

# SNAP Columns

*The next generation of low/medium pressure column technology*



# The Technology:

Bio chromatography is widely applied in high performance downstream processing techniques that can be used in a wide range of compounds such as proteins, peptides or nucleic acids. When using various chromatographic techniques such as ion exchange, affinity or gel permeation chromatography, increasingly high performance separation media are used and, as a result, higher demands are made on the quality of the hardware.

# Introducing the SNAP Column:

Essential Life Solutions SNAP Columns meet the highest criteria for professional laboratory use and represent the "next generation" of tools for modern chromatography. During development of this recently patented technology particular attention has been paid to the column volume ranges that are as wide as possible (0ml-2.4L) and to the highest pressure resistance possible (50 bar - 750psig) so that high flow rates and unprecedented performance and efficiencies can be achieved.

We have selected superior quality; inert materials to make sure SNAP Columns are biocompatible and offer the best conditions for high recovery with no loss of bio-activity of your bio molecules. Thanks to the patented "snap" locking collar and two adjustable pistons, the columns are extremely safe, fully adjustable and easy to use.



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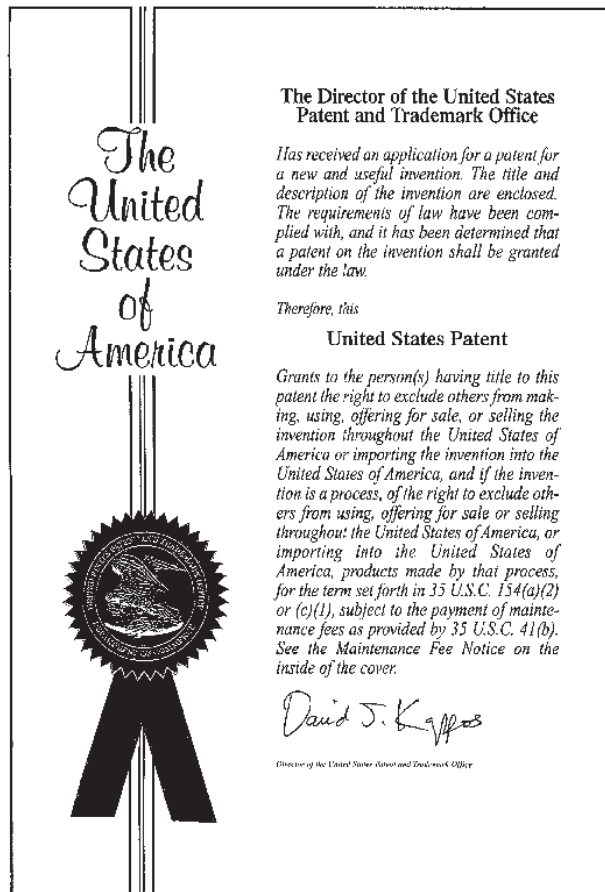
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*innovative solutions for life sciences*

# Patented Technology:



**Quick Disconnect Liquid Chromatography Columns  
United States Patent 7901574**

**Issued March 8, 2011**

**Inventor: Dan Yukon**

**Patent issued for new design of low/medium pressure liquid chromatography column with quick release end. Product used for HPLC/FPLC for ion exchange, reverse phase, normal phase, size exclusion**

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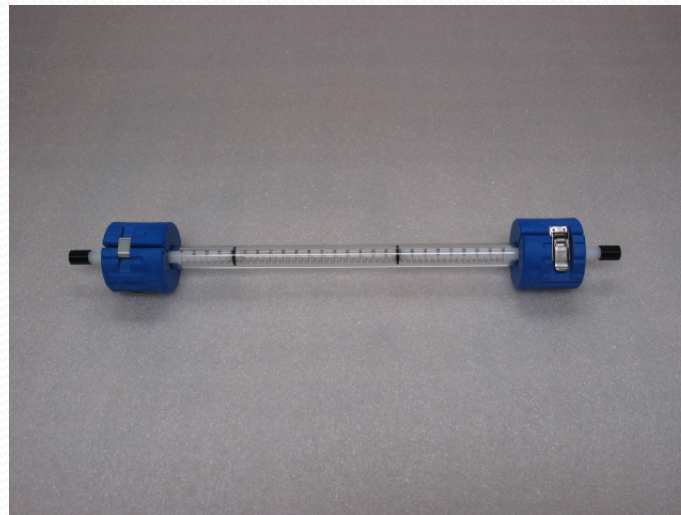
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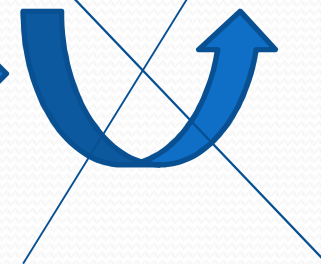
# Features & Benefits:

## 1. LINEAR MOTION OF PISTON

The adjustment mechanism of the SNAP Column employs the use of a turning collar and therefore the piston travels in a true linear motion. This is important for good chromatography as it eliminates bead scraping and also imparting torsional load on beads during bed compression.



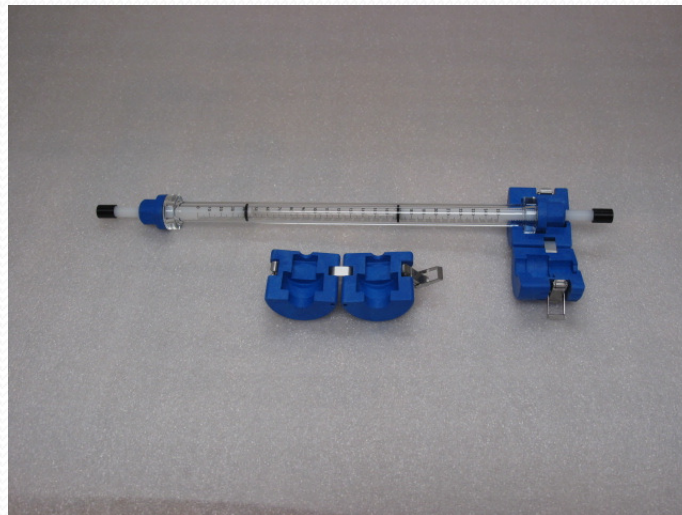
**Linear motion of piston – NOT rotational!**



# Features & Benefits:

## 2. QUICK RELEASE ENDS

Patented SNAP collar is used to fasten the pistons to the column ends. The clamp is designed to tighten more as pressure is increased. This is an inherent safety feature so the higher the pressure; the more the clamp is tightening. At full pressure the snap latch is not needed as the clamp is now fully fastened on to the column end. When the column is depressurized, the collar can be easily removed for disassembly and cleaning.



**Collars removed with a snap of the latch!**

# Features & Benefits:

## 3. CARTRIDGE DESIGN

The column requires two clamps while in use but not for column storage. The advantage is that the scientist can buy many cartridges and a few clamps. This reduces the overall cost to equip the lab with multiple columns. The cartridges can be stored in the packed and plugged condition and the clamps can then be installed on another column and run immediately.

