

## PROCEDURE FOR USE Empty Cartridges (1 ml)

### INSTRUCTIONS

The currently pre-packed cartridges in the market have poor scalability and poor mechanical strength. Due to the wall-support effect and the rigidity of individual chromatography resin, the particle has to be correctly compressed even after the settling down under flow packing. It will then form a tightly packed bed with predictable chromatographic performance.

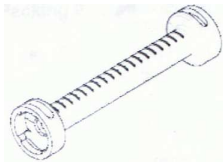

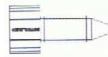
ABT empty cartridges have all the functionalities of a small reusable cartridge but possess many other advantages: resin compressibility, disposable, easy packing of any type of chromatography media (>20µm), identical design to the scale-up columns, robust, precise and reproducible packing, allowing moderate back pressure, easy to store, long shelf life.

After the chosen resin is packed in the cartridge, the cartridge can be readily stored and used many times.

The cartridge parts are made of polypropylene which shows excellent chemical resistance to most of the commonly used reagents. It has the standard connection compatible to the common chromatography instruments (such as ÄKTA).

The recommended operational pressure is up 5 bar, as compared to most of the process chromatography media that allows an operational pressure less than 3 bar.

### Description of the Cartridges Parts:

DESCRIPTION	QUANTITY SUPPLIED	PART
<b>Cartridge Body:</b> the internal diameter is 6.2 mm. The volumetric mark is at an interval of 0.1 ml. It contains a locking mechanism in both ends.	5	
<b>End Plug:</b> it has 10-32 UNF female thread in one end and an O-ring and frit disc in the other end. It produces the minimum void volume in the cartridge.	10	
<b>Stop Plug:</b> it has 10-32 UNF male thread. It is used for the fingertight seal of the packed cartridge.	Order separately	

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The following packing procedure works as a general guidance. End – users may develop suitable packing protocols for their own media.

### Packing 1 ml cartridge

- Insert one End Plug into one end of the Cartridge Body. Push the End Plug until it is fully engaged with the shoulder of the Cartridge Body.
- Screw a 10-32 male/luer female connector (not supplied) to the End Plug. Use a syringe pre-filled with 1 – 2 ml of water to fill the cartridge to a level of 0.2 – 0.3 ml.
- Pipette the resin slurry in and draw the bed down with the syringe. Be careful not to dry the bed. If necessary, pipette in more water or slurry or pipette out more slurry until the packed volume (under suction) reaches the desired level.

**Note:** The packed volume depends on the type of resin. As a guide, the packed volume should be 1.2 – 1.4 ml for agarose based spherical particles.

- Pipette in water to fully fill the column. Carefully insert the top End Plug (to avoid trapping of air bubble). Push it down slowly until the liquid level reaches the thread. Stop pushing and screw a stop plug to seal the top. Then push the top End Plug down until it is fully engaged in the locking mechanism.

**Note:** don't remove the syringe in this stage.

- Remove the 10-32 male/luer female connector and the syringe. Screw another Stop Plug into the bottom End Plug.
- Depending on the nature of individual resins, the following step may be taken to further settle the particles inside the bed. Pre-fill a syringe with 10 ml liquid (ideally the same liquid as the one in the cartridge). Insert it to a 10 – 32 male /luer female connector and purge out any air in the flow path. Remove the top Stop Plug. Attach the pre-filled syringe to the top End Plug (be sure that no air is trapped in the flow path). Remove the bottom Stop Plug. Push through at least 5 ml of liquid under pressure (e.g. as fast as possible) by hand. Seal the bottom with a Stop Plug. Disconnect the syringe and then seal the top. This step can also be done by connecting the column to a chromatography system (such as ÄKTA) to pump liquid through at high speed (e.g. 3-5 ml /min).

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