainless steel, the inert splitters with fine Vernier adjustment enable flows as low as 200 $\mu\text{L}/\text{min}$ into the external detector.



Liquid Sample Injection Valves and Adapters

For liquid samples, Biotage offers two 3-way injection valves that attach directly to Biotage cartridges and compression modules. These stainless steel valves come complete with finger tight fittings and a Luer adapter for syringe injection. The straight-through injection design minimizes wash volume and hazard precipitation potential.

Biotage® Flash Scale-up Family

Direct purification scale-up from discovery-scale reactions

Biotage Flash 75, Flash 150, and Flash 400 systems have become the standard tools for development-scale (25 to 400 g) and process or production-scale (400 g to 1 kg+) purification. Safe and simple to operate, the Biotage flash scale-up systems increase large-scale purification throughput.



Biotage Flash 75

- Patented radial compression technology improves sample contact with the media providing superior purification performance
- Pneumatic solvent delivery system provides up to 250 mL/min while eliminating the need for expensive pumps and reducing system maintenance
- Can be configured to fit in almost any fume hood
- Uses Biotage pre-packed Flash 75 cartridges which eliminates the hazards of using bulk silica
- Provides purification from milligrams to ~80 grams



Biotage Flash 150

- Patented radial compression technology improves sample contact with the media and provides superior purification performance
- Pneumatic solvent delivery system provides up to 1000 mL/min and eliminates the need for expensive pumps and system maintenance
- Designed with a portable compression module stand
- Uses Biotage pre-packed Flash 150 cartridges which are safer to use than glass columns packed with bulk silica
- Provides purification from milligrams to ~400+ grams



Biotage Flash 400

- Designed for cGMP purification applications
- Stainless steel construction for safety and robustness
- Skid mounting makes it portable
- Meets XP Class I, division 1 & 2 and CE ATEX explosion proof requirements
- ASME rated
- Meets Japanese pressure regulations
- Pneumatic solvent delivery system provides up to 7000 mL/min while eliminating the need for expensive pumps and reducing system maintenance
- Uses Biotage pre-packed Flash 400 cartridges which are safer to use than glass columns packed with bulk silica
- Provides multi kilogram scale purification



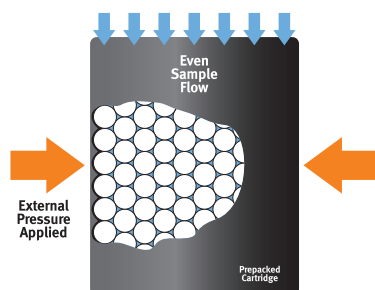
Biotage® Flash 75

Quickly purify gram to multi-gram quantities of target organic compounds

Simple and reliable, these systems contain everything needed to begin your scale-up separations. Purify 40+ grams of compound at 250 mL/min with the Biotage Flash 75 system — up to 75% faster than with traditional glass columns. These rugged systems safely operate at 100 psi enabling faster flow rates and the use of higher viscosity solvents. A variety of cartridge media provide chemists with selectivity choices for optimal purification conditions.

Patented radial compression

Biotage's proprietary packing technique ensures that each Flash cartridge is shipped with a tightly packed bed. The application of our proven, patented radial compression technology maintains the bed's stability during use for cleaner, purer fractions in less time and higher overall product yield. Extra force from radial compression ensures near zero "wall effects" and channeling inside each column.



Advantages

- Pre-packed cartridges increase user safety
- Radial compression technology improves separation performance
- Engineered for fast flows
- 100 psi pressure rating ensures throughput
- Fully grounded for safety

Accessories

- Sample injection modules
- Solvent reservoirs
- Compression module barrels

Cartridges

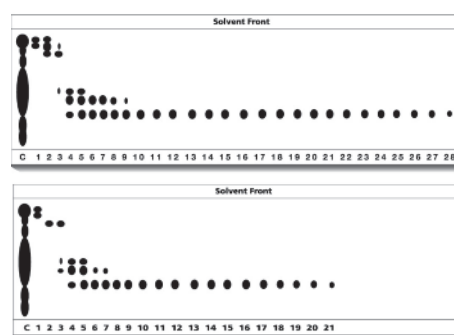
- Flash 75S, Flash 75M and Flash 75L

Media

- Biotage® KP-SIL
- Biotage KP-C4-WP
- Biotage KP-C18-HS
- Biotage KP-NH
- Diaion HP20
- Diaion HP20SS
- Activated carbon

