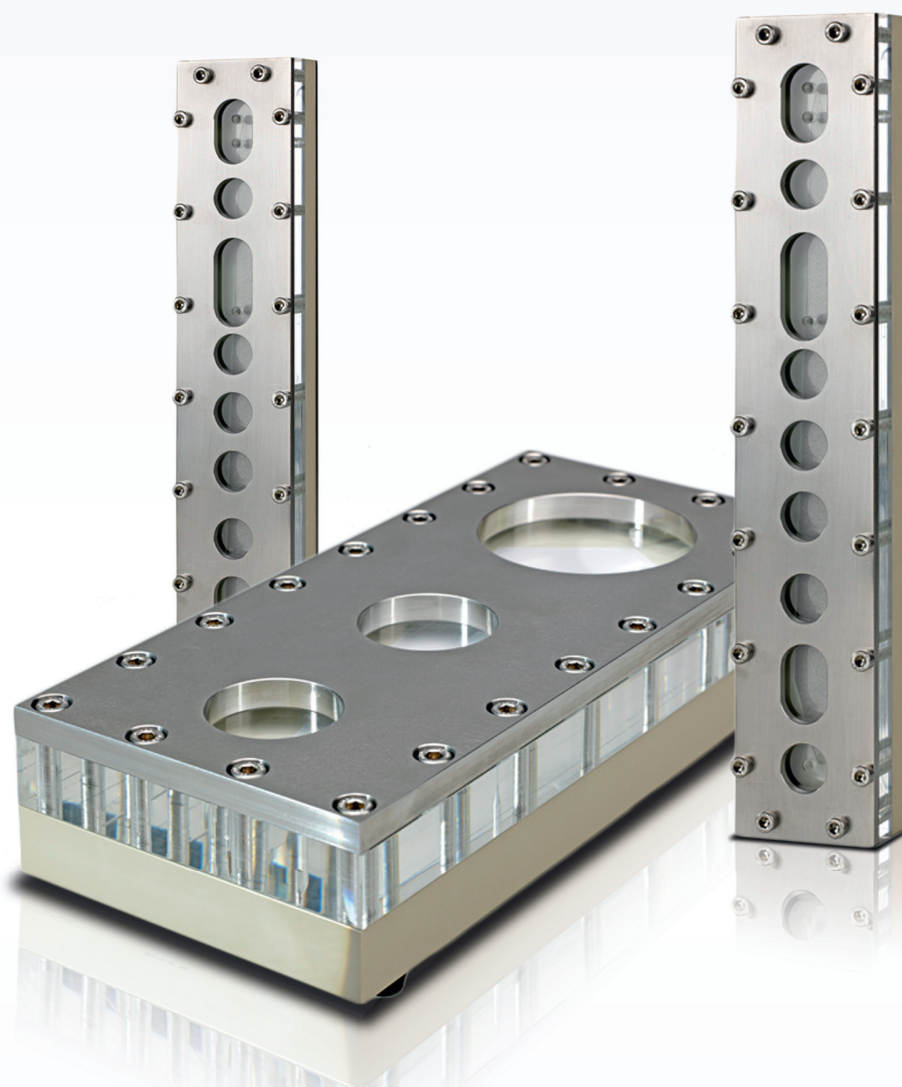




POSTNOVA

# AF2000 MF

Supplies and Consumables Brochure



**Channel Cartridges & Membranes for**  
**AF4 - Asymmetric Flow FFF**  
**HF5 - Hollow Fiber Flow FFF**

# Postnova – The FFF Inventors

## 30 Years of Innovation and Excellence in FFF and Light Scattering

### The Invention of Field-Flow Fractionation

The story of Postnova FFF started when Prof. Calvin Giddings from University Utah, Salt Lake City, USA invented and patented Field-Flow Fractionation in 1966. Giddings was a passionate scientist in the area of separation science and a two-times Nobel Prize nominee. He and his co-workers laid the theoretical foundations for FFF and founded the world's first FFF company FFFractionation in 1986. Giddings and his group invented all major FFF versions which were commercialized first by FFFractionation (now Postnova USA) in the 1980s.

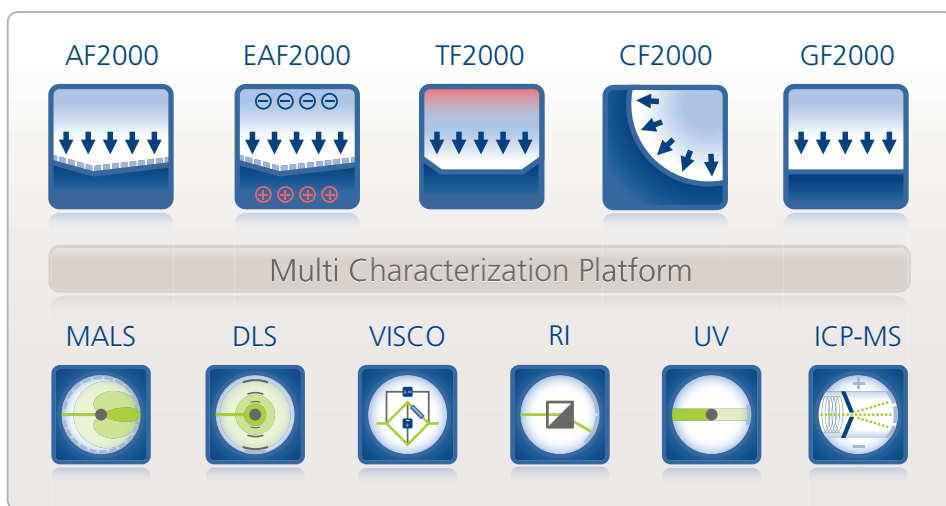
### The New Era of Field-Flow Fractionation

A complete new era in FFF started with the commercialization of the first automated Asymmetric Flow FFF (AF4) which was developed at Technical University of Munich in 1995, followed up by the foundation of Postnova Analytics in 1997 in order to market this technology. In the 1990s Postnova was able to establish its new automated AF4 technology at leading chemical and pharmaceutical companies and research institutions worldwide.