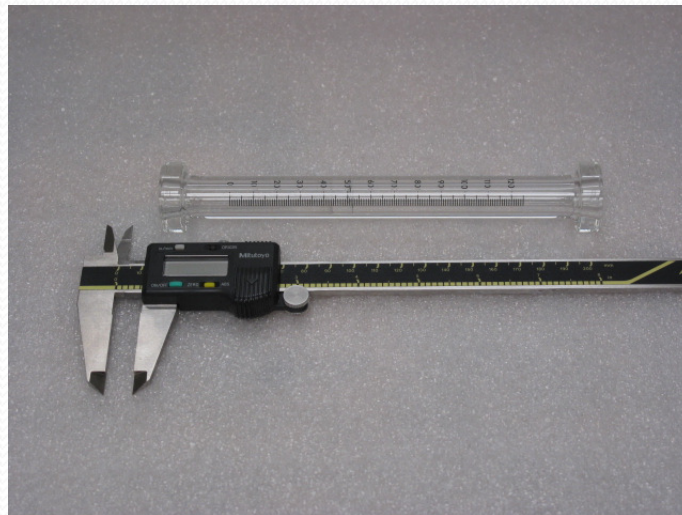


**Cartridge can be stored fully packed without clamps attached!**

# Features & Benefits:

## 4. BETTER QUALITY GLASS WITH HIGHER PRESSURE RATING

All SNAP Columns use high quality redrawn glass which has a very precise bore with an internal accuracy of +/- .003" eliminating the need for an external o-ring adjuster. Further, glass wall is much thicker providing higher pressure ratings up to 50 bars (750 psig). Lastly, glass thickness provides for a much more robust design and glass breakage during normal lab use is virtually eliminated.



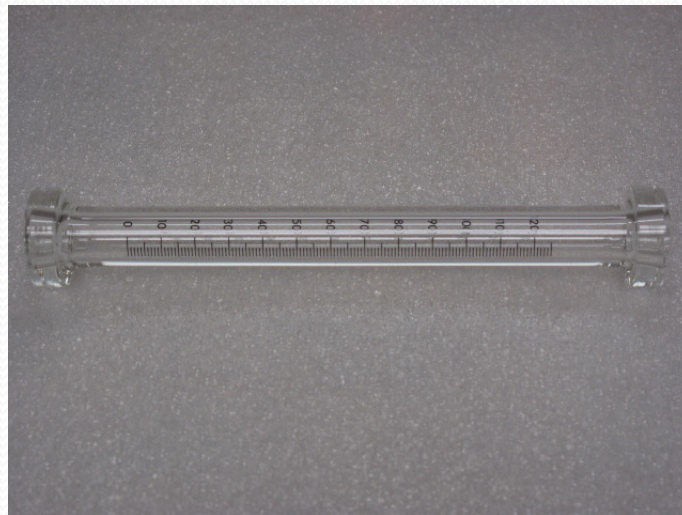
**Precise redrawn glass  
not found in most  
column hardware!**



# Features & Benefits:

## 5. PERMANENT MEASUREMENT SCALE

All SNAP Columns have a measurement scale permanently fused on to the glass surface. This is not a decal that will wear away or become dissolved with organic solvents. Now there is no need to have to hold a scale up to the column or guess the bed length. Packing result readings are now easier than ever!



**Permanent fused on  
scale will not come off  
with solvent use!**

# Features & Benefits:

## 6. TRUE FRITS

SNAP Columns use true Frits which are available in a wide range of porosities and materials so there will be no problem with application incompatibility. Frits are held in place by means of a taper lock, but can easily be changed or replaced if required. ELS believes that true frits give superior flow distribution contributing to good chromatography.

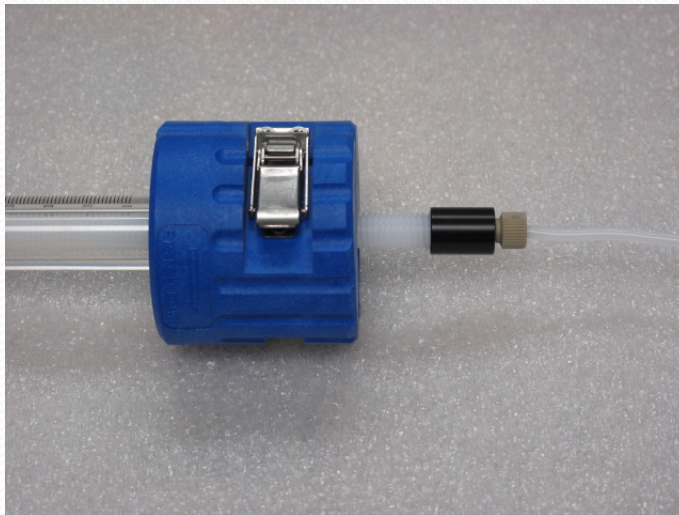


**Frits to match virtually  
any application and  
resin diameter!**

# Features & Benefits:

## 7. ROBUST INLET AND OUTLET CONNECTIONS

Connection to the SNAP Column is done externally which has the advantage of visual confirmation of good seal, unlike some columns where the connection occur internally and out of sight. The connection is 1/4-28 flat bottom standard HPLC. Since many systems employ M6, your column will be supplied with a standard adapter fitting. Connecting your new column will be very easy!

