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STATE OF THE ART microfluidic instrumentation for all

Elveflow is an Elvesys brand. We build premium flow handling instruments since 2012. We are proud to have provided **more than 2,000 systems** so far to both academics and industrial users.

Our product line is built around **the best seller OB1 flow controller** and includes everything for accurate liquid handling. All our instruments can be controlled simultaneously using our **software** and **Software Development Kits** allowing for a full automation of your system.

Our instruments are **modular**, **upgradable** and come in a **standard** or **OEM** version.

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PRODUCTS



FLOW CONTROL SYSTEMS

★ BEST SELLER	OB1 MK4 MULTI CHANNEL PRESSURE & VACUUM CONTROLLER	p.05
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MEASUREMENT & DETECTION



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OEM & CUSTOM



OEM & CUSTOM ORIGINAL EQUIPMENT MANUFACTURER & DESIGN STUDIO ______p.10

SOFTWARE





ESI - FREE SOFTWARE ELVEFLOW SMART INTERFACE - ALL INSTRUMENTS

ACCESSORIES

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MICROFABRICATION



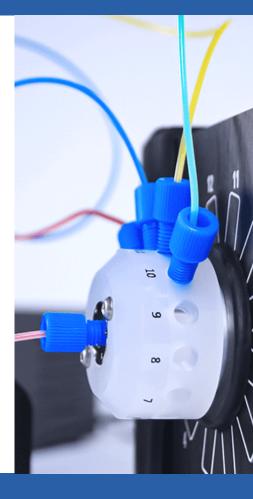
DISCOVER OUR MICROFABRICATION STATIONS

No need for cleanroom or experience in microfabrication. Become autonomous in customizing your own microfluidic devices in a short time.



APPLICATION PACKS

	MICROFLUIDICS PACK MICROFLUIDIC STARTER	p.50
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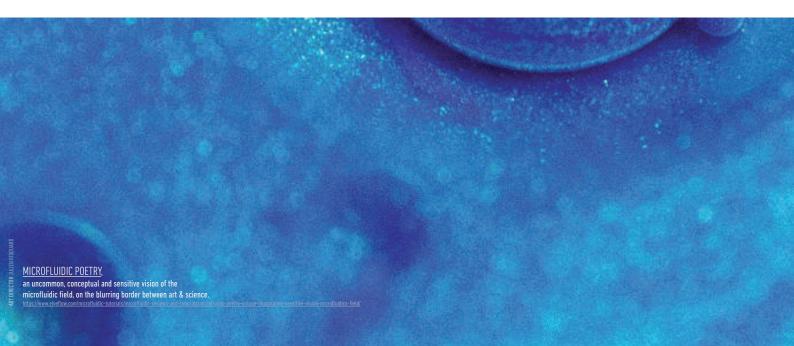
ELVEFLOW OVERVIEW

Elveflow develops high-performance, plug-and-play **flow control systems** ideal for microfluidic-based applications. We provide the only microfluidic flow control using Piezo technology that guarantees **fast flow** changes in your microdevice.

ATEAM OF MULTIDISCIPLINARY EXPERTS

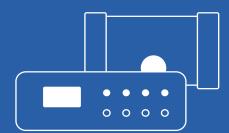
Our **assistance team** comprises microfluidic experts from different fields - engineers, physicists, and biologists - to provide you with specialized assistance. As a result, our technology generated more than 1000 peerreviewed publications in chemistry, physics, and biology, with more than 500 citations and ten microfluidic patents.

contact@elveflow.com





PRODUCTS FLOW CONTROL SYSTEMS







OB1 MK4 MULTI CHANNEL PRESSURE & VACUUM CONTROLLER

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/PRESSURE-CONTROLLER/



★ BEST SELLER

The OB1 MK4 is a **high performance** microfluidic pressure and flow controller. Customize your unit: pick the number of channels you like and **choose for each of them the pressure and vacuum ranges** among the 5 options available.