Then in 2001 FFFractionation, the FFF Inventor's company became part of the Postnova family and in the following years Postnova build up the most comprehensive and complete FFF product line based on the original work, know-how and patented technologies of Prof. Giddings. Since then Postnova has been clearly the leading innovator in the field of FFF, by continuously inventing new FFF Technologies which pushed FFF to new levels of performance, sensitivity, reliability and flexibility.

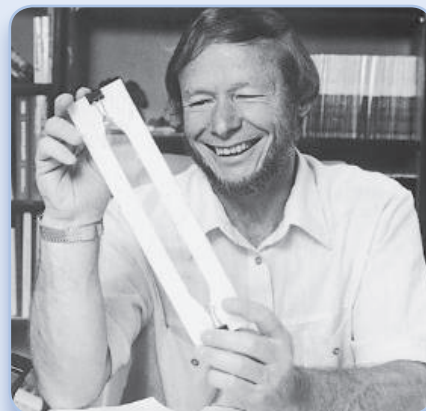
### The Field-Flow Fractionation Platform

Today the unique Postnova FFF Platform contains Asymmetric Flow FFF (AF4), Hollow Fiber Flow FFF (HF5), Centrifugal FFF (CF3), Thermal FFF (TF3) and Gravitational FFF (GF3). All these FFF variants share the same modules and online detectors such as MALS, DLS, Visco and MS.



The flexibility of the Postnova FFF Platform is manifested by the fact that all major modules can be used at the same time for Flow FFF, Centrifugal FFF and Thermal FFF. Many modules, such as the pumps, degassers, auto injectors, fraction collectors and detectors can be shared between the FFF technologies. All is controlled by the single NovaFFF software and also detectors such as MALS, VISCO, DLS and ICP-MS are integrated making data analysis and evaluation a simple task.

The FFF Platform is the only complete solution on the market, which includes all modules provided by one manufacturer, single software control and integration of Flow, Centrifugal and Thermal FFF. This makes the Postnova FFF Platform the gold standard and the most flexible choice available without typical worries about service and support as this is all taken care by Postnova.



### Milestones & Achievements

#### 2016 First Online Viscometer

Launch of first Postnova Online Viscometer for FFF, SEC and GPC

#### 2012 First dedicated FFF-MALS

Postnova presents the world's first Multi Low Angle MALS with 21 angles

#### 2011 First Hollow Fiber Flow FFF

Postnova presents its first own commercial Hollow Fiber Flow FFF (HF5)

#### 2008 Thermostated Flow FFF

Postnova presents the new AF2000 thermostated Flow FFF

#### 2006 First High Temp. Flow FFF

Postnova Analytics & Dow Chemical invent and develop the world's first High Temperature Flow FFF

#### 2001 Foundation of Postnova USA

FFFractionation Inc. becomes part of the Postnova family

#### 1997 Foundation of Postnova

Dr. Thorsten Klein founds Postnova Analytics in Munich, Germany

#### 1995 Commercial Asym. Flow FFF

Development of first automated Asym. Flow FFF by Dr. Thorsten Klein at Technical University Munich, Germany

#### 1986-1988 Worlds first FFFs

Introduction of first commercial FFF system by FFFractionation: F1000 Flow FFF, T100 Thermal FFF, S101 Sedi FFF

#### 1986 Foundation of FFFractionation

Prof. Calvin Giddings, Inventor of FFF, founds FFFractionation in Salt Lake City

#### 1966 Invention of FFF

Prof. Calvin Giddings invents Field-Flow Fractionation at University of Utah in Salt Lake City, USA

# The Cartridge System

## Unique patented Flow FFF Channels

### Re-Usable Cartridges (AF4)

The re-usable cartridges are made from different exchangeable parts, which are compatible with each other. These cartridges offer the greatest flexibility available on the market and are ideal for research applications with changing requirements and FFF systems which are shared by different users for various applications. They allow highly sophisticated method optimization, because many parameters can be changed independently by combining different cartridge components. Re-usable cartridges are especially well suited for applications requiring high temperatures, high sample loads, special membranes and organic solvents. They are long-lasting and can be used for years, as only the membrane inside has to be exchanged after a while.

### Disposable Cartridges (HF5)

The disposable cartridges are designed to be true consumables. Although they can be temporarily regenerated to extend lifetime by flushing, these cartridges are typically disposed after use at the end of performance. They are made for easy use without time consuming technical preparations and are ideally suited for pharmaceutical applications as well as regulated and QC environments. Because of their monolithic design, they are easy to handle and effectively avoid user errors. They do not have the same flexibility as reusable cartridges, but they are ideal for high sample through-put, strictly controlled run conditions and routine measurements with established methods.

### Most flexible Cartridge Technology

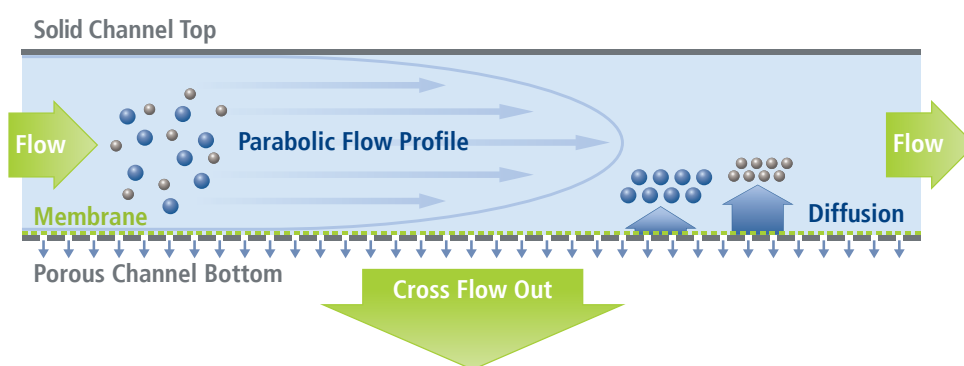
To cover the broadest application range possible, Postnova developed the unique AF2000 MultiFlow FFF platform, which can use various Flow FFF techniques, such as Asymmetric or Hollow Fiber Flow FFF. To allow most flexible and efficient use of the different techniques, together with maintaining highest levels of resolution, recovery and reproducibility, Postnova invented and patented\* an unparalleled set of Flow FFF channel cartridges, which fit perfectly with the new AF2000 MultiFlow FFF Series.

