POSTNOVA

CF2000 Series

Centrifugal Field-Flow Fractionation

High Resolution Particle Separator

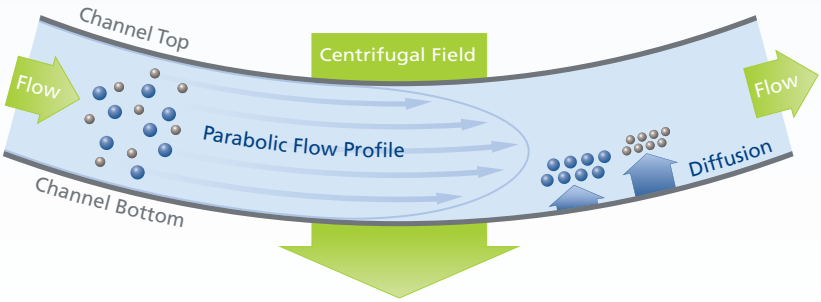
www.postnova.com

CF2000 Series

Postnova has developed a new type of modular Centrifugal FFF. The system is employing the same software and hardware as the other members of the FFF Platform AF2000 (Flow FFF) and TF2000 (Thermal FFF). NovaFFF software is used to control the complete system, including its front end (e.g. autosampler, eluent pump) and back end components (e.g. detectors, fraction collectors).

The system incorporates a unique new channel design and shows an overall improved performance compared with the former CF1000 series. The dimensions of the system have been reduced as well as the weight of the system. Power consumption has been minimized by using smaller motors and the rotating speed has been greatly improved at the same time of up to 4.900 rpm. As a result of this, despite having a smaller rotor, the CF2000 can generate a much higher g-force than the older series and has a larger applicable separation size range.

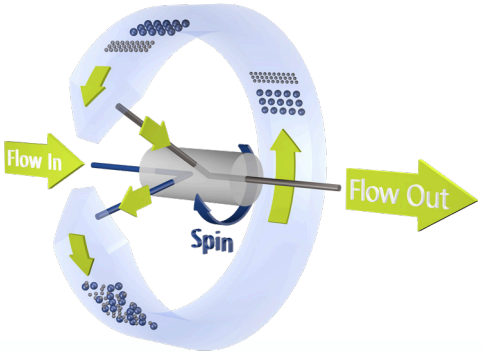
By using the higher performance, the lower size limit of the machine is now shifted to about 7 nm. The upper size limit is located in the micrometer range, depending on actual sample characteristics. This all together now makes the new CF2000 series the ideal choice for any nanoparticle research and QC tasks. The system can separate and distinguish relative size differences of only 5 % and can be used to monitor absolute size differences down to 1 nm. The unique fractionation principle not only allows the high resolution particles separation and characterization but also collection of narrow size fractions for further investigation with other complementary analytical technologies, such as microscopy, X-ray and light scattering.



UNIQUE FEATURES OF CF2000

High Resolution Separations

Centrifugal FFF differentiates itself from the various particle size analyzers available on the market, because of its ability to deliver true high resolution particle size separations. Centrifugal FFF uses no assumptions or algorithms, but just separates the particles fractions with extremely high resolution.



Broad Separation Size Range

The CF2000 technology allows separation of small, medium and large particles at the same time in just one analysis and avoids the discrimination of smaller particles by larger species which is often a limitation in light scattering based techniques.

Separation Under Native Conditions

Using the unique unpacked and open Centrifugal FFF channel, allows to employ "any" kind of eluent which is ideally suited for the sample particles. Kinetics and behavior of particles under certain conditions, such as pH, ionic strength, etc., can be investigated easily by using the CF2000 system.

Separation of Same Size Particles

Because Centrifugal FFF separates by size and density, it is possible to distinguish particles of same size which have different chemical compositions and structures.

Flexibility & Interfaceability

The CF2000 Series was developed to be used as a modular FFF system which can be interfaced with existing other detection systems, such as UV, DLS, MALS, SAXS. This way Centrifugal FFF can be used as a high resolution size fractionation system, which then can be combined on- or off-line with high resolution detection systems, which provides an ultimate 2D view of any sample system.

Specifications

- Environmental Conditions:
  Relative humidity 20 – 80 % (non-condensing) at an operating temperature range of 10 – 30 °C
- Measurement Range:
  Nanoparticles: 10 nm – 20 µm (depending on sample material and density)
- Channel Cartridge System:
  - Inner Volume: approx. 2.7 mL depending on spacer
  - Inner Channel Thickness: 250 µm (others available)
  - Channel Diameter: 200 mm
- Applicable Solvent Systems:
  All typical organic and aqueous solvents
- Flow Rate Ranges / Pressure:
  - Main flow 0.3 – 4.0 mL/min at channel outlet
  - System pressure up to 8 bar
- Centrifugal Force / Rotation:
  - Centrifugal acceleration 11 – 26369 m/sec² (approx. 1.12 – 2688 g)
  - Maximum rotation speed 4900 rpm
  - Constant, linear or exponential decay field
- Required Analysis Time:
  Typically 30 – 90 min
- Injection Volumes:
  Typically 10 – 100 µL
- Injection Method:
  Via manual injection valve or via PN5300 autosampler
- Software System:
  Unique NovaFFF software platform for complete system control, data acquisition, evaluation and report functions
- PC Requirements:
  Windows, min. 8 GB RAM, 2 Ethernet-LAN ports, 1 RS232 port
- Power Requirements:
  100 – 240 VAC @ 50 – 60 Hz
- Dimensions (DxWxH):
  660 x 405 x 420 mm
- Weight:
  45 kg

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Technical specifications are subject to change without further notice.