- ✓ MODULAR
- ✓ UPGRADABLE

✓ SOFTWARE INCLUDED



APPLICATIONS

- > Digital microfluidics
- > Flow chemistry & polymer synthesis
- > Cell culture: cell perfusion, sequential injection
- > Droplet-sequencing: RNA sequencing
- > Organ on chip
- > Enhanced oil recovery
- > Lab on a chip

UNIQUE PERFORMANCES

MARKET

> Pressure stability 0.005 % FS

DON'T LET YOUR PUMP

LIMIT YOUR RESEARCH

BEST RESPONSIVENESS

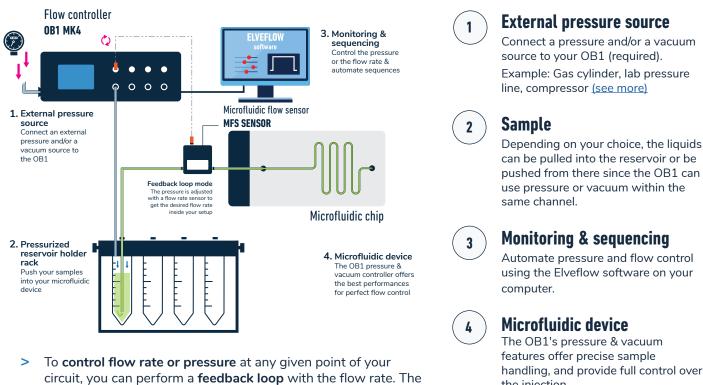
AND ACCURACY ON THE

- > Response time 10 ms
- > Pressure resolution 0.006 % FS
- > Settling time down to 50 ms





HOW IT WORKS



FEATURES & BENEFITS

handling, ar the injectior	•	full conti	rol over

٨	Short settling time	• Highest flow stability •	Accurate flow control
_W	Operate blazing fast changes in any microdevice with our Piezo technology	Ensure superior flow performance over a large flow range, with pressure stability down to 10 µbar	Input a flow value into the software. Flow regulation down to 7.5 nL/min
	Software automation	• Create your own program •	Enhanced data saving
	Control all instruments through	Software Development Kits	Up to 10 ms sampling rate to
	a single dashboard. Powerful script module to automate control and injection over days	(C++, Python, MATLAB [®] and LabVIEW [®] libraries)	take out the best of your results
	• Easy to install and use	Customizable •	Upgradable
	Start out of the box and set	Choose from any number	Get a one-channel today and
	everything up within minutes	of channels among the five pressure ranges available	add more channels later

PRESSURE RANGES



FOR EACH CHANNEL: 5 Pressure Ranges Available

same can be done with pressure using a pressure sensor.

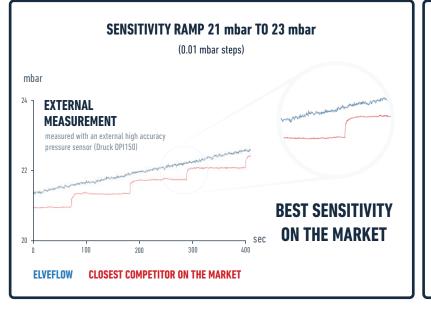


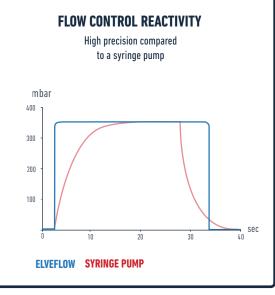
OB1 MK4 CHANNEL Pressure Range	0 to 200 mbar⁽¹⁾ (0 to 2.9 psi)	0 to 2,000 mbar⁽¹⁾ (0 to 29 psi)	0 to 8,000 mbar⁽¹⁾ (0 to 116 psi)	-900 to 1,000 mbar⁽¹⁾ (-13 to 14.5 psi)	-900 to 6,000 mbar⁽¹ (-13 to 87 psi)	
				-900 to 500 mbar:	-900 to 2,000 mbar:	
(2)	0.015 % FS	0.005 % FS	0.006% FS	0.005 % FS 100 µbar (0.0014 psi)	0.005 % FS 350 µbar (0.05 psi)	
Pressure stability $^{(2)}$	30 µbar (0.0004 psi)	100 µbar (0.0014 psi)	500 µbar (0.007 psi)	500 to 1,000 mbar:	2,000 to 6,000 mbar:	
				0.007 % FS 150 µbar (0.0021 psi)	0.007 % FS 525 µbar (0.076 psi)	
Response time ⁽³⁾			down to 10 ms	,		
Settling time ⁽⁴⁾		down to 50 ms				
Minimum pressure increment	0.006 % FS 12 μbar - 0,00017 ps	0.006 % FS 120 μbar - 0,0017 psi	0.006 % FS 480 µbar - 0,007 psi	0.0064 % FS 120 μbar - 0,0017 psi	0.0061 % FS 420 µbar -0.006 psi	
Pressure supply		1.5 bar (or Max pressure + 0.5 bar) to 10 bar Non corrosive, non explosive, dry and oil-free gases, e.g. air, argon, N2, C02,				
Input vacuum ⁽⁵⁾	Any value from -0.7 to -1 bar Compatible with vacuum pump or vacuum line					
Liquid compatibility	Non contact pump Any aqueous, oil, or biological sample solution.					