## AF2000 MultiFlow FFF

Asymmetric

Hollow Fiber

These cartridges incorporate either planar Asymmetric Flow FFF (AF4) or tubular Hollow Fiber Flow FFF (HF5) channels. Although AF4 and HF5 are not new techniques, the so far available home-made or commercial channels, showed significant drawbacks and inherently strong limitations. These problems have now been overcome with the Postnova cartridge technology. Additionally, the Postnova Flow FFF channels are available as re-usable and disposable cartridges.



### Best Performance Cartridge Technology

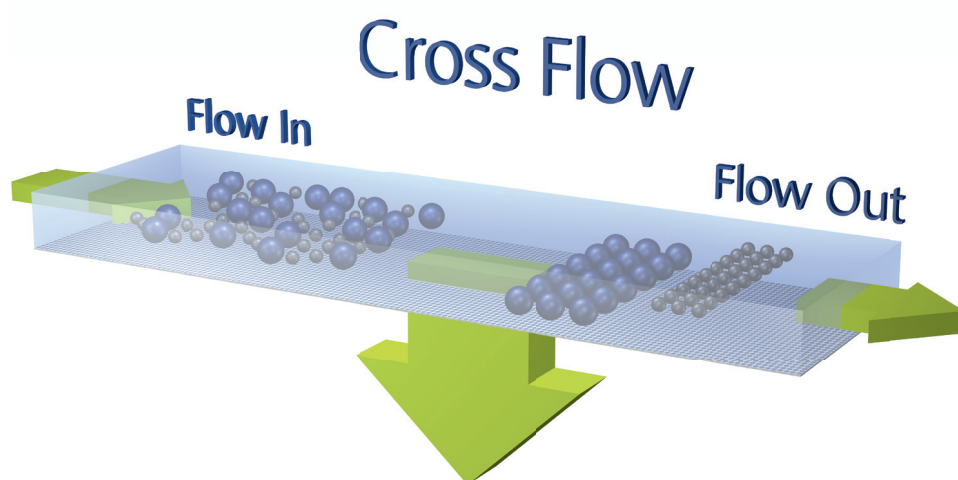
- Easy Handling
- Highest Flexibility
- Widest Compatibility
- Unparalleled Reproducibility
- Superiour Recovery
- Increased Resolution
- Re-usable and Disposable

# Re-Usable AF4 Cartridges

## The most flexible Cartridge System

### AF4 Separation Principle

The Postnova planar channel cartridges are designed based on the Asymmetric Flow FFF principle (AF4). Inside the narrow ribbon-like channel the samples are separated by means of a so-called cross flow. The main eluent flow carrying the sample is introduced via the inlet of the channel and leaves the outlet together with separated sample sizes to the detectors. The actual cross flow is generated inside the channel by removing a partial sub-flow from the main eluent stream through a membrane located at the channel bottom. The channel thickness has to be very thin in order to ensure a stable laminar flow, which is a basic requirement for FFF.

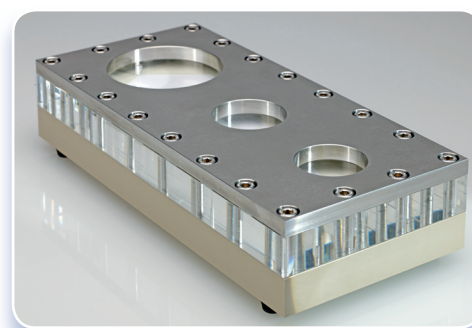
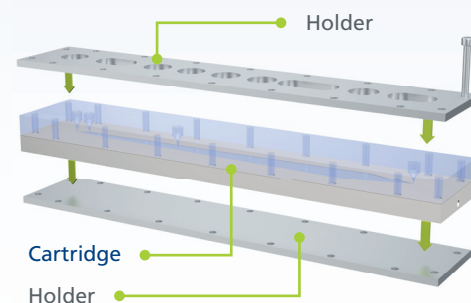


### AF4 Cartridge Design

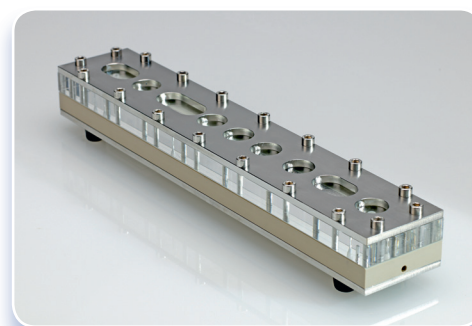
The patented\* Postnova channel cartridge technology uses a channel holder with top and bottom plates and the channel cartridge itself, which is contained within that holder. One unique advantage of this design is that the channel cartridge can be compressed very homogeneously and stronger than with other designs. This always ensures seal-tight channels which maintain their form even under higher pressures and flow rates. At the same time all kind of different cartridges can be used providing a maximum of flexibility.

The Postnova AF4 cartridge system provides the highest number of variants and options to meet a broad number of applications. Because of its technical superior design the Postnova cartridge provides better resolution, reproducibility and recovery than other outdated designs which increasingly show leaks, deformation, bending and strong run-to-run variability, especially at changing flow and pressure rates.

