



Superflo® Lab Column

For Process Development and Small Scale



www.sepragen.com

(510) 475-0650

Radial Flow Chromatography Columns – redefining the possibilities in preparative liquid chromatography. Helping you to eliminate your bottlenecks in biochromatography, SuperFlo® columns address the fundamental limitation of the axial column design as the pressure does not increase with the size of the column.

Due to the unique design, the column offers a significantly larger sample inlet area, which results in lower linear velocities, even at high total flow rates.

SuperFlo® Lab columns are capable of extremely high flow rates and are ideally suited for on / off types of applications. SuperFlo® columns cover the R&D and small scale manufacturing range from 50mL both in acrylic and stainless steel up to the 500L industrial production range, including special projects and non-standard custom builds.

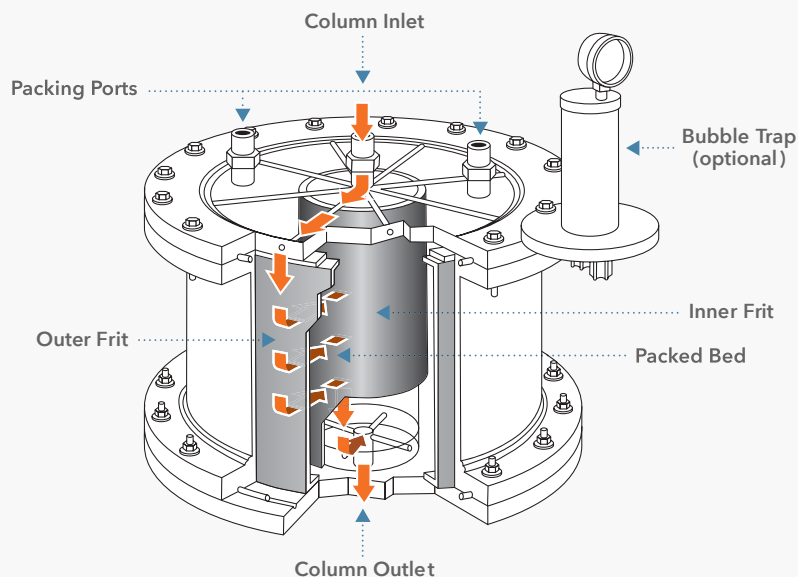
How SuperFlo® Works

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.



Superflo® Lab Column

Benefits:

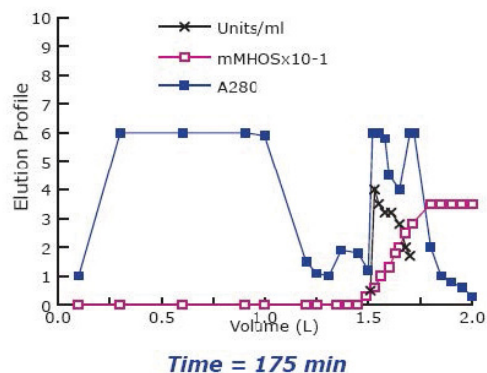
- ✓ True Linear Easy Scale-up
- ✓ Easy Validated Packing method
- ✓ High Flow Rates
- ✓ Low Back Pressure
- ✓ High Productivity
- ✓ Higher Yields
- ✓ Superior Distribution
- ✓ Consistency in Performance



Purification of an Intracellular Bacterial Enzyme – 7X Higher flow rate

Axial Flow Column (AFC) – K-100

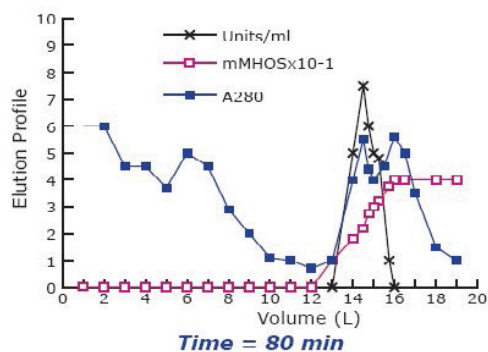
Axial Flow Column (AFC) – K-100



Column Size:	200 ml Axial Column
Flow Rate:	12 ml/min (3.6 cv/hr)
Amount of bacterial paste loaded:	80 mg/ml resin
Time required for elution:	60 min.
Elution Volume:	60 min
Total run time: 175 min.	175 min.

Radial Flow Column (RFC) Superflo® 1200

Radial Flow Column (RFC) – Superflo®-1200



Column Size:	1200 ml Superflo Lab column
Flow Rate:	250 ml/min (24 cv/hr)
Amount of bacterial paste loaded:	90 mg/ml resin
Time required for elution:	24 min.
Elution Volume:	60 min
Total run time: 175 min.	80 min.

The example above shows the isolation of a recombinant protein. Not only is the processing time decreased, but the recovery is enhanced due to reduction of on column proteolytic degradation.

Cod Dnase Isolation on Q Sepharose® Fast Flow 9X Higher Flow rate

Lab Scale Results (10mg to 300mg lots)

Column (ml)	Flow Rate (CV/hr)	Cycle Time (hr)	Purification (N-fold)	Yield (%)	Productivity (mg/hr/ml)
Axial 60ml	10	1.3	20	100	0.13
Axial 2.5L	8	1.4	13	76	0.10
Radial 250ml	70	0.25	17	107	0.70

Production Scale Results (100mg lots)

Column (ml)	Flow Rate (CV/hr)	Cycle Time (hr)	Purification (N-fold)	Yield (%)	Productivity (mg/hr/ml)
Axial 16L	9.5	1.6	5.2	52	1.2
Radial 5l	84	0.19	15	152	3.4

Cod Dnase was isolated from fishmeal and purified using Q Sepharose Fast Flow. Lab scale studies show a 7X faster flow, which is enhanced to 9X productivity advantage upon scale-up to 100gm runs from 2500-liter preps.



Superflo® Columns Sizes and Materials

Superflo® Lab Columns come in various sizes or they can be customized to your specific needs.

Our standard Acrylic Lab columns come in sizes 50 mL to 1000 mL with 3.5 cm bed height. The standard Stainless Steel Superflo® Lab Columns range in size from 100 mL to 1000 mL with 3.5 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.