POWER CONSUMPTION (maximum): 12 W CASE DIMENSIONS (length x width x height): 240 x 223 x 80 mm WEIGHT: 1.4 kg to 2.90 kg TTL TRIGGER: In and out available 0-5V

Non-contractual information, may be changed without r

(1) Max pressure value might vary by +/- 2.5% (2) Pressure stability (standard deviation) measured over the full pressure range with an external high accuracy pressure sensor (Druck DPI150) (3) Time required to reach 5% of the setting point. Depending on your computer's operating system (4) Time required to reach 95% of the set point. Volume dependent – Measurement was done on 12 mL reservoir for a set point from 0 to 200 mbar (5) A vacuum source is mandatory for calibration and use of dual channels even if the channels are to be used in pressure only.





They trust Elveflow's performances and quality:



INSTRUMENT DESCRIPTION

Front view OB1 MK4 PRESSURE CONTROLLER ELVE³ FLOW Ô Ô Ô Ô --- Sensor connectors 1-2 - 3 4 ··· Channel number 0 0 0 0 Pressure outlets Rear view Power Screen button USB socket • USB ٢ ٥ 5V trigger input/output External pressure POWER 34/ DC PRESSURE INLE 12345 source connector Ô 24V DC Ô -0 ce P/N: Date: adaptor socket External vacuum source connector (optional)



PRODUCTS & SERVICES

ELEMENTS PROVIDED BY ELVEFLOW	INCLUDED	OPTIONAL
Software & libraries Control all Elveflow instruments with the same smart interface	•	
Starter pack kit A complete set of accessories fitted for the OB1 flow generator		•
Reservoirs Gas tight reservoirs with ergonomic fluidic connection		•
Flow sensors A line of sensors to monitor very low liquid flow rates		•
Compressor A safe & secure pressure source for the OB1 pressure controller		•
Service The Elveflow expertise & support to offer you individually tailored solutions	•	

SOFTWARE FEATURES ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/ELVEFLOW-SOFTWARE/

- > Pressure & flow rate **visualization** and **recording**
- > Programming & automation of complex sequences
- > Easy alternative instrument control through the provided C++, Python, MATLAB[®] and LabVIEW[®] libraries
- > UART communication protocol allowing the OB1 to communicate with most control systems, such as Mac, Linux, Arduino, PLC.





More information:



ESI - FREE SOFTWARE ELVEFLOW SMART INTERFACE - ALL INSTRUMENTS

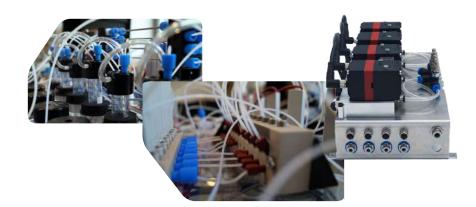
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OB1 MK4

OEM - ORIGINAL EQUIPMENT MANUFACTURER

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/OEM-CUSTOM-FLUIDIC-SYSTEMS/



A CUSTOM SOLUTION THAT FITS YOUR PROJECT PERFECTLY

Elveflow provides a **comprehensive line of OEM fluidic components** that can be integrated into your products. Our OEM components allow a seamless integration thanks to their **small footprint** and **easy interfacing**. A **simple serial USB connection** allows interfacing through our API, the native in/out triggers provide optimum interactions and we use standard fittings for pneumatic and fluidic connections.