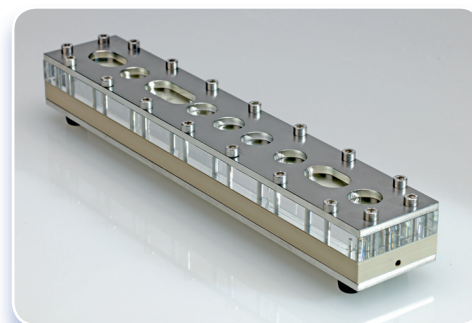
### Patented AF4 Holder & Cartridge



AF-28SP – Semiprep AF4 Cartridge  
Aqueous, Metal-free, PEEK-PMMA



AF-28AN – Analytic AF4 Cartridge  
Aqueous, Metal-free, PEEK-PMMA



AF-14MN – Mini AF4 Cartridge  
Aqueous, Metal-free, PEEK-PMMA



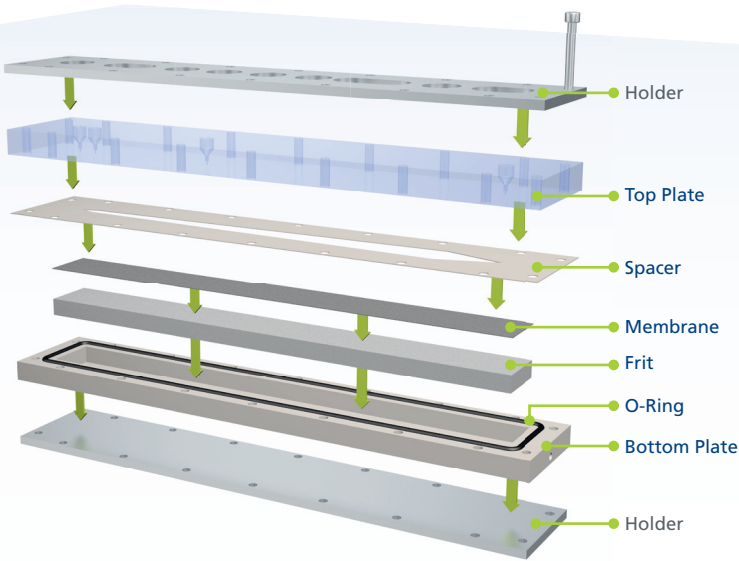
## AF4 Cartridge Advantages

- **Better Resolution:** Mechanically more stable channels which can be used at higher pressures, flow rates and with smaller membrane pore sizes. No bending of channels due to superior technical cartridge-holder design.
- **Better Recovery:** Improved sealing technology inside allows use of higher pressures, flow rates and also smaller membrane pore sizes. No internal leaks between spacer and membrane due to advanced sealing principle.
- **Better Reproducibility:** Lowest channel tolerances and more stable channel volume at higher pressures, flow rates and after membrane exchange. No change of channel dimensions due to sophisticated cartridge construction keeps retention times stable.
- **Better Compatibility:** Broadest range of cartridge materials which can be employed for use at different temperatures, solvents and pressures. No corrosion, sample damage or contamination problems due to wrong channel materials.
- **Better Flexibility:** Highest number of cartridge variants which are optimized for use with the new AF2000 MultiFlow System. No system issues because of full downward compatibility with older AF2000 AT/MT/HT, AF2000 Focus and AF1000 systems.
- **Better Handling:** Unique channel design with „Channel Holder“ and „Channel Cartridge“ allows fast and easy cleaning and exchange of complete cartridges, single components or just membranes within a few minutes.
- **Custom Cartridges:** Configure your own “custom made” cartridge by selecting the top/bottom blocks and o-rings which best suit your application.

AF2000 MF - AF4 Cartridge Versions										
Application			Bottom Block			Spacer		Top Block		
Sample	Solvent	Temp.	Material	Frit	O-Ring	Length	Thickness [µm]	Material	Length	O-Ring
<b>Semiprep AF4 Cartridges 345 mm x 160 mm</b>										
Proteins/Polymers/Nanos	Aqueous-Standard	25°C	PEEK	Steel	NBR	280 mm	350/500/800	PMMA	280 mm	-
Proteins/Biopharmaceuticals	Aqueous-Biocompatible	25°C	PEEK	Titanium	NBR	280 mm	350/500/800	PMMA	280 mm	-
Synthetic/Biological Polymers	Weak-Organic	25°C	PEEK	Steel	Kalrez	280 mm	350/500	PEEK	280 mm	Kalrez
<b>Analytical AF4 Cartridges 335 mm x 60 mm</b>										
Proteins/Polymers/Nanos	Aqueous-Standard	10 - 70°C	PEEK	Steel	NBR	280 mm	190/250/350/500/600/800/1000	PMMA	280 mm	-
Proteins/Polym./Nanos+Metal	Aqueous-Metal-free	10 - 40°C	PEEK	Ceramic	NBR	280 mm	190/250/350/500/600/800/1000	PMMA	280 mm	-
Proteins/Biopharmaceuticals	Aqueous-Biocompatible	10 - 70°C	PEEK	Titanium	NBR	280 mm	190/250/350/500/600/800/1000	PMMA	280 mm	-
Synthetic/Biological Polymers	Weak-Organic	10 - 90°C	PEEK	Steel	Kalrez	280 mm	190/250/350/500	PEEK	280 mm	Kalrez
Polymers/Nanos + Metal	Weak-Organic-Metal-free	10 - 40°C	PEEK	Ceramic	Kalrez	280 mm	190/250/350/500	PEEK	280 mm	Kalrez
Synthetic Polymers	Strong-Organic	10 - 90°C	Steel	Steel	Kalrez	280 mm	190/250/350/500	Steel	280 mm	-
Polyolefin Polymers	Strong-Organic-TCB	25 - 220°C	Steel	-	HT Seal	280 mm	450	Steel	280 mm	-
<b>Mini AF4 Cartridges 335 mm x 60 mm</b>										
Proteins/Polymers/Nanos	Aqueous-Standard	10 - 70°C	PEEK	Steel	NBR	140 mm	190/250/350/500/800	PMMA	140 mm	-
Proteins/Polym./Nanos+Metal	Aqueous-Metal-free	10 - 40°C	PEEK	Ceramic	NBR	140 mm	190/250/350/500/800	PMMA	140 mm	-
Proteins/Biopharmaceuticals	Aqueous-Biocompatible	10 - 70°C	PEEK	Titanium	NBR	140 mm	190/250/350/500/800	PMMA	140 mm	-
Synthetic/Biological Polymers	Weak-Organic	10 - 90°C	PEEK	Steel	Kalrez	140 mm	190/250/350/500	PEEK	140 mm	Kalrez
Polymers/Nanos + Metal	Weak-Organic-Metal-free	10 - 40°C	PEEK	Ceramic	Kalrez	140 mm	190/250/350/500	PEEK	140 mm	Kalrez
Synthetic Polymers	Strong-Organic	10 - 90°C	Steel	Steel	Kalrez	140 mm	190/250/350/500	Steel	140 mm	-
Polyolefin Polymers	Strong-Organic-TCB	25 - 220°C	Steel	-	HT Seal	140 mm	450	Steel	140 mm	-
* Postnova's channel cartridge technologies and their integration into Flow FFF are protected by several awarded and pending patents (Patent # DE19808992, EP1879025).										
* Please inquire for other dimensions and materials for different applications.										

