

Discovery-Scale FLASH™ Chromatography Systems and Modules

For the Manual Purification of Organic Molecules

FLASH+™ Systems

FLASH+: High-Yield, High-Performance, Milligram-to Gram-Scale Purifications

Biotage FLASH+ chromatography products incorporate all the features of our HPFC™ product line. The tools you need for efficient, effective FLASH purifications can be purchased as complete FLASH+ systems or as individual components to suit your requirements.

Easy Setup

Setting up a FLASH+ system is fast and easy. To begin your separation, simply insert a FLASH+ cartridge into the chosen compression module and attach the patented Zero Insertion Force (ZIF™) head assembly. For liquid samples, inject directly onto the head of the cartridge using a suitable sized syringe. For low-solubility samples or difficult separations, use our Samplet sample-loading cartridges (see page 88 for full description) or a Zero Insertion Force–Sample Injection Module ZIF-SIM™ (see page 118 for full description). Turn the valve to let the solvent flow and collect your fractions by placing a tube rack under the outlet line.

Applications

FLASH+ systems simplify and accelerate the isolation of organic compounds. Typical applications involve purification throughout multistep solution-phase synthesis, in which there is high probability of complex mixtures. The scale of purification ranges from milligrams to grams for simple and complex mixtures (see page 50 for more detailed application information).

Available as a Complete System or as Individual Components

FLASH+ systems include everything except the cartridges: a solvent reservoir, a stand, a ZIF-SIM, and a compression module with short and/or medium barrel(s). Other options include upgrades to larger compression modules for scale-up to gram-scale purification and a pressure regulator for controlling flow rates.



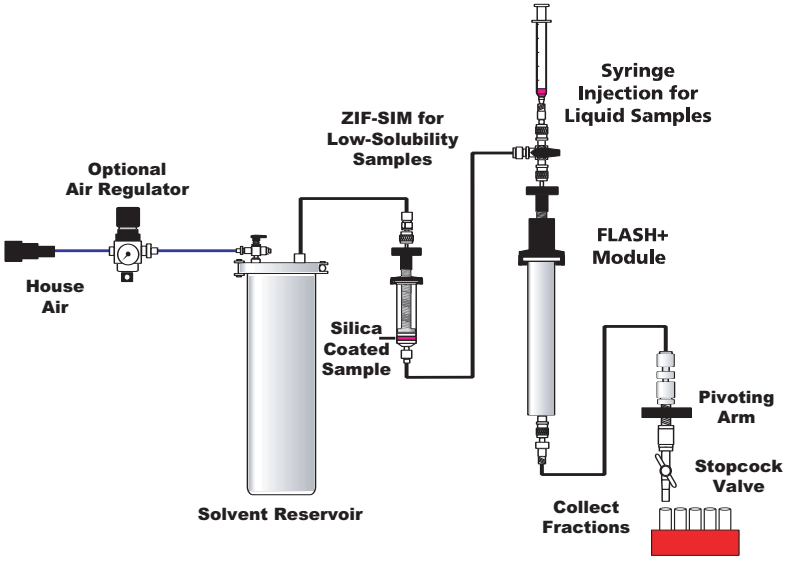


Figure 1. *FLASH+™ flow diagram.*

FLASH+ Compression Modules Incorporate ZIF™ and Samplet™ Technologies

FLASH+ compression modules use Biotage-patented FLASH+ cartridges packed with a range of normal and reversed-phase media (see page 88 for more detailed packing—media information).

The FLASH+ compression modules are designed with patented ZIF (Zero Insertion Force) head technology that improves purification of synthetic and natural products by axially compressing the FLASH+ cartridge. Axial compression of the cartridge bed minimizes void space, which improves separation efficiency and loading capacity. For simplified sample handling, the FLASH+ compression modules accept Samplet sample-loading cartridges. For low-solubility samples that cannot be dissolved in an appropriate volume for Samplet loading, a ZIF-SIM™ adds additional purification capabilities.



ZIF head assembly*, designed to distribute sample and solvent flow evenly through each cartridge.*

FLASH+™ Systems

The FLASH 12+™ Compression Module and 12-mm ID Prepacked Cartridges are Designed for Milligram-scale FLASH Separations



FLASH 12+M System with ZIF-SIM10,™ ZIF-SIM35,™ and test-tube rack



FLASH 12+S and 12+M columns, head assemblies. FLASH 12+S and 12+M cartridges and Samplets

Flash 12+ Specifications

Cartridge	Dimensions	Sample size	Flow rate	ZIF-SIM	Reservoir
FLASH 12+S	12 mm ID x 75 mm	4-200 mg	10-15 mL/min	10	1 L
FLASH 12+M	12 mm ID x 150 mm	8-400 mg	10-15 mL/min	10	1 L
FLASH 12+ Samplet™	10 mm ID x 20 mm	1 mL	----	----	----

Please refer to page 117 for all FLASH+ System ordering information.