Highest flow rate

Routinely operating at a flow rate of 250 mL/min, these Flash systems and cartridges allow you to quickly scale-up and complete runs, saving hours – even days – of purification time. In this comparison between a Flash 75L (75 mm x 300 mm) cartridge and a 11 x 20 cm glass column, fractions were collected in 2.5 hours using the glass column, while the Flash 75L cartridge required just 40 minutes. In addition to the 73% reduction in purification time, there were fewer mixed fractions, resulting in greater product purity.



Safer than glass columns

All Biotage Flash 75 and 150 cartridges are constructed of medium-density polyethylene to resist cracking and splitting and meet the FDA extractables requirement specified in 21 CFR 177.1520. There is no breakable glass, and all of the silica is completely self-contained, eliminating any exposure to silica dust or contaminants.



Advantages

- Pre-packed cartridges increase user safety
- Radial compression technology improves separation performance
- Engineered for fast flows
- 100 psi pressure rating ensures throughput
- Fully grounded for safety

Cartridge Media

- Biotage® KP-SIL, 40–63 μm , 60 \AA , silica
- Biotage KP-C18-HS, 35–70 μm , 90 \AA , C18-bonded silica
- Mitsubishi Diaion™ HP20 and HP20SS SDVB resins
- FLASH-WAC
- Biotage KP-NH, 40–75 μm , 100 \AA , NH-functionalized silica

Accessories

- Sample injection modules
- Solvent reservoirs
- Compression module barrels

Biotage® Flash 150

Faster scale-up of multi-gram flash purification

Purify up to 400 grams of compound at 1 L/min with the Biotage Flash 150 system up to 2 times faster than traditional glass columns. This robust system safely operates at 100 psi enabling high flow rates and the use of higher viscosity solvents. A variety of cartridge media provide chemists with selectivity choices for optimal purification conditions. Simple and reliable, this system contains everything needed to begin your multi-gram scale purifications.

Highest flow rate

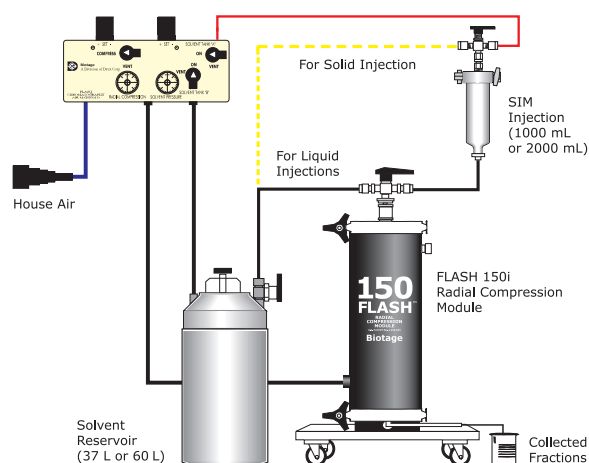
Routinely operating at a flow rate of 1 L/min, the Flash 150 system allows you to quickly scale up and complete runs, saving hours, even days, of purification time as shown in Table 1.

	Flash 150M	Glass Column
Column size	150 mm x 300 mm	120 mm x 660 mm
Silica amount	2.5 kg	3 kg
Sample load	180 g	450 g
Flow rate	500 mL/min	70 mL/min
No. of fractions	45	30
Purification time	90 min	430 min
Pure compound	70.5 g/run	45 g/run
Recovery ratio	87%	22.2%
Purification throughput	120 g/hr	63 g/hr

Table 1. A comparison of Flash 150 vs. traditional glass column purification shows the power and performance of the Flash 150i system. In this application the Flash 150 system saved a customer nearly four weeks of purification time to purify 1 kg of crude product.