# AF4 Cartridge Membranes

Postnova does not only offer a very flexible AF4 cartridge channel system, but also the broadest range of membranes which can be used inside the different cartridges. Membranes are the limiting parameter in AF4 and are absolutely crucial for the overall reproducibility, recovery and resolution of the system. Therefore, Postnova AF4 membranes are custom made high quality materials which have passed an elaborate testing to maintain a high and constant quality as well as performance level. The most optimized AF4 hardware will fail, if the right membrane is missing or membrane quality levels are low and inconsistent.

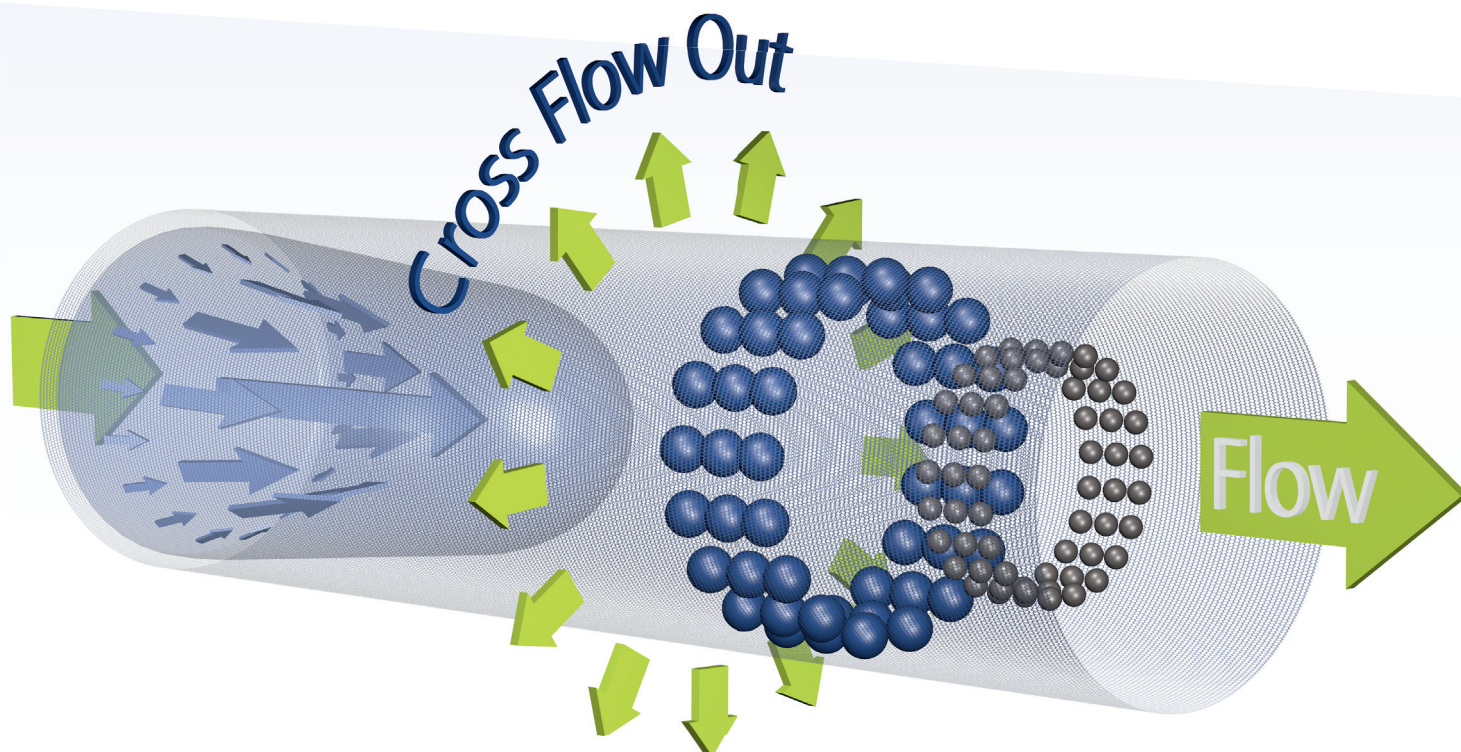


In order to be able to access various application areas and to perform AF4 separations under different eluent and temperature conditions, it is necessary to have the choice of a broad range of different membrane materials and pore sizes. Postnova offers membranes made from Polyethersulfone (PES), Regenerated Cellulose (RC), Cellulose Triacetate (CTA), Teflon (TF) and Ceramics (CE) with pore sizes from 300 Da up to 150 kDa. These membranes can be used with aqueous and organic eluents, from 5° to 220°C and for pressures up to 50 bar.

