



Superflo® Pilot Column

For Process Development and Small-Scale Manufacturing



Why SuperFlo®?

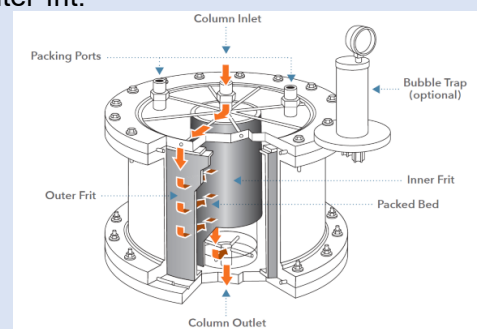
SuperFlo® columns address the fundamental limitation of the axial column design as the pressure does not increase with the size of the column.

SuperFlo® Columns are based on the radial flow geometry and are ideally suited for high throughput and bioprocess applications. They are versatile, easy to use and offer a number of advantages over conventional Axial flow column design, especially when it comes to scale up. More than a thousand laboratories and production facilities have chosen SuperFlo® columns to save time, money and to get superior results.

Save time and Money

Since SuperFlo® columns operate at much higher flow rates as compared to Axial columns, you save time. Since they operate at low pressures, you save on equipment costs. And, since SuperFlo® columns are more compact than Axial columns, you save media cost and valuable space.

The SuperFlo® column consists of two concentric porous cylinders, creating a space. This area between the frits is the column bed and this is packed with the chromatographic resin. The eluent / sample enters at the top of the column, the top lid acts as a distribution head and directs the sample into the gap between the outer column body and the outer frit. It distributes over the whole height of the column and flows horizontal from the outer frit to the inner core. From the gap between the inner frit and the collector rod (spacer in the center of the column) the eluent leaves through the outlet at the bottom of the column. The effective bed height of the column is the distance between inner and outer frit.



The intrinsic design of the SuperFlo® column has a significantly larger surface area than a traditional axial column, therefore even at high flow rates the linear velocity is in a range which allows for the required interaction between sample and resin.

✓ True Linear Easy Scale-up

✓ Easy Validated Packing method

✓ High Flow Rates

✓ Low Back Pressure

✓ High Productivity

✓ Higher Yields

✓ Superior Distribution

✓ Consistency in Performance



How to Scale Up – Calculating the Scale Up

Scaling up with a radial flow column is a simple matter, whether you are scaling up from a small radial flow column or from a conventional column.

Radial flow columns are recommended for ion exchange, affinity, hydrophobic, reverse phase and other types of adsorption-desorption separations. The sample is bound to the column with one buffer and eluted under different buffer conditions. With this type of separation, the most critical parameter is residence time, or the time in which the sample is in contact with the resin packed in the column. This can also be thought of in terms of column volumes of flow per unit time. "Linear velocity" is not appropriate for calculating scale up parameters for radial flow columns. Scaling up, from a small radial flow column to a larger one is linear. For example suppose you are currently running 3.5 ml sample on a 50ml column at 5 ml/min. To scale up 100X, simply multiply the column volume, sample size, and flow rate by 100. Therefore, a 350ml sample run on a 5L column at 500 ml/min will give the same separation.

To scale up from conventional columns to a radial flow column, first convert the flow rate from "linear velocity" to "column volumes per minute. For example, a flow rate of 25ml/min through a 100 ml column is equal to 0.25 column volumes per minute. To scale up to a 5L column, the appropriate flow rate would remain at 0.25 column volumes per minute or 1.25L/min. Similarly, sample size should be thought of in terms of percentage of column volume.



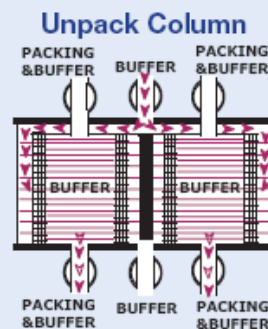
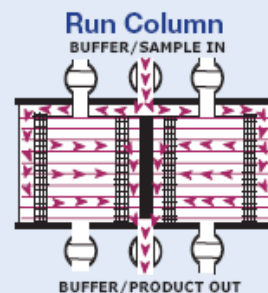
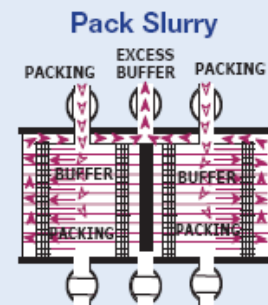
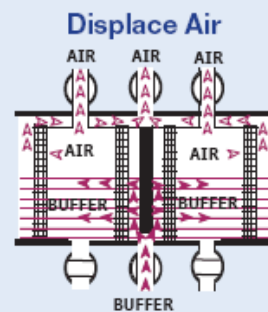
Superflo® Columns Sizes and Materials

Superflo® Pilot Columns come in various sizes or they can be customized to your specific needs. Our standard Pilot columns come in sizes 5L and 10L with 5 cm bed height. The Stainless Steel Superflo® Lab Columns come with 10 micron stainless steel frits. Columns exhibit excellent chemical resistance in the range of pH 2-12.

How to Pack a Superflo Column

Easy to Pack

The radial flow columns were the first columns to be slurry packed. The packing and unpacking process is simple and reproducible as shown below.



To learn more call: (510) 475-0650

E-mail: info@sepragen.com