Flash 150 System

System packages include an easy-to-install radial compression module, fully integrated air manifold, solvent reservoir, sample injection module (SIM), start-up kit with all necessary tubing, grounding kit, and a user's manual. Flash 150M (Medium) or Flash 150L (Long) prepacked cartridges are ordered separately. Flash 150 compression modules are mounted onto stable and robust portable bases (included in the system package), which are fitted with casters for easy mobility.





Advantages

- Radial compression
- Pre-packed cartridges
- GMP compliant for production of API's

Optional Accessories

- Cartridge hoist

Cartridges

- Flash 400M and Flash 400L

Media

- Biotage® KP-SIL
- Biotage KP-C18-HS
- Diaion HP20
- Activated carbon
- Biotage KP-C4-WP
- Biotage KP-NH
- Diaion HP20SS

Biotage® Flash 400

Cost-effective, production-scale chromatography

The Flash 400 is a complete skid-mounted system designed for kilogram flash chromatography. The Flash 400 uses prepacked cartridges and radial compression for performance and reliability. Built with materials that are appropriate for operations under FDA regulations and cGMP standards, the Flash 400 is rapidly becoming the first choice of pharmaceutical and contract manufacturing companies around the world for critical purification applications.

Built and documented for cGMP production

All systems come complete with an ASME "UM" stamp, CE certification and are certified for usage in Japan, Europe and North America. A full engineering documentation package, a certificate of performance and a certificate of compliance for validation filing accompany each system. Professional Biotage service personnel train users on proper operation and are available for project based or yearly training sessions.

Robust production-scale platform

When considering larger, production scale equipment, robustness and safety are key factors for any device. The Flash 400 needs minimal maintenance and its design has proven to be extremely reliable over many years.

Safety is paramount

Safety is a main design criteria on all Biotage systems. Designed for use around large quantities of solvents, the Flash 400 can operate in an explosion proof, no sparking, rated area. Air driven pump and hoists, proper grounding and pressure relief devices are some of the vital components included with every system. All systems comply with NEC Class 1, Division 1 and 2, Group C and D standards.

Prepackaged cartridges are faster, safer, and easier to use than traditional filters or columns

Designed to optimize and provide operating pressures up to 100 psi, Biotage production-scale Flash cartridges can be run at flow rates up to 7 liters per minute, allowing operators to save hours or even days of separation time. The media in each cartridge is self-contained, eliminating exposure to contamination and impurities.

Patented radial compression technology

Biotage's proprietary process ensures that each Flash cartridge is shipped tightly packed. The application of our proven, patented radial compression technology maintains the bed's stability for cleaner, purer fractions in less time delivering higher yield. Extra force from radial compression ensures near zero "wall effects" and channeling inside each column.

Cartridges available in a variety of media

With the increased utilization of flash chromatography, more difficult separations are routinely performed with a variety of media. Silica, C-18, Activated Carbon, Mitsubishi Diaion™ HP20SS resins, Ion exchange resin and custom packed, customer supplied material are all available to address specific applications.

Scalable results

Technologies such as crystallization and adsorption can be difficult and time consuming to scale up. With Biotage's extensive cartridge range, reliable results are verifiable and easy to achieve with any separation. Often a separation is done with a Biotage® SNAP 10 g column to purify small quantities and those conditions can be used again on larger columns all the way up to 40 kg Flash 400L size, a 4000x increase in scale!

Technical Specifications — Flash 75, 150 & 400



Biotage Flash 75

Flash 75S (short)

- Sample size: 0.2–10 g
- Flow rate: 250 mL/min
- SIM* volume: 100 mL
- Reservoir volume: 4 L
- Dimensions: 75 x 90 mm

Flash 75M (medium)

- Sample size: 0.4–20 g
- Flow rate: 250 mL/min
- SIM* volume: 500 mL
- Reservoir volume: 12 L
- Dimensions: 75 x 150 mm

Flash 75L (long)

- Sample size: 0.8–40 g
- Flow rate: 250 mL/min
- SIM* volume: 500 mL
- Reservoir volume: 12 L
- Dimensions: 75 x 300 mm

* SIM, sample-injection module for low-solubility samples or viscous oils.