AF2000 MF - AF4 Membrane Versions						
Application			Membrane			
Sample	Solvent	Temperature	Material	Lowest Pore Size	pH Range	max. Pressure
Semiprep AF4 Membranes						
Peptides / Proteins / Antibodies / Virus	Aqueous	10-40°C	RC / CTA	1 kDa / 10 kDa	2-11	50 / 30
Biopolymers / Polyelectrolytes	Aqueous	10-40°C	PES / RC	0.3 kDa / 1 kDa	2-11	30 / 50
Nanoparticles / Carbon Nanomaterials	Aqueous	10-40°C	TF / RC	30 kDa / 1 kDa	1-14 / 2-11	30 / 50
Synthetic Polymers / Rubbers	Organic	10-40°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Nanoparticles / Carbon Nanomaterials	Organic	10-40°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Analytical AF4 Membranes						
Peptides / Proteins / Antibodies / Virus	Aqueous	10-70°C	RC / CTA	1 kDa / 10 kDa	2-11	50 / 30
Biopolymers / Polyelectrolytes	Aqueous	10-60°C	PES / RC	0.3 kDa / 1 kDa	2-11	30 / 50
Nanoparticles / Carbon Nanomaterials	Aqueous	10-70°C	TF / RC	30 kDa / 1 kDa	1-14 / 2-11	30 / 50
Peptides / Proteins / Antibodies / Virus	Aqueous	10-70°C	RC	1 kDa	2-11	50
Biopolymers / Polyelectrolytes	Aqueous	10-70°C	RC	1 kDa	2-11	50
Nanoparticles / Carbon Nanomaterials	Aqueous	10-70°C	TF / RC	30 kDa / 1 kDa	1-14 / 2-11	30 / 50
Synthetic Polymers / Rubbers	Organic	10-70°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Nanoparticles / Carbon Nanomaterials	Organic	10-70°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Synthetic Polymers / Rubbers	Organic	10-70°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Nanoparticles / Carbon Nanomaterials	Organic	10-70°C	RC / TF	1 kDa / 30 kDa	-	50 / 30
Synthetic Polymers / Rubbers / Polyolefins	Organic	5-220°C	CE	3 nm	-	15
Mini AF4 Membranes						
Peptides / Proteins / Antibodies / Virus	Aqueous	10-70°C	RC / CTA	1 kDa / 10 kDa	2-11	50 / 30
Biopolymers / Polyelectrolytes	Aqueous	10-60°C	PES / RC	0.3 kDa / 1 kDa	2-11	30 / 50
Nanoparticles / Carbon Nanomaterials	Aqueous	10-70°C	TF / RC	30 kDa / 1 kDa	1-14 / 2-11	30 / 50
Peptides / Proteins / Antibodies / Virus	Aqueous	10-70°C	RC	1 kDa	2-11	50
Biopolymers / Polyelectrolytes	Aqueous	10-70°C	RC	1 kDa	2-11	50
Nanoparticles / Carbon Nanomaterials	Aqueous	10-70°C	TF / RC	30 kDa / 1 kDa	1-14 / 2-11	30 / 50
* Postnova's channel cartridge technologies and their integration into Flow FFF are protected by several awarded and pending patents (Patent # DE19808992, EP1879025).						
* Please inquire for other dimensions and materials for different applications.						

# Disposable HF5 Cartridges

The Best Routine Cartridge System

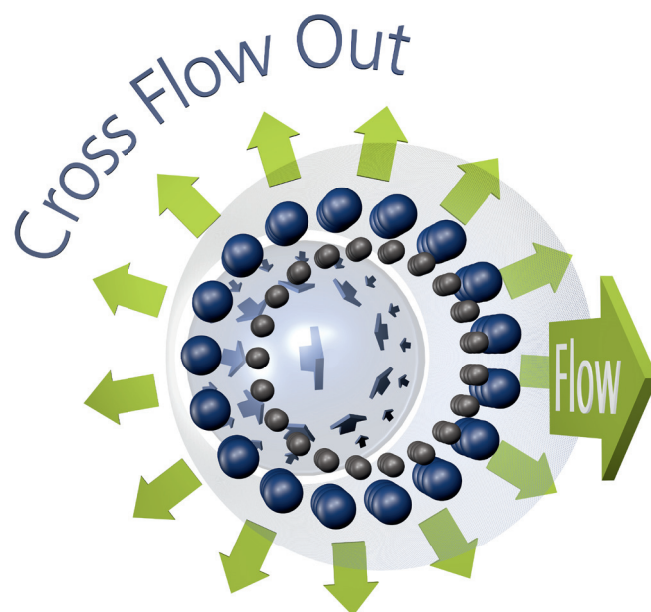


## HF5 Separation Principle

The Postnova tubular channel cartridges are based on the Hollow Fiber Flow FFF principle (HF5). Separation takes place inside a narrow tubular channel by applying a circular acting cross flow. The main eluent flow carrying the sample is introduced at the beginning of the hollow fiber capillary and leaves at the end of the capillary together with separated sample sizes towards the detectors. The actual cross flow is generated inside the channel by removing a partial sub-flow from the main eluent stream radially through all pores of the outer wall of the circular hollow fiber membrane. The fiber diameter has to be very thin in order to ensure a stable laminar flow inside, which is a basic requirement for FFF.

The Postnova hollow fiber cartridge can be sterilized and thus is ideal for applications where biological contamination can be a problem and where infectious samples have to be handled. All this assures highest reproducibility of the results and prohibits non-

compliance issues, making the hollow fiber cartridges ideal to be used for pharmaceutical applications requiring large run sequences from R&D and also QC environments.



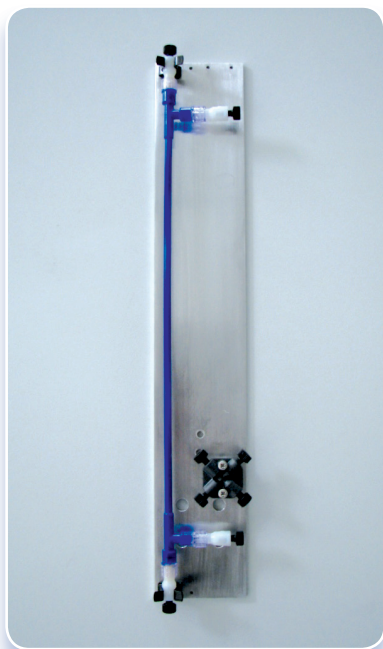


## HF5 Cartridge Design

The unique Postnova hollow fiber cartridge consists of an HF5 adapter plate and the disposable hollow fiber channel cartridge itself, which is reversibly mounted onto the adapter plate. One advantage of this design is that the adapter plate can be equipped with different disposable HF5 cartridges, thus being compatible with various Postnova Flow FFF systems. The HF5 channel is a completely sealed cartridge and can be used with different aqueous solvents at elevated temperatures and with different detectors, such as UV, Light Scattering and ICP-MS. Although HF5 cartridges have a fixed and unalterable design, there are different types of HF5 cartridges available to cover as much applications as possible.

The HF5 hollow fiber cartridge is ideally suited for smaller sample amounts, lower flow rates and routine applications with limited or no changes required for the methods used. This cartridge was designed to be a true consumable channel which can be disposed after use, making it extremely user friendly. Compared to older outdated designs, no hollow fibers itself or fittings and ferrules have to be mounted or exchanged inside when using the Postnova hollow fiber cartridge. The complete cartridge has a monolithic design and is manufactured as one piece, therefore it is ready for use without any further preparations. Thus errors associated with "non-conforming" configurations and tightening or sealing problems when changing fibers and fittings, are avoided right from the beginning.