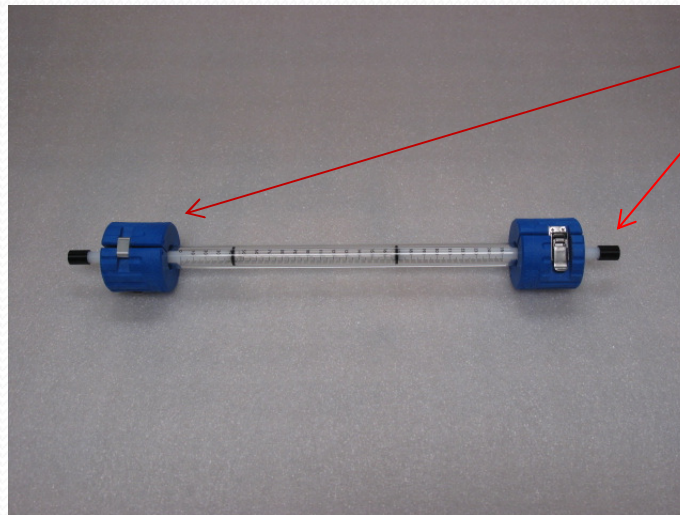


**External connections  
assure visibility of  
leakage!**

# Features & Benefits:

## 8. DOUBLE PISTON ADJUSTMENT

All SNAP Columns are supplied with double adjustable pistons which allow greater freedom to the scientist in adjusting bed lengths. Pistons can be configured as short/short, long/long or short/long depending on the desired bed length range and target volume ( see chart for available sizes).

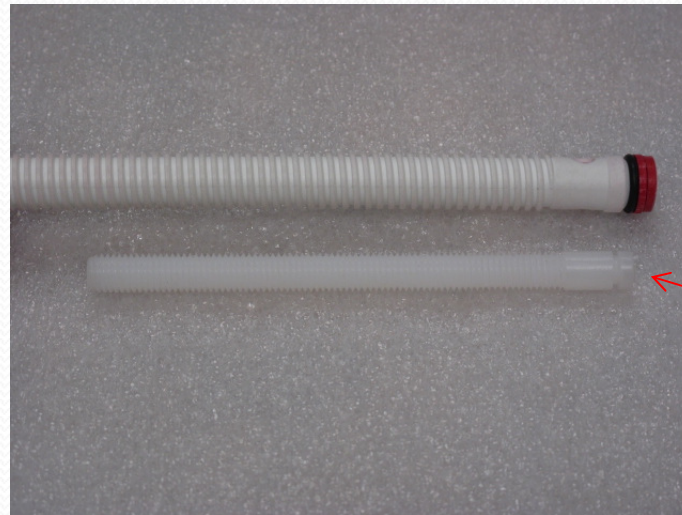


**Column can be adjusted from either end!**

# Features & Benefits:

## 9. FINE THREAD PISTON ADJUSTMENT

Pistons employ a fine thread allowing for more precise position adjustment.



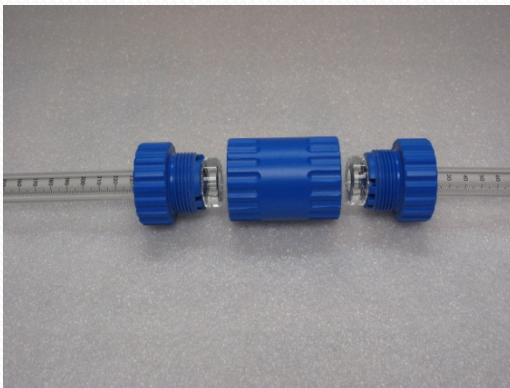
Competition course  
thread

ELS fine thread

# Features & Benefits:

## 10. PACKING ADAPTER

Since most columns will be wet or slurry packed, a packing adapter will be used. SNAP column packing adapters have a number of advantages. The first is that they are easy to install and remove. Secondly, they are rated for the same pressure as the column they are mounted on allowing for full pressure and flow conditions. Third, they are the same diameter as the column they are mounted on avoiding issues with turbulent flow at the interface or joining point. All this adds up to ease of use, safe operations and good results!