Biotage Flash 150

Flash 150M (medium)

- Load: 3–160 g
- Flow rate: 500–1000 mL/min
- SIM volume: 1000 mL
- Reservoir volume: 37 L
- Column volume: 4.3 L
- Dimensions: 150 x 300 mm
- Packing weight: 2.5 kg

Flash 150L (long)

- Load: 6–320 g
- Flow rate: 500–1000 mL/min
- SIM volume: 2000 mL
- Reservoir volume: 60 L
- Column volume: 5 L
- Dimensions: 150 x 600 mm
- Packing weight: 28.6 kg



Biotage Flash 400

Flash 400M (medium)

- Cartridge diameter: 400 mm
- Cartridge length: 30 cm
- Typical flow rate: 7 L/min
- Column void volume: 25 L
- Packing weight: 20 kg (KP-Sil silica)
- Sample size:
 - 20% load — 4000 g/run
 - 5% load — 1000 g/run
 - 1% load — 200 g/run

Flash 400L (long)

- Cartridge diameter: 400 mm
- Cartridge length: 60 cm
- Typical flow rate: 7 L/min
- Column void volume: 50 L
- Packing weight: 40 kg (KP-Sil silica)
- Sample size:
 - 20% load — 8000 g/run
 - 5% load — 2000 g/run
 - 1% load — 400 g/run

Flash Cartridge/Instrument Compatibility

For more information on Biotage flash purification cartridges please see our Flash Cartridges brochure.

Cartridge	Media Mass	Automated Systems				Manual Systems		Scale-up Systems			
		Biotage Isolera [™] Spektra One	Biotage Isolera Spektra Four	Biotage Isolera Spektra LS	Biotage Isolera Prime [™]	Biotage FlashMaster Personal	Biotage FlashMaster PersonalPlus	Biotage Isolera Spektra LS	Flash 75	Flash 150	Flash 400
Biotage SNAP and Biotage SNAP Ultra	10 g	●	●		●	●	●				
	25 g	●	●		●	●					
	50 g	●	●	●	●	●	●	●			
	100 g	●	●	●	●	●	●	●			
	340 g	●	●	●	●	●	●	●			
Biotage SNAP XL	750 g	●	●	●	●			●	●	●	
	1500 g			●				●	●	●	
Biotage ZIP[™]	5 g	●	●		●	●	●				
	10 g	●	●		●	●	●				
	30 g	●	●		●	●	●				
	45 g	●	●		●	●	●				
	80 g	●	●	●	●	●	●	●			
	120 g	●	●	●	●	●	●	●			
Flash 75S	200 g	●	●	●				●	●		
Flash 75M	400 g	●	●	●				●	●		
Flash 75L	800 g	●	●	●				●	●		
Flash 150M	2.5 kg			●				●		●	
Flash 150L	5 kg			●				●		●	
Flash 400M	20 kg										●
Flash 400L	40 kg										●

- = Attaches directly
- = Requires external cartridge stand or adapter

Ordering Information

Biotage® Isolera™ systems

Part No.	Model	Wavelength (nm)	UV detector	UV-vis	Collector bed
Biotage Isolera One					
ISO-1SF	One	254	Fixed	–	Single
ISO-1SV	One	200-400	Variable	–	Single
ISO-1SW	One	200-800	Variable	Yes	Single
ISO-1EF	One	254	Fixed	–	Expanded
ISO-1EV	One	200-400	Variable	–	Expanded
ISO-1EW	One	200-800	Variable	Yes	Expanded
Biotage Isolera Four					
ISO-4SF	Four	254	Fixed	–	Single
ISO-4SV	Four	200-400	Variable	–	Single
ISO-4SW	Four	200-800	Variable	Yes	Single
ISO-4EF	Four	254	Fixed	–	Expanded
ISO-4EV	Four	200-400	Variable	–	Expanded
ISO-4EW	Four	200-800	Variable	Yes	Expanded
Biotage Isolera LS					
ISO-1LSV	LS	200-400	Variable	–	Expanded
ISO-1LSW	LS	200-800	Variable	–	Expanded
Biotage Isolera Prime™					
ISO-PSF	Prime	254	Fixed	–	Single
ISO-PSV	Prime	200-400	Variable	–	Single