Customize Your FLASH System

The FLASH 25™+ Compression Module and 25-mm ID Prepacked Cartridges are Designed for Milligram-to-gram Scale FLASH Separations



FLASH 25+M System with ZIF-SIM10,™ ZIF-SIM35,™ and ZIF-SIM60™ and test-tube rack



FLASH 25+S and 25+M columns head assemblies. FLASH 25+S and 25+M cartridges and Samplets

Flash 25+ Specifications

Cartridge	Dimensions	Sample size	Flow rate	ZIF-SIM	Reservoir
FLASH 25+S	25 mm ID x 75 mm	15-800 mg	20-50 mL/min	10 or 35	1 L
FLASH 25+M	25 mm ID x 150 mm	30-1600 mg	20-50 mL/min	35	1 L
FLASH 25+ Samplets™	23 mm ID x 20 mm	5 mL	----	----	----

Please refer to page 117 for all FLASH+ System ordering information.

FLASH+™ Systems

The FLASH 40+™ Compression Module



FLASH 40+™M System with ZIF-SIM10,™ ZIF-SIM35,™ and ZIF-SIM60™ and test-tube rack



FLASH 40+S and 40+M columns, head assemblies. FLASH 40+S and 40+M cartridges and Samplets

Flash 40+ Specifications

Cartridge	Dimensions	Sample size	Flow rate	ZIF-SIM	Reservoir
FLASH 40+S	40 mm ID x 75 mm	40 mg - 2 g	30-100 mL/min	60	1 L
FLASH 40+M	40 mm ID x 150 mm	80 mg -5 g	30-100 mL/min	60	1 L
FLASH 40+ Samplet™	38 mm ID x 20 mm	10 mL	----	----	----

Please refer to page 117 for all FLASH+ System ordering information.

FLASH+™ Ordering Information

Component 1	Component 2	Component 3	Options
FS1-R Any FLASH+ System and 1-Liter Reservoir	**A** FLASH 12+ S Compression Module	**0** No ZIF-SIM™	**-A** Short Barrel 12+
	B FLASH 12+M Compression Module	**1** ZIF-SIM10™	**-B** Short Barrel 25+
	C FLASH 25+ S Compression Module		
	D FLASH 25+M Compression Module	**2** ZIF-SIM35™	**-C** Short Barrel 40+
	E FLASH 40+ S Compression Module		
	F FLASH 40+M Compression Module	**3** ZIF-SIM60™	**-D** Medium Barrel 12+
	G FLASH 12+S and 25+S Compression Modules		
	H FLASH 12+M and 25+M Compression Modules	**4** ZIF-SIM10 and 35	**-E** Medium Barrel 25+
	J FLASH 12+S and 40+S Compression Modules		
	K FLASH 12+M and 40+M Compression Modules	**5** ZIF-SIM10 and 60	**-F** Medium Barrel 40
	L FLASH 25+S and 40+S Compression Modules		
	M FLASH 25+M and 40+M Compression Modules	**6** ZIF-SIM35 and 60	
	N FLASH 12, 25, 40+S Compression Modules		
	P FLASH 12, 25, 40+M Compression Modules	**7** ZIF-SIM10, 35, and 60	**-G** Air Regulator with filter

Part Number: FS1-R___-_____

Instructions: Simply choose one component from each of the component columns and then as many options as you need. Moving from left to right, fill in the spaces below the table to create a custom part number (example: FS1-RD6-BF).

FLASH+™ Components and Accessories

Item	Description	Part Number
Injection Valve	3-way vertical injection valve with Luer-Lok adapter for liquid injections	FIV-VLV-1000
1-Liter Solvent Reservoir	Stainless-steel solvent reservoir; ideal for FLASH 12+™ to 40+™ compression modules	FN-001-41201
4-Liter Solvent Reservoir	Larger stainless-steel reservoir; ideal when purifying multiple samples with the same eluent. Also ideal for the FLASH 65i™ compression module	FN-004-04000
Air Regulator	Regulates air pressure for use with all air-operated Biotage systems (0-60 psig); contains particulate filter	09350
FLASH+ Start-Up Kit	Frame and tubing	07923
FLASH 12i Compression Module	For use with FLASH 12i and Samplet™ Cartridges	FC022-15024
FLASH 12+S Compression Module	For use with FLASH 12+S and Samplet Cartridges	07857
FLASH 12+M Compression Module	For use with FLASH 12+M and Samplet Cartridges	07858
FLASH 12+S Barrel	For use with FLASH 12+S and Samplet Cartridges	07395
FLASH 12+M Barrel	For use with FLASH 12+M and Samplet Cartridges	07383
FLASH 25+™S Compression Module	For use with FLASH 25+S and Samplet Cartridges	FC-022-16024
FLASH 25+M Compression Module	For use with FLASH 25+M and Samplet Cartridges	FC-022-16044
FLASH 25+S Barrel	For use with FLASH 25+S and Samplet Cartridges	FB-022-16024
FLASH 25+M Barrel	For use with FLASH 25+M and Samplet Cartridges	FB-022-16044
FLASH 40i Compression Module	For use with FLASH 40i and Samplet Cartridges	FC022-17024
FLASH 40+S Compression Module	For use with FLASH 40+S and Samplet Cartridges	07975
FLASH 40+M Compression Module	For use with FLASH 40+M and Samplet Cartridges	07976
FLASH 40+S Barrel	For use with FLASH 40+S and Samplet Cartridges	07387
FLASH 40+M Barrel	For use with FLASH 40+M and Samplet Cartridges	07388
FLASH-Pac+	Set of 12+M, 25+M, 40+M Compression Modules and 12+S, 25+S, 40+S Barrels	08615
FLASH to ISCO	Adapters and tubing to allow use of FLASH+ or "i" style compression modules with ISCO systems	09335