**Before Make-up**

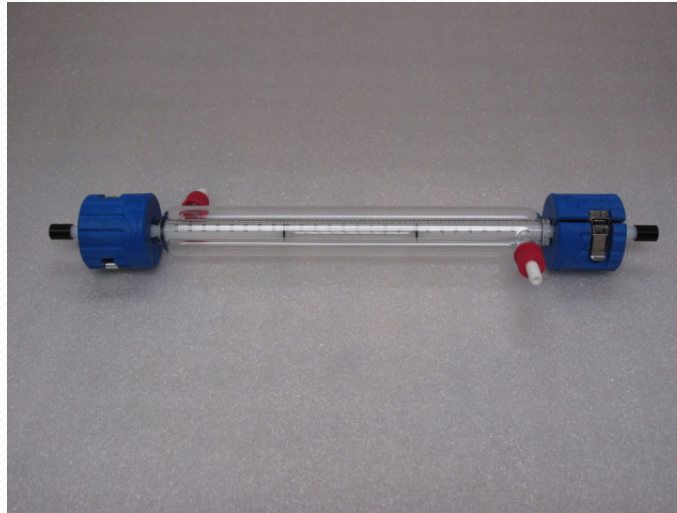


**After Make-up**

# Features & Benefits:

## 11. Customized Solutions

SNAP Columns can be provided with any customization that the scientist requires including special materials of construction, heating / cooling jackets, etc.....



**Customized 10mm x 250mm SNAP Column with water jacket!**

# FAQ - #1:

## *1. What packing materials can I use with my Essential Life Solutions SNAP Column?*

In theory you can use any packing material from any supplier of your choice. The only restrictions are those linked to the conditions of use with materials that come into contact with the media, such as pressure limits of the column and packing material. To accommodate this, ELS offers a wide range of variants and different column versions. Our columns are being used for ion exchange, size exclusion, gel permeation, Normal/reverse phase and affinity chromatography to name a few. Most phases from the major suppliers (GE, PALL, FUJI, YMC, etc.....) are compatible with our columns.



## FAQ - #2 & 3:

### *2. Can ELS supply pre-packed columns?*

Yes, in most cases we can provide packing service with customer supplied or ELS supplied material.

### *3. Can I connect ELS SNAP Columns to any LC system from other manufacturers, or do I have to use a system from ELS?*

There are no restrictions! ELS columns can be adapted to virtually any current LC system either directly or with standard supplied adapters. As an option we can supply special adapters if you are not able to connect with our standard fittings or adapters.

# Materials of Construction:

ELS Columns can be supplied in either Aqueous Buffer (AB) or Solvent Resistant (SR) configurations. The chart below outlines materials of construction for both versions.

Item	Material Aqueous Buffer (AB)	Material Solvent Resistant (SR)
Body / Tube	Borosilicate Glass	Borosilicate Glass
Pistons	UHMW Polyethylene	PEEK
Frits	Polyethylene	TP316L Stainless Steel
Clamps	Compound	Compound

# Size Options:

Diameter (ID - mm)	Bed Length Max (mm)			
10	125	250	500	750
15	125	250	500	750
25	125	250	500	750
35	125	250	500	750
50	125	250	500	750

# Conclusion:

We at Essential Life Solutions believe that from our historical knowledge of the needs of scientists, combined with our knowledge of the increasing demand on performance at a reasonable price point have hit the mark with this new product line. There is no other technology available for the researcher or chemist to have this most user friendly and cost effective tool to achieve the desired result in minimal time and effort.

Please feel free to contact our office with any questions or follow up comments on our company, our products or our customer commitment!

Thank you for your time and attention! The ELS mantra is “helping you to succeed” – we live this pledge!