All fluidic OEM products are integrated in our ESI software and we also provide librairies for a **customized software development** (C++, Python, MATLAB[®] and LabVIEW[®] libraries).

SERVICES

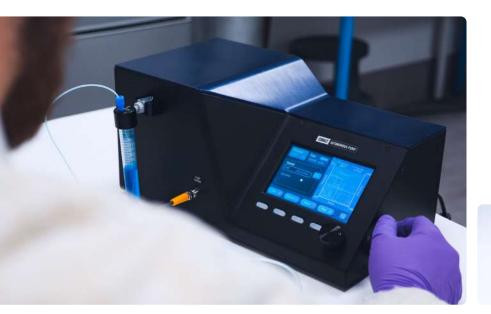
- Personalized expert advice for our clients and partners
- > Creation of technical specifications
- > Risk management and analysis
- Development and production of mechanics, electronics and software
- > Prototyping
- Beta testing, troubleshooting and continuous improvement
- > Production, from limited series to large scale
- > Maintenance, support and training
- > Upgrades of your systems

WHY CHOOSE US AS YOUR OEM PARTNER?

- > A receptive and efficient partner We are well aware of the importance of keeping up with your fastchanging market.
- > A soft intellectual property policy We believe that intellectual property should never be an obstacle to innovation.
- > A trusted manufacturer High profile companies already trust us for their scientific instruments. Why not you?
- A proven track record Our team carried out successfully several projects taking into account challenging constraints to end up with the best solutions for our partners.

COBALT AUTONOMOUS MICROFLUIDIC PUMP

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-FLOW-CONTROL-SYSTEMS/AUTONOMOUS-VACUUM-PRESSURE-PUMPS/



STANDALONE PRESSURE-DRIVEN FLOW CONTROLLER



The Elveflow® Cobalt autonomous microfluidic pump provides easy access to the most stable and accurate pressure and flow control technology. Equipped with its own pressure (and vacuum) source, it does not require an external pressure supply. Also, thanks to its embedded software, it can be controlled with or without a computer.

✓ MOST STABLE FLOW AND PRESSURE CONTROL

✓ INTUITIVE USER INTERFACE

✓ PORTABLE AND COMPACT

UNIQUE PERFORMANCES*

The Cobalt provides powerful flow control when paired with a MFS flow sensor:

- Flow rate range from 200nL/min to 5mL/min
- > Repeatability down to 3.5 nL/min
- > Accuracy down to 20 nL/min

Available in two versions:

- Pushing only: pressure range 0/2000 mbar
- > Push & pull: vacuum and pressure range -700 /1000 mbar

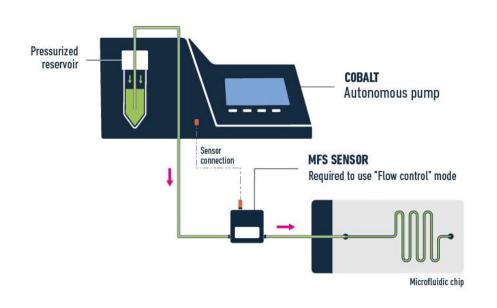
* All the values given for water.

APPLICATIONS

- > Lab-on-chip development
- > Bench test or characterisation (chips, sensors, filters, etc)
- > Mechanobiology (cell confinement, tissue engineering, etc)
- > Cell perfusion

The cobalt is included in **THE MECHANOBIOLOGY PACK**

www.elveflow.com/microfluidics-applicationpacks/biology-packs/mechanobiology-pack/



- Plug it to a power source: All you have to do is to turn on your Cobalt. The pressure source is inside.
- > Connect the reservoir: No more pneumatic tubing needed. You only have to plug your reservoir to the instrument.

> Program and run your experiment:

Automate pressure and flow control using the Elveflow embedded software, no computer needed!