The Postnova hollow fiber cartridge is completely metal-free and therefore can be ideally used on-line coupled with ICP-MS when operated by a metal-free AF2000 MultiFlow System. It is the only system using the focusing technology for sample injection, relaxation and focusing and does not require any switching valves, needle valves and flow controllers which are prone to unreliable function, clogging and sometimes even corrosion. Furthermore, these metal-containing valves contaminate the entire FFF and do not allow sufficient ICP-MS detection levels which are needed for modern elemental speciation applications. The sophisticated flow control using only metal-free pumps and the possibility of precise temperature control, make the Postnova AF2000 MultiFlow series the solution of choice for any scientist who is searching for the most robust, reproducible and flexible Flow FFF solution.



HF-28AN - Analytical HF5 Cartridge with Adapter Plate



HF-28AN - Analytical HF5 Cartridge with Adapter Plate mounted into AF2000 Thermostat



HF-28AN - Analytical HF5 Cartridge with Adapter Plate mounted on AF2000 Manual Injector



## HF5 Cartridge Advantages

- **Better Resolution:** Advanced flow control allows stable and precise cross flows over a wide range of separation conditions. No flow and pressure fluctuations during the run due to the patented two-pump design.
- **Better Recovery:** Completely sealed and protected monolithic hollow fiber cartridge with no extra connections for hollow fiber inside. No internal sample loss due to wrong assembly or damaged hollow fiber during handling.
- **Better Reproducibility:** Very precise sample injection and focusing method using Postnova's focusing technology. No retention shift and stable injection and focusing procedure due to unique two-pump flow control.
- **Better Method Transfer:** Easily performed method transfer between different Flow FFF systems using the adapter plate. No need to purchase extra hardware, as the Postnova HF5 cartridge can be used with all Postnova AF1000 to AF2000 series systems.
- **Better Compatibility:** New hollow fiber cartridge is ideally suited for AF2000 MultiFlow and completely downward compatible with older AF4 systems such as AF2000 MT, AF2000 AT, AF2000 Focus and AF1000.
- **Better Handling:** Easy to access disposable HF5 cartridge connected to special adapter plate which allows fast exchange of cartridge by user. No time consuming hollow fiber handling and adjustments are necessary due to simple monolithic design.
- **Minimized Contamination:** Contamination-free working conditions as the HF5 can be easily sterilized. New cartridge for every application avoids any carry-over, cross-contamination or memory effects. Can be used with infectious samples under regulated conditions.



HF-28AN – Analytic HF5 Cartridge Aqueous, Metal-free, PES 10KD

### AF2000 MF - HF5 Cartridge Versions

Application			Outside Tube			Inside Fiber				
Sample	Solvent	Temp.	Material	Diameter	Length	Length	Diameter [μm]	Material	Pore Size	O-Ring
Analytical HF5 Cartridges 330 mm x 5 mm										
Proteins / Polymers / Nanos	Aqu.-MetalFree	5 - 90°C	PolySulf.	5 mm	330 mm	280 mm	800	PES	5 kDa	-
Proteins / Polymers / Nanos	Aqu.-MetalFree	5 - 90°C	PolySulf.	5 mm	330 mm	280 mm	800	PES	10 kDa	-

\* Postnova's channel cartridge technologies and their integration into Flow FFF are protected by several awarded and pending patents (Patent # DE19808992, EP1879025).

\* Please inquire for other dimensions and materials for different applications.

# Ordering Information

AF2000 MF - AF4 Channels		
Part #	Description	Details
Semiprep AF4 Channels		
S-AF4-CHA-601	AF2000 MF - AF4 Semiprep Channel	AF-28SP Aqueous-Standard; PEEK-SS-NBR-350-PMMA
S-AF4-CHA-604	AF2000 MF - AF4 Semiprep Channel	AF-28SP Organic-Weak; PEEK-SS-KALREZ-350-PEEK-KALREZ
Analytical AF4 Channels		
S-AF4-CHA-611	AF2000 MF - AF4 Analytic Channel	AF-28AN Aqueous-Standard; PEEK-SS-NBR-350-PMMA
S-AF4-CHA-612	AF2000 MF - AF4 Analytic Channel	AF-28AN Aqueous-Metal-Free; PEEK-CE-NBR-350-PMMA
S-AF4-CHA-614	AF2000 MF - AF4 Analytic Channel	AF-28AN Origanic-Weak; PEEK-SS-KALREZ-350-PEEK-KALREZ
S-AF4-CHA-615	AF2000 MF - AF4 Analytic Channel	AF-28AN Organic-Weak-Metal-Free; PEEK-CE-KALREZ-350-PEEK-KALREZ
S-AF4-CHA-616	AF2000 MF - AF4 Analytic Channel	AF-28AN Organic-Strong; SS-SS-KALREZ-350-SS
S-AF4-CHA-617	AF2000 MF - AF4 Analytic Channel	AF-28AN Organic-Strong-High Temperature; SS-CE-HTSEAL-450-SS
Mini AF4 Channels		
S-AF4-CHA-621	AF2000 MF - AF4 Mini Channel	AF-14MN Aqueous-Standard; PEEK-SS-NBR-350-PMMA
S-AF4-CHA-622	AF2000 MF - AF4 Mini Channel	AF-14MN Aqueous-Metal-Free; PEEK-CE-NBR-350-PMMA
Micro AF4 Channels		
S-AF4-CHA-631	AF2000 MF - AF4 Micro Channel	AF-07MCS Aqueous-Standard; PEEK-SS-NBR-350-PMMA

