

SGE ProteCol™ Capillary LC Columns



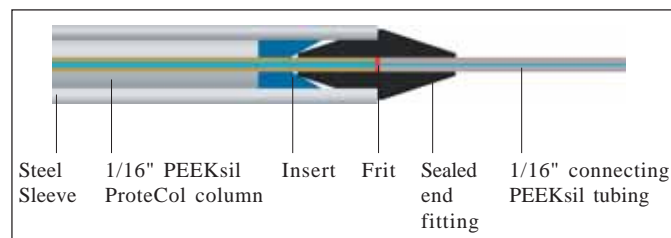
HPLC Columns

The ProteCol column has been developed to produce excellent peak shapes and high efficiencies in Capillary HPLC analysis and LC/MS applications. ProteCol columns integrate connecting tubing and column into a single unit, producing a 'no dead volume' system.

- The ProteCol system is as easy to operate as a conventional LC system. Connection to LC/MS is simple and quick and all columns are individually tested.
- Inert 3 micron silica particles packed in fused silica lined PEEK tubing (PEEKsil™) columns give excellent peak shapes even for highly polar basic molecules.
- The optimized design of the ProteCol column system results in perfect peak symmetry and plate efficiencies in the order of 90%.
- The ProteCol column system endfitting is a sealed unit that achieves optimal flow characteristics. Connection errors are eliminated as the column, endfitting, frit and connecting tubing are totally integrated.
- The low flow rate associated with these capillary LC columns makes them ideal for particle beam and electrospray LC/MS detectors.

Integrated Connecting Tubing Design

One approach to minimize dead volume is to eliminate the conventional end fittings and make the column and connecting tubing an integral design, connecting directly to the injector and detector. The design below uses 1/16" OD or 1/32" OD 50µm PEEKsil™ tubing for the direct connections. The zero dead volume connection incorporating a frit ensures the column design does not contribute to dead volume.



ProteCol C18 Capillary Columns

- **C18: 17% Phase load**
- **100mm length PEEKsil tail on outlet, 200mm on inlet**

ProteCol C18 Column, 120Å, 3µm, 1/16" OD

ID	Length	Column Type	Cat. No.
150µm	50mm	PEEKsil	2104152
	100mm	PEEKsil	2104252
	150mm	PEEKsil	2104352
300µm	50mm	PEEKsil	2102152
	100mm	PEEKsil	2102252
	150mm	PEEKsil	2102352

ProteCol C18 Column, 300Å, 3µm, 1/16" OD

150µm	50mm	PEEKsil	2104154
	100mm	PEEKsil	2104254
	150mm	PEEKsil	2104354
300µm	50mm	PEEKsil	2102154
	100mm	PEEKsil	2102254
	150mm	PEEKsil	2102354

ProteCol C18 Column, 120Å, 3µm, 1/32" OD

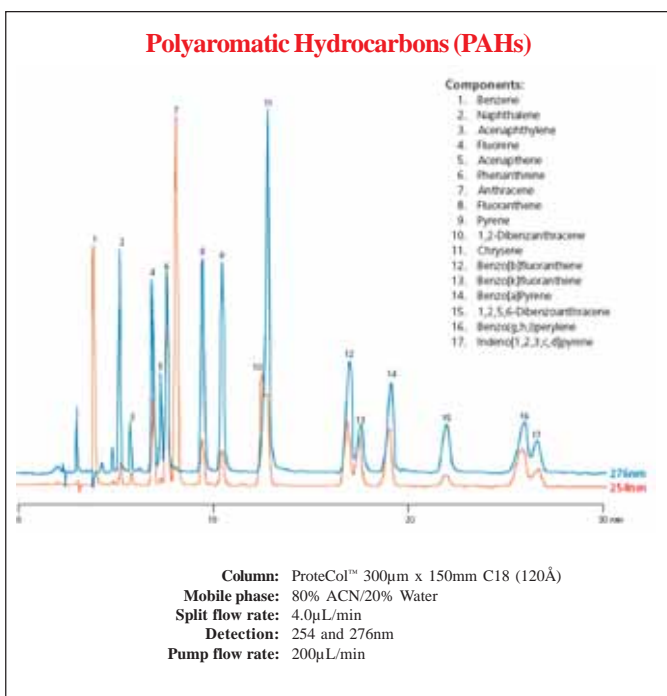
150µm	50mm	PEEKsil	2204152
	100mm	PEEKsil	2204252
	150mm	PEEKsil	2204352
300µm	50mm	PEEKsil	2202152
	100mm	PEEKsil	2202252
	150mm	PEEKsil	2202352

ProteCol C18 Column, 300Å, 3µm, 1/32" OD

150µm	50mm	PEEKsil	2204154
	100mm	PEEKsil	2204254
	150mm	PEEKsil	2204354
300µm	50mm	PEEKsil	2202154
	100mm	PEEKsil	2202254
	150mm	PEEKsil	2202354

ProteCol Accessory Kits

Cat. No.	Description
212000	ProteCol Accessory Kit, 1/16"
222000	ProteCol Accessory Kit, 1/32"
	<i>Accessory kits include:</i>
	(2) connectors
	(3) double ended ferrules
	(1) inline filter with 50µm x 50mm PEEKsil™ tubing
	(1) 50µm ID x 100mm PEEKsil™ tubing
	(1) 50µm ID x 150mm PEEKsil™ tubing



SGE ProteCol™ Capillary LC Accessories

Guard Column Holder/Connector



ProteCol Column Protection

ProteCol guard columns have a 12mm PEEKsil tail on outlet and a 50mm tail on the inlet. The guard column holder allows for an easy connection of your guard column to your Protecol column.