Choose between two Cobalt versions; both allow either gas or flow control when paired with a flow sensor.

> 0 to 2000 mbar positive pressure control. > -700 to 1000 mbar dual vacuum & pressure control.

The **Cobalt technology** made state-of-the-art microfluidics accessible, autonomous, and user-friendly.

COBALT EMBEDDED SOFTWARE





Cobalt's intuitive embedded software can be fully controlled without the need of external computer. Its user-friendly interface contains a knob button for easy setting modifications.



OPTIONAL Cobalt computer software The Cobalt® computer software allows you to control advanced tasks - such as real-time creation, monitoring, and modifications of complex pressure and flow rate profiles - via computer using a USB connection.

	COBALT	COBALT DUAL			
PNEUMATICS					
Type of pressure	Positive Positive & negative				
Pressure range ⁽¹⁾	0 to 2000 mbar (0 to 29 psi)	-700 to 1000 mbar (-10 to 14 psi)			
Minimum pressure increment step	Cobalt Embedded Computer softv				
Pressure stability ⁽²⁾	0.1 r	nbar			
Electronic response time	Cobalt Embedded Sof Computer software				
Settling time (4)	Down to 75 ms	Down to 105 ms			
Pressure Source	No pressure source needed (integrated)	No pressure & vacuum source needed (integrated)			
FLOW CONTROL					
Flow sensor compatibility	Possible to pair 1 flow sensor from th	ne Elveflow MFS series (MFS2, 3, 4, 5)			
Flow rates (5)	MFS2: 0 to 7 µL/min MFS3: 0 to 80 µL/min MFS4: 0 to 1000 µL/min MFS5: 0 to 5000µL/min				
Minimum flow rate increment	MFS2: 3.5 nL/min MFS3: 8 nL/min MFS4: 0.2 µL/min MFS5: 1 µL/min				
Flow sensor calibration	User-friendly automated sensor calibration module ⁽⁶⁾				
Liquid compatibility	Non contact pump. Any aqueous or organic	c solvent, oil, or biological sample solution.			
CONTROL & MONITORING					
User interfaces	Cobalt Embed Cobalt computer softv				
Cobalt computer software added functionalities	Custom profile: design, upload, download Recording data: download				
Record frequency range	Cobalt Embedded S Computer soft				
Maximum recording time	Cobalt Embedded Software: up to 6000 sec depending on recording frequency Computer software: unlimited				
OTHER					
Power consumption	36 W (100 V to 240 V - 50 Hz to 60 Hz)				
Case dimensions	328 x 235 x 168	3 mm (l x w x h)			
Weight	3.3 kg 4.1 kg				
Output connectors	Quick Connect				

 $^{\scriptscriptstyle (1)}$ Max pressure value might vary by +/- 2.5%.

⁽²⁾ Pressure stability (standard deviation) is measured over 60s, 1 minute after the setpoint is reached.

⁽³⁾ Depending on your computer's operating system.
 ⁽⁴⁾ Volume dependent – Measurement done on 12 mL reservoir for a set point from 100 to 200 mbar.

⁽⁵⁾ Indicative, please refer to the MFS documentation for detailed specifications.

⁽⁶⁾ For aqueous solutions only.

MUX DISTRIB 12-WAY BIDIRECTIONAL VALVE

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-FLOW-CONTROL-SYSTEMS/MUX-DISTRIB/

Included in our
SEQUENTIAL FLUID INJECTION PACK

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-APPLICATION-PACKS/ SEQUENTIAL-FLUID-INJECTION-PACK/



A ROTARY VALVE DESIGNED TO EASILY EXECUTE FAST MEDIUM SWITCHES



The Sequential Injection Valve is a **bidirectional 13-port/12 way**, which can control the sequential injection of one solution into twelve different lines or twelve solutions into one line.

