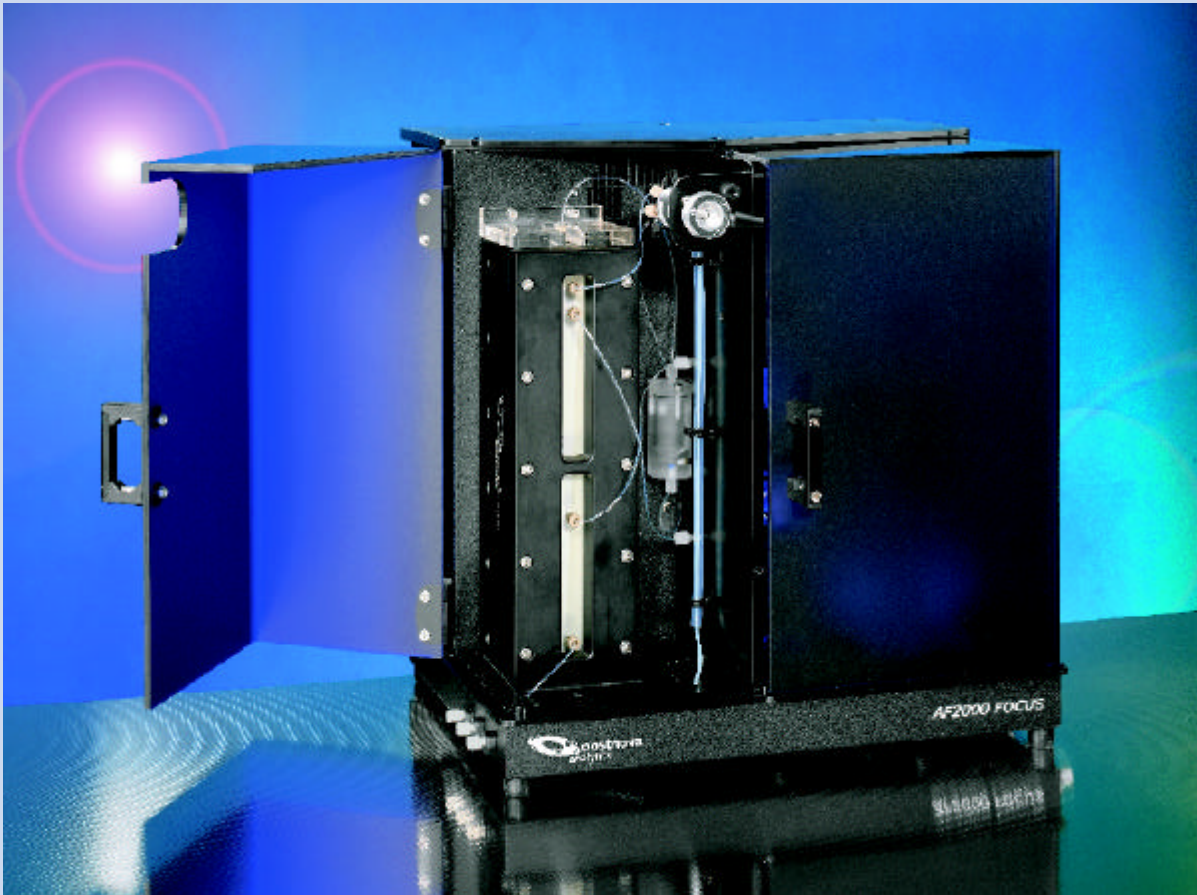


# AF2000 FOCUS

Asymmetric  
Flow Field-Flow Fractionation



System covered by national and international patents: DE197.08.250/DE198.08.992/US6.108.119/US6.109.119/US6.192.764B1.

Technical specifications are subject to change without further notice.

Advanced Characterization  
of Proteins, Polymers  
and Nanoparticles

[www.postnova.com](http://www.postnova.com)

## Specifications

### Principle Measurement Range:

Particles: 1 nm to 100  $\mu$ m  
Polymers: 500 Da to 10<sup>12</sup> Da.

### Analysis Time:

Typically 15 - 20 min, upto 120 min

### Channel Dimensions:

Volume : between 0.5 - 2.5 mL  
Size : 335 x 60 x 40 mm  
Thickness: 250  $\mu$ m (other sizes available on request)

### Carrier Liquids:

Aqueous : any aqueous liquid, pH from 2 - 11,  
ionic strength from d.i.water to saline  
Organic : THF, MeOH, etc.

### Membranes:

Broad range of membranes available (reg. cellulose, polycarbonate, PES, etc.); available sizes 0,3; 1; 2; 4; 5; 10; 30; 100 kDa respectively 10; 30; 50 nm or larger.

### Detectors:

UV, RI, viscosimetry, laser light scattering, fluorescence detection, and more; multiple detectors in line possible.

### Channel Flow Range:

0 - 10 mL/min

### Cross Flow Range:

0 - 8 mL/min

### Pressure Limit:

0 - 35 bar

### Power Requirements:

110V or 240V, 50/60 Hz; 2,5 A for basic set-up.

