



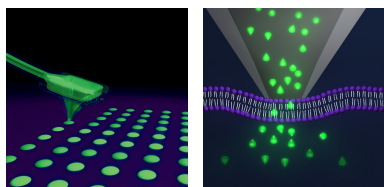
# Nanosurf FlexAFM

## FluidFM Option

A Unique New Tool for Single Cell and Small Object  
Micro-Manipulation, Imaging and Beyond

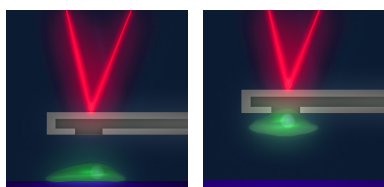
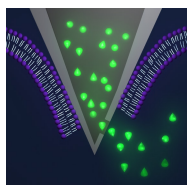
- Dispense & Deliver
- Inject & Extract
- Pick & Place





**Dispense & Deliver.** Deposition of nano-sized patterns and volumes on surfaces (left). Local drug delivery to a cell via diffusion (right). Both can be performed under highly sensitive force control.

**Inject & Extract.** Injection or extraction under constant force control ensures minimal mechanical stress to the cell.



**Pick & Place / Cell Adhesion.** Precise micromanipulation of small objects or cells. Adhesion force measurements on any type of surface and with any type of object (cell, poly-styrene spheres, etc.).



**Typical FluidFM Setup.** In this example, the FluidFM Controller is conveniently placed underneath the computer monitor.

## A powerful new tool that combines nanofluidics and AFM:

FluidFM by Cytosurge combines the unique possibilities of nanofluidics with the positional accuracy and force sensitivity of the AFM, to provide a whole new level of control and application possibilities in single-cell micromanipulation and beyond. The FluidFM Option is offered as an exclusive add-on to the Nanosurf FlexAFM and features:




- A comprehensive package consisting of intuitive control software, a liquid dispensing/pressure control unit, FlexAFM Cantilever Holder FF, and consumables such as liquid tubing and various types of microfabricated hollow cantilevers with CytoClip.
- Operating modes: (1) dispense & deliver, (2) inject & extract, (3) pick & place. Full functionality in air and in liquid environments.
- Unsurpassed pressure, volume, force and position control for low volume local fluid delivery/collection or object manipulations.
- A multitude of new applications in the field of single cell biology, biosensors, nanopatterning, printed electronics, optics, etc.

### System requirements

- A Nanosurf FlexAFM system.
- An inverted microscope equipped with the FlexAFM Inverted Microscope Option.
- An active vibration isolation system for the inverted microscope is highly recommended.

Pressure system specifications	Minimum	Typical	Maximum	Units
Pressure range	-350		1000 <sup>(1)</sup>	mbar
Pressure precision		< 2.5%		full scale
Min. output pressure step (< 0)		0.1% of max		mbar
Min. output pressure step (> 0)		0.1% of max		mbar
Power consumption		< 32		W
Operation Temperature range	5		40	°C

(1) Different pressure ranges with higher resolution available upon request (e.g. 25 mbar, 350 mbar, etc.)

Cantilever specifications	Hole diameter	Hole position	Length (spring const.)	Shape
Dispensing 	200 nm–8 µm	Tip apex	150 µm (2–3 N/m)	Pyramidal
Injecting 	200–500 nm	Tip side	150 µm (2–3 N/m)	Pyramidal
Pick & Place 	200 nm–8 µm	Cantilever end	150 µm (2–3 N/m)	Tube or tipless

All cantilevers come pre-mounted as ready-to-use tip cartridges (CytoClip) with a 20 µl reservoir. With the Cantilever Holder FF and the CytoClip, cantilever exchange in less than 30 seconds is possible.



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