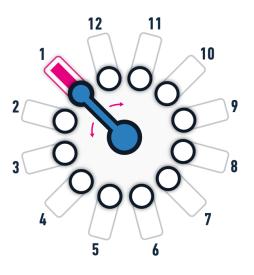
✓ INJECTION OF UP TO 12 LIQUIDS
 ✓ NO CROSS CONTAMINATION

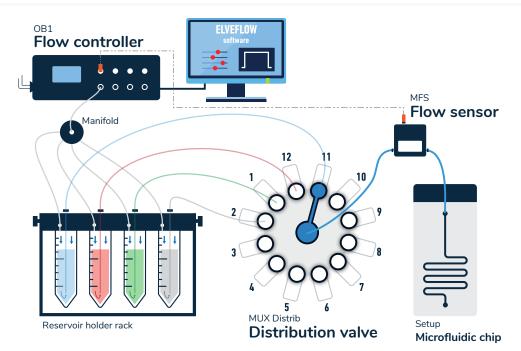
APPLICATIONS

- > Cell culture on chip
- > Cell response to medium change
- > Drug screening
- > Toxicity tests
- > Sensor testing & calibration
- > Reagent switch for flow chemistry

UNIQUE PERFORMANCES

- Typical mechanical response time for port-to-port movement 156 ms
- > Easy setup: standard 1/4-28 fluidic fittings
- > Lowest internal volume: 3.5 µL
- > High chemical compatibility (wetted materials: PCTFE, PTFE)
- > Possibility to choose the sense of rotation





MUX DISTRIB		SPECIFICATIONS
Desfermences	Port to port switching time (ms)	156 ms
Performances	Max. supported pressure	7 bar
	Internal diameter	0.5 mm
	Maximum valve update rate	2 Hz
	Input voltage range, AC	100 V to 240 V
	AC supply frequency	50 Hz to 60 Hz
Power supply	Max current consumption	2A peak
	Power consumption (max)	36 W
	Power supply voltage	18-24V DC
	Valve type	12 positions / 13 ports rotative valve
	Fluidic connectors	Standard 1/4-28 UNF, flat-bottom
Machanical analitications	Operating temperature	5 °C to 40 °C
Mechanical specifications	Operating humidity	20-70% non condensing
	Wetted materials	PCTFE and PTFE
	Dead volume ⁽¹⁾	None
	Computer specifications	USB 2.0 port, Intel Pentium II 500 MHz, 1 Go Hard Disk space, 2 Go RAM Windows XP and newer, 32/64 bit. LabVIEW® 2011 is required when using LabVIEW® libraries.
Software	Connection type	USB
	Provided elements	C++, Python, MATLAB [®] and LabVIEW [®] libraries

(1) Volume that is stuck in the system (dead end), which is not clearly swept and relies on diffusion to clear out

MUX DISTRIB DIMENSIONS without connectors (length x width x height): 133 x 156 x 133 mm

Non-contractual information, may be changed without notice.

MUX RECIRCULATION 6-PORT/2-POSITION VALVE

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-FLOW-CONTROL-SYSTEMS/MUX-RECIRCULATION/

Included in our
RECIRCULATION PACK

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-APPLICATION-PACKS/ ONE-WAY-RECIRCULATION/



MAKE LONG-TERM EXPERIMENTS EASIER AND MORE RELIABLE



The Recirculation Valve is a **6-port/2 position** microfluidic valve allowing switching between two configurations. It can be used in any application that needs **stable unidirectional fluid recirculation** and **sample injection**.

✓ PRECISE VOLUME INJECTION

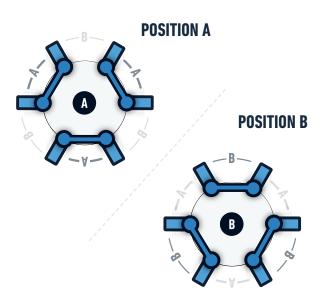
✓ LONG RUN RECIRCULATION

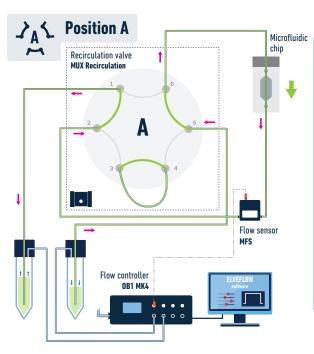
APPLICATIONS

- > Cell culture on chip
- > Drug screening
- > Toxicity tests
- > Stem cells assays
- > Organ on chip
- > SPR or TIR imaging coupled with microfluidics
- > Heat sink experiment