### PC Requirements:

Windows, min. 64 MB RAM, 2 RS232 ports

### System Software:

NovaFFF AF2000 Control, NovaFFF Analysis

### Maintenance Parts:

Consumables: pistons and piston seals, inline filters, membranes.

### Injection volume:

1 - 1000  $\mu$ L  
Standard 20  $\mu$ L  
optional > 1000  $\mu$ L

### Injected sample mass:

Up to 500  $\mu$ g and more; depending on sample characteristics and channel version (thickness); Typical injection mass 20 - 100  $\mu$ g

### Injection method:

Via manual injection valve or automated via PN5200 autosampler with different options, e.g. to cool samples (standard vial, microwell plates and other sizes are available).



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## AF2000 FOCUS Series - State-of-Art Asymmetric Flow FFF

Asymmetric Flow Field-Flow Fractionation, also called AF4, is an innovative new separation method for the efficient separation and characterization of proteins, polymers and nanoparticles in a fast and gentle way. The AF2000 FOCUS from postnova analytics is the most advanced AF4 system on the market today and is the benchmark for the industry, indicating the maximum possible performance. The instrument shows a higher resolving power and a more advanced software system than every other device available. It is the most integrated system and the only one with the channel inside the housing. The system has a large, nearly universal separation range. Nanoparticles can be separated from 1 nm up to 100  $\mu$ m and proteins, peptides, polymers from 10<sup>3</sup> to 10<sup>12</sup> Da. The fast and gentle separation occurs based on the diffusion coefficient in a flow channel without using ANY stationary phase as it is utilized in the outdated technology of GPC/SEC.

### UNIQUE FEATURES

#### Patented Channel Cartridge Design

The AF2000, as all other postnova AF4 systems as well, is equipped with a special patented flow channel using a channel cartridge and a channel holder for fast and easy exchange of membrane and system cleaning procedure. Depending on the application, the cartridge can be replaced by different other cartridges, which are available, analog to different HPLC columns in a chromatography system.

#### Complete Bio-Compatible System

The AF2000 FOCUS is the only system which can be delivered as a completely inert bio-compatible and metal-free system with a ceramic frit instead of a stainless steel frit, PEEK pumps, PEEK/PMMA channel and PEEK autosampler.

#### Totally Integrated One-Box-System

Completely integrated system with all important parts located inside the system housing, including flow channel. Professional one-box system for use in laboratories with high-level expectations concerning system handling and user-friendliness.

#### Patented Cross Flow Control

Special patented cross-flow control, using a unique dual syringe pump module with non-pulsing cross flow delivery for most precise separation conditions. Completely inert, metal free cross flow path made of glass, PEEK and Teflon/PVDF. Instant cross flow adjustment without time-delay or hysteresis (flow over and under adjustments) known from other commonly used cross flow control valves. Rugged cross flow control insensitive to plugging without the need for fragile and corrosion sensitive valve needles. Superior cross flow range from 5  $\mu$ L/min (with 100  $\mu$ L syringe) up to 16 mL/min (with 2 mL syringe) for lowest and highest possible cross flows of all FFF systems. Different syringes available, which can be exchanged to extend flow rate range.

#### Data Evaluation Software - FFFanalysis

Postnova offers a special data evaluation software with unique features. Data files from different postnova FFF system/techniques can be processed. Software allows to perform absolute size calculation based on FFF Theory and size calculation based on calibration with particle size standards. Possibility to calculate size of small particles by using a concentration detector (UV / RI) when light scattering is poor/not showing a sufficient signal. FFFanalysis is an additional validation tool providing particle sizes of aggregates which can be directly compared with particles sizes from light scattering.

#### Integrated Expert Software System

Postnova offers a special FFF control software with integrated Expert System. Automatic-Method-Generation Module for accelerated method generation by simply entering in the approximate size of the analyte. Advanced Simulation Module which is also directly integrated in the control software and where the user can run a complete method in a simulation first. Run Parameter Optimisation Tool to optimize run conditions in terms of run time, maximum resolution, etc..

#### Patented FOCUS Technology

The AF2000 uses postnova's patented FOCUS technology which assures constant and continuous flow through the detectors all the time. That's why the system has a higher recovery, higher resolution and greater flexibility than other systems. Now AF4 can be coupled to flow sensitive Viscometers and RI detectors successfully.

### APPLICATIONS OF AF2000 FOCUS

Biotechnology	: Viruses, Aggregates, Cell Organelles, Bioparticles.
Pharma	: Proteins, Antibodies, Liposomes, Drug delivery, Micelles.
Environment	: Environmental Particles, Humic, Fulvic and Clay Colloids.
Material Science	: Latex Beads, Nanoparticle, High-Tech Nano Materials.
Polymers	: Technical and Industrial Polymers, Biopolymers as Starches.

Contact the People who Invented & Introduced Field-Flow Fractionation!