AF2000 MF - AF4 Channel Components		
Part #	Description	Details
Semiprep AF4 Components		
Z-AF4-CHA-601	AF-28SP Holder SS	AF2000 MF - AF4 Semiprep Channel Holder with 2 Plates and Screws, SS
Z-AF4-CHA-602-PE	AF-28SP Bottom Block PEEK	AF2000 MF - AF4 Semiprep Channel Bottom Block made from PEEK
Z-AF4-CHA-603-SS	AF-28SP Frit SS	AF2000 MF - AF4 Semiprep Channel Frit made from Stainless Steel
Z-AF4-CHA-604-NB	AF-28SP NBR O-Ring	AF2000 MF - AF4 Semiprep Channel O-Ring made from NBR for Aqueous Eluents
Z-AF4-CHA-604-KA	AF-28SP Kalrez O-Ring	AF2000 MF - AF4 Semiprep Channel O-Ring made from Kalrez for Organic Eluents
Z-AF4-CHA-605-35	AF-28SP Spacer 350 µm	AF2000 MF - AF4 Semiprep Channel Spacer 350 µm
Z-AF4-CHA-605-50	AF-28SP Spacer 500 µm	AF2000 MF - AF4 Semiprep Channel Spacer 500 µm
Z-AF4-CHA-606-PM	AF-28SP Top Block PMMA	AF2000 MF - AF4 Semiprep Channel Top Block made from PMMA
Z-AF4-CHA-606-PE	AF-28SP Top Block PEEK	AF2000 MF - AF4 Semiprep Channel Top Block made from PEEK (Please note: Needs additional O-Ring)
Analytical AF4 Components		
Z-AF4-CHA-611	AF-28AN Holder SS	AF2000 MF - AF4 Analytic Channel Holder with 2 Plates and Screws, SS
Z-AF4-CHA-612-PE	AF-28AN Bottom Block PEEK	AF2000 MF - AF4 Analytic Channel Bottom Block made from PEEK
Z-AF4-CHA-612-SS	AF-28AN Bottom Block SS	AF2000 MF - AF4 Analytic Channel Bottom Block made from Stainless Steel
Z-AF4-CHA-613-SS	AF-28AN Frit SS	AF2000 MF - AF4 Analytic Channel Frit made from Stainless Steel
Z-AF4-CHA-613-CE	AF-28AN Frit Ceramics	AF2000 MF - AF4 Analytic Channel Frit made from Ceramics
Z-AF4-CHA-614-NB	AF-28AN NBR O-Ring	AF2000 MF - AF4 Analytic Channel O-Ring made from NBR for Aqueous Eluents
Z-AF4-CHA-614-KA	AF-28AN Kalrez O-Ring	AF2000 MF - AF4 Analytic Channel O-Ring made from Kalrez for Organic Eluents
Z-AF4-CHA-615-19	AF-28AN Spacer 190 µm	AF2000 MF - AF4 Analytic Channel Spacer 190 µm
Z-AF4-CHA-615-25	AF-28AN Spacer 250 µm	AF2000 MF - AF4 Analytic Channel Spacer 250 µm
Z-AF4-CHA-615-35	AF-28AN Spacer 350 µm	AF2000 MF - AF4 Analytic Channel Spacer 350 µm
Z-AF4-CHA-615-50	AF-28AN Spacer 500 µm	AF2000 MF - AF4 Analytic Channel Spacer 500 µm
Z-AF4-CHA-615-60	AF-28AN Spacer 600 µm	AF2000 MF - AF4 Analytic Channel Spacer 600 µm
Z-AF4-CHA-615-80	AF-28AN Spacer 800 µm	AF2000 MF - AF4 Analytic Channel Spacer 800 µm, only aqueous
Z-AF4-CHA-615-100	AF-28AN Spacer 1000 µm	AF2000 MF - AF4 Analytic Channel Spacer 1000 µm
Z-AF4-CHA-616-PM	AF-28AN Top Block PMMA	AF2000 MF - AF4 Analytic Channel Top Block made from PMMA
Z-AF4-CHA-616-PE	AF-28AN Top Block PEEK	AF2000 MF - AF4 Analytic Channel Top Block made from PEEK (Please note: Needs additional O-Ring)
Z-AF4-CHA-616-SS	AF-28AN Top Block SS	AF2000 MF - AF4 Analytic Channel Top Block made from Stainless Steel
Mini AF4 Components		
Z-AF4-CHA-621	AF-14MN Holder SS	AF2000 MF - AF4 Mini Channel Holder with 2 Plates and Screws, SS
Z-AF4-CHA-622-PE	AF-14MN Bottom Block PEEK	AF2000 MF - AF4 Mini Channel Bottom Block made from PEEK
Z-AF4-CHA-622-SS	AF-14MN Bottom Block SS	AF2000 MF - AF4 Mini Channel Bottom Block made from Stainless Steel
Z-AF4-CHA-623-SS	AF-14MN Frit SS	AF2000 MF - AF4 Mini Channel Frit made from Stainless Steel
Z-AF4-CHA-623-CE	AF-14MN Frit Ceramics	AF2000 MF - AF4 Mini Channel Frit made from Ceramics
Z-AF4-CHA-624-NB	AF-14MN NBR O-Ring	AF2000 MF - AF4 Mini Channel O-Ring made from NBR for Aqueous Eluents
Z-AF4-CHA-624-KA	AF-14MN Kalrez O-Ring	AF2000 MF - AF4 Mini Channel O-Ring made from Kalrez for Organic Eluents
Z-AF4-CHA-625-19	AF-14MN Spacer 190 µm	AF2000 MF - AF4 Mini Channel Spacer 190 µm
Z-AF4-CHA-625-25	AF-14MN Spacer 250 µm	AF2000 MF - AF4 Mini Channel Spacer 250 µm
Z-AF4-CHA-625-35	AF-14MN Spacer 350 µm	AF2000 MF - AF4 Mini Channel Spacer 350 µm
Z-AF4-CHA-625-50	AF-14MN Spacer 500 µm	AF2000 MF - AF4 Mini Channel Spacer 500 µm
Z-AF4-CHA-625-80	AF-14MN Spacer 800 µm	AF2000 MF - AF4 Mini Channel Spacer 800 µm, only aqueous
Z-AF4-CHA-626-PM	AF-14MN Top Block PMMA	AF2000 MF - AF4 Mini Channel Top Block made from PMMA
Z-AF4-CHA-626-PE	AF-14MN Top Block PEEK	AF2000 MF - AF4 Mini Channel Top Block made from PEEK (Please note: Needs additional O-Ring)
Z-AF4-CHA-626-SS	AF-14MN Top Block SS	AF2000 MF - AF4 Mini Channel Top Block made from Stainless Steel





# Contacts

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