Isolera One, Four and LS systems may be purchased without the Isolera Spektra license but will not include the following features: A-All detection, Baseline correction, PDA scanning, 3D spectral scan data, TLC-to-Step gradient.

Biotage Isolera Spektra license

Product	Part Number
Isolera Spektra upgrade	ISO-SPK
Isolera Spektra licence for existing Isolera systems	SER-SPKUPG

Biotage® FlashMaster Personal/Personal Plus

Product	Part Number
Biotage FlashMaster Personal Flash Chromatography System	
Single cartridge with one plunger (USA)	FMP-1N
Single cartridge with one plunger (UK)	FMP-1U
Single cartridge with one plunger (Europe)	FMP-1E
Single cartridge with one plunger (Japan)	FMP-1J
Biotage FlashMaster Personal Plus Flash Chromatography System	
Dual cartridge with two plunger (USA)	FMP+-1N
Dual cartridge with two plunger (UK)	FMP+-1U
Dual cartridge with two plunger (Europe)	FMP+-1E
Dual cartridge with two plunger (Japan)	FMP+-1J

Biotage® Flash Scale-up Systems

Product	Part Number
Flash 75	
75S compression module, air manifold, SIM 100, 4 L solvent reservoir, tubing, grounding kit, user manual	SF-022-19161
75M compression module, air manifold, SIM 500, 12 L solvent reservoir, tubing, grounding kit, user manual	SF-022-19041
75L compression module, air manifold, SIM 500, 4 L solvent reservoir, tubing, grounding kit, user manual	SF-022-19071
75L Plus compression module, interchangeable 75S barrel, air manifold, SIM 500 (including 25 frits), 12 L solvent reservoir, 10 Flash 75L cartridges (800 g, KP-Sil), 10 Flash 75S cartridges (200 g, KP-Sil), tubing, grounding kit, user manual	SF-222-19071
Flash 150	
150M compression module, air manifold, SIM 1000, 37 L solvent reservoir, tubing, user manual	SF-022-25071
150L compression module, air manifold, SIM 2000, 60 L solvent reservoir, tubing, user manual	SF-022-25151
Flash 400	
Flash 400M system with hoist	SF-511-50070
Flash 400L system with hoist	SF-511-50150

Accessories — Biotage® Isolera™ Spektra One/Four/LS and Biotage Isolera Prime™

Product	Part Number
Evaporative Light-scattering Detector	
Biotage Isolera ELSD-1080	ISO-ELSD-1080
Biotage Isolera ELSD-1080 flow splitter kit	413346
Racks	
13 x 100 mm test tube rack, 4/pk*	411789
16 x 100 mm test tube rack, 4/pk*	411790
16 x 150 mm test tube rack, 4/pk*	411791
18 x 150 mm test tube rack, 4/pk	411792
25 x 150 mm test tube rack, 4/pk	411793
120 mL bottle rack, 4/pk	411794
240 mL bottle rack, 1/pk	411934
480 mL bottle rack, 1/pk	411929
* for Biotage Isolera One and Four only	
Bottles	
120 mL french square bottles, 96/case	08742
240 mL french square bottles, 84/case	08743
480 mL french square bottles, 24/case	411935
3-Way Valve	
3-way stainless steel injection valve	FIV-VLV-1000
3-way large bore stainless steel injection valve	413027
Cartridge Holders	
Biotage ZIP™ 5 g/10 g cartridge holder	413092
Biotage ZIP 30 g cartridge holder	413302
Biotage ZIP 45 g cartridge holder	413303
Biotage ZIP 80 g cartridge holder	413304
Biotage ZIP 120 g cartridge holder	413305
Biotage SNAP 10 g cartridge holder	411922
Biotage SNAP 25 g cartridge holder	411776
Biotage SNAP 50/100 g cartridge holder	411923
Biotage SNAP 340 g cartridge holder	411924
Biotage SNAP 750/1500 g cartridge holder	412422
FLASH+® cartridge holder kit	411990
Leak Detectors	
Leak detector for Biotage Isolera with single fraction bed	412019
Leak detector for Biotage Isolera with double fraction bed	412062
Dry Load Vessels	
30 g capacity	DLV-030
70 g capacity	DLV-070
500 g capacity	DLV-500
Replacement DLV and frits, 30 g capacity, 20/pk	DLV-035
Replacement DLV and frits, 70 g capacity, 20/pk	DLV-075
Replacement DLV and frits, 500 g capacity, 4/pk	DLV-505
Bottle Caps	
Bottle caps, 38-430 with septa for 4-solvent bottles, 5/pk	413320