UNIQUE PERFORMANCES

- > Recirculate a fluid in a closed loop
- > Port-to-port switching time: **180 ms**
- > High chemical compatibility (wetted materials: PCTFE and PTFE)
- > No sample cross-contamination & no backflow

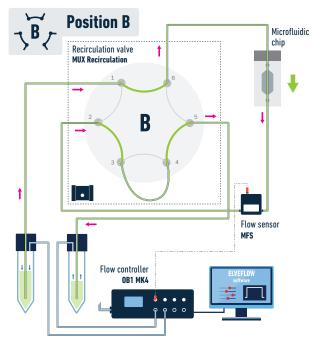




MUX RECIRCULATION		SPECIFICATIONS
5 (Port to port switching time (ms)	180 ms
Performances	Max. recommended pressure	7 bar
	Internal diameter	0.5 mm
	Input voltage range, AC	100 V to 240 V
	AC supply frequency	50 Hz to 60 Hz
Power supply	Max current consumption	2A peak
	Power consumption (max)	36 W
	Power supply voltage	18-24V DC
	Valve type	6 ports / 2 positions rotative valve
	Fluidic connector	Standard 1/4-28 UNF, flat-bottom
Machanical anadifications	Operating temperature	5 °C to 40 °C
Mechanical specifications	Operating humidity	20 to 70 % condensing
	Wetted materials	PCTFE and PTFE
	Dead volume ⁽¹⁾	None
	Computer specifications	USB 2.0 port, Intel Pentium II 500 MHz, 1 Go Hard Disk space, 2 Go RAM Windows XP and newer, 32/64 bit. LabVIEW [®] 2011 is required when using LabVIEW [®] libraries.
Software	Connection type	USB
	Provided elements	C++, Python, MATLAB [*] and LabVIEW [*] libraries

(1) Volume that is stuck in the system (dead end), which is not clearly swept and relies on diffusion to clear out

MUX RECIRCULATION DIMENSIONS without connectors (length x width x height): $133 \times 156 \times 133$ mm



Non-contractual information, may be changed without notice.

MUX SERIES FLOW SWITCH MATRICES

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/FLOW-MULTIPLEXER

3 UNIQUE FLOW SWITCH MATRICES TO AUTOMATE FLOW HANDLING

CONTROL UP TO 16 VALVES INDEPENDENTLY SMALL FOOTPRINT

outputs

MUX CROSS CHIP

Stop the flow in microfluidic devices

- > Rocker peek valves
- > Plug & play programmable flow stop
- Complete equilibrium, stops flow in 100ms
- > Ultra low volume injection
- > Internal/external trigger
- > Fluidic connector: 10-32 UNF

APPLICATIONS: Instantaneous stop flow, small sample injection & sample premixing **WETTED MATERIAL:** POM, Viton, PEEK, FKM



MUX FLOW SWITCH

Drug switch into microdevices

- > Rocker peek valves & PEEK manifold
- > Plug & play usb software
- No samples cross-contamination & no backflow
- > Flexible: from 4 to 256 valves
- > Internal/external trigger
- > Fluidic connector: 1/4-28 UNF



4 inputs

APPLICATIONS: Drug, reagent & cell medium switch for cell biology and flow chemistry **WETTED MATERIAL:** PEEK, FKM



MUX QUAKE VALVE

Open & close bilayer PDMS valves

- > Plug & play programmable valve
- sequence
- > Fast valve switch
- > Fine valve position tuning
- > Flexible: from 16 to 256 peek valves
- > Internal/external trigger
- > Fluidic connector: 10-32 UNF

APPLICATIONS: PDMS microvalves & micropumps and cell confinement device control **WETTED MATERIAL:** POM, Viton, PEEK, FKM