The ProteCol in-line filter protects the system without introducing peak tailing and loss of resolution. In-line filters have a 50mm PEEKsil tail on the outlet and inlet.

ProteCol C18 Guard Column, 1/16" OD, 3/pk

ID	Length	Packing Material	Cat. No.
150µm	10mm	C18, 120Å, 3µm	212403
	10mm	C18, 300Å, 3µm	212404
300µm	10mm	C18, 120Å, 3µm	212203
	10mm	C18, 300Å, 3µm	212204

ProteCol C18 Guard Column, 1/32" OD, 3/pk

ID	Length	Packing Material	Cat. No.
150µm	10mm	C18, 120Å, 3µm	222403
	10mm	C18, 300Å, 3µm	222404
300µm	10mm	C18, 120Å, 3µm	222203
	10mm	C18, 300Å, 3µm	222204

ProteCol In-Line Filter

Cat. No.	Description
212005	In-line filter, 1/16" OD PEEKsil tail
222012	In-line filter, 1/32" OD PEEKsil tail



ProteCol Accessories

Designed for flow splitter based pumping systems, the ProteCol™ MicroFlow meter provides accurate measure of flow rates in Capillary and nano LC. Using the optimum flow rate for a column is critical for achieving the best possible results.

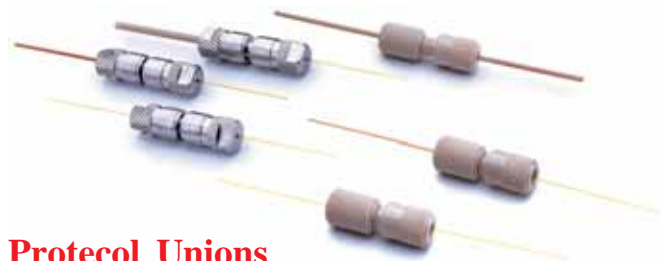
Providing high precision flows, the ProteCol Flow Splitter enables Capillary LC columns and components to be used with conventional LC pumping systems. Purpose designed for minimum dispersion, the flow splitter provides highly reproducible microflows.

ProteCol MicroFlow Meters

Cat. No.	Description
222013	2µL flow path volume (0.2-10µL/min)
222014	25µL flow path volume (2.5-100µL/min)

ProteCol Flow Splitters

212001	Splitter with 1/16" OD PEEKsil outlet
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ProteCol Unions

The effect of any dead volume is significantly more detrimental to peak shapes and resolution in capillary LC compared to conventional LC and even micro-LC. ProteCol™ Unions are purposely designed and manufactured to exacting tolerances and provide perfect butt connections with zero dead volume. Maximum performance is delivered when using the ProteCol Unions with PEEKsil™ tubing which has perfectly square cut and polished ends.

The stainless steel unions can be wrench-tightened for operation at high pressures, whereas the PEEK unions allow for easy finger tightening and have the advantage of being lighter than stainless steel.

ProteCol Unions (Includes 2 unions + 4 ferrules)

Cat. No.	Connects Tubing:	Material
212006	1/16" to 1/16"	SS
213006	1/16" to 1/16"	PEEK
212007	1/16" to 1/32"	SS
213007	1/16" to 1/32"	PEEK
212008	1/16" to 0.36mm	SS
213008	1/16" to 0.36mm	PEEK
222005	1/32" to 1/32"	SS
223005	1/32" to 1/32"	PEEK
222006	1/32" to 0.36mm	SS
223006	1/32" to 0.36mm	PEEK
222007	0.36mm to 0.36mm	SS
223007	0.36mm to 0.36mm	PEEK

ProteCol Ferrules, 5/pk

213006	1/16" to 1/16"	PEEK
213007	1/16" to 1/32"	PEEK
213008	1/16" to 0.36mm	PEEK
223005	1/32" to 1/32"	PEEK
223006	1/32" to 0.36mm	PEEK
223007	0.36mm to 0.36mm	PEEK

ProteCol Trap Columns



70mm PEEKsil tail on both ends of the Trap

ProteCol Trap columns allow an on-line pre-concentration or the desalting of a sample before injection into the analytical column. Typically connected to the injector as shown, all trap columns come with 1/32" PEEKsil tails for maximum flexibility.

ProteCol C18 Trap Column, 1/32" OD

ID	Length	Packing Material	Cat. No.
150µm	50mm	C18, 120Å, 3µm	2224052
	50mm	C18, 300Å, 3µm	2224054
300µm	50mm	C18, 120Å, 3µm	2222052
	50mm	C18, 300Å, 3µm	2222054