Product	Part Number
Rack Number Guide	
Rack number guide for 13 x 100 mm rack, 4/pk	413178
Rack number guide for 16 x 100 and 16 x 150 mm racks, 4/pk	413177
Rack number guide for 18 x 150 mm rack, 4/pk	413176
Rack number guide for 25 x 150 mm rack, 4/pk	413175
Adapters	
Injection valve mounting adapter, SNAP (for use with FIV-VLV-1000)	411081
Inlet Luer adapter for Biotage SNAP 750 g and 1500 g cartridges	412358
Outlet Luer adapter for Biotage SNAP 750 g and 1500 g cartridges	412537

Accessories — Biotage Isolera LS

Product	Part Number
Funnel rack kit for Biotage Isolera LS (comes with cart, two racks, grounding straps, 8 GL-45 bottle caps with septa, and leak detector)	FNKR-032
Dry load vessel kit with holder, one empty cartridge and frit	DLV-500
Replacement dry load vessels and frits, 4/pk	DLV-505
Funnel rack tubes, conductive PTFE, 8/pk	412896
Replacement Schott bottle caps with septa, 8/pk	412921
Replacement septa for 412921, 8/pk	412920
Replacement collection bottle positioning shafts, 25/pk	413002
Additional funnel rack, 16-position, with grounding strap	412919

Accessories — Biotage® FlashMaster

Product	Part Number
Adapter	
Biotage SNAP cartridge adapter	411069

Accessories — Biotage® Flash Scale-up Systems

Product	Part Number
Solvent Reservoir	
Solvent reservoir, 1 L	FN-001-41201
Solvent reservoir, 4 L	FN-004-41201
Solvent reservoir, 12 L	FN-012-41201
Solvent reservoir, 37 L	FN-037-41201
Solvent reservoir, 60 L	FN-060-41201
ZIF-SIM Barrels and Frits	
Replacement 10 mL barrels and frits, 20/pk	SBF-0010
Replacement 35 mL barrels and frits, 20/pk	SBF-0035
Replacement 60 mL barrels and frits, 20/pk	SBF-0060

Tools for Discovery and Development Chemistry

Discovery Chemistry

- Microwave Synthesis
- Work-Up and Sample Preparation
- Evaporation
- Flash Purification
- Polymer Supported Reagents

Process Chemistry

- Silica and Polymer Metal Scavengers
- Genotoxin Removal
- Catalyst Screening
- Purification Scale-Up

Peptide Synthesis and Purification

- Automated, semi-automated and manual synthesizers
 - Microwave peptide synthesis
 - Room temperature peptide synthesis
 - Solution phase peptide synthesis
- Resins
- HPLC columns

Analytical Chemistry / Sample Preparation

- Automated SPE Systems
- Evaporation Instrumentation
- Molecularly Imprinted Polymers
- Silica and Resin Based SPE Columns and Plates
- Processing Tools for SPE Columns and Plates
- Supported Liquid Extraction Columns and Plates

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Part Number:

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