MUX SERIES		CROSS CHIP	FLOW SWITCH MATRIX	QUAKE VALVE		
5 (Valves actuation time	20 ms				
Performances	Max. supported pressure	2 bar (29 PSI)				
	Input voltage range, AC		100 V to 240 V			
Power supply	AC supply frequency		50 Hz to 60 Hz			
	Input current, AC		1 A			
	Power consumption	35 W				
	Safety	IEC/EN 61010-1: 2001				
	Shutting down power supply	disconnect AC/DC adapter				
	Valve type	2/2-way solenoid valve 3/2-way so		3/2-way solenoid valve		
	Input/output connectors	10-32 UNF	1/4-28 UNF	10-32 UNF		
Mechanical specifications	Wetted materials	POM, Viton, PEEK, FKM	PEEK, FKM	POM, Viton, PEEK, FKM		
	Operating temperature	10 °C to 40 °C				
	Operating humidity	20 to 80 %				
	Computer specifications	USB 2.0 port, Intel Pentium II 500 MHz, 1 Go Hard Disk space, 2 Go RAM Windows XP and new 32/64 bit. LabVIEW [®] 2011 is required when using LabVIEW [®] libraries.				
Software	Connection type	USB				
Provided elements		C++, Python, MATLAB* and LabVIEW* libraries				

 $\textbf{MUX SERIES DIMENSIONS} \text{ without connectors (length x width x height): } 220 \times 130 \times 130 \text{ mm} \quad \textbf{TTL TRIGGER: input/output 5 V}$

Non-contractual information, may be changed without notice.

VALVES RANGE & MUX WIRE VALVES & VALVE CONTROLLER

ELVEFLOW.COM /MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-FLOW-CONTROL-SYSTEMS/VALVE-CONTROLLER/

PLUG YOUR VALVES ANYWHERE IN YOUR MICROFLUIDIC SETUP

✓ MIX ALL KINDS OF VALVES

✓ PLUG FROM 1 TO 8 VALVES

✓ LIQUID INJECTION AUTOMATION

SMART LOW PRESSURE VALVE 2-WAY OR 3-WAY

2-WAY: Pick default setting: open or closed

- > Compatible with gas or liquid
- > ROCKER[®] valve technology
- > Low internal volume
- > Wide pressure range: -0.90 bar to 3 bar (-14 psi to 44 psi)
- > Wetted Materials: PEEK, FKM



SMART HIGH PRESSURE VALVE 2-WAY OR 3-WAY

2-WAY: Pick default setting: open or closed

- > Compatible with gas or liquid
- > ROCKER[®] valve technology
- > Low internal volume
- > Wide pressure range: -0.75 bar to 6 bar (-11 psi to 87 psi)
- > Wetted Materials: PEEK, FKM



SMART LOW VOLUME VALVE 2-WAY

- > Compatible with gas or liquid
- > Low internal volume: 14.7 µL
- > Wide pressure range: 0 bar to 5 bar (0 psi to 73 psi)
- > Wetted Materials: PEEK, FKM

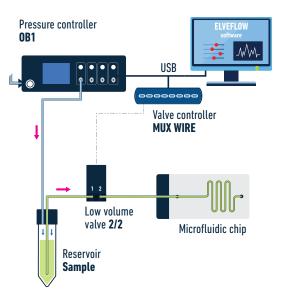


MUX WIRE V3 VALVE CONTROLLER

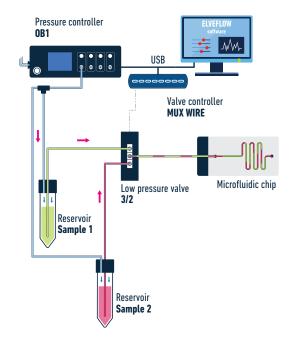
Easily control your microfluidic valves

- > Fast liquid switching
- > Detect automatically all smart valves
- Complex sequences of injection including flushing, rinsing, and sequential injection of several liquids

MICROFLUIDIC 2-WAY VALVE



MICROFLUIDIC 3-WAY VALVE



TECHNICAL SPECIFICATIONS

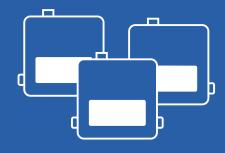
VALVES RANGE		VALVES TYPE	
Low pressure valve -0.90 bar to 3 bar (-14 psi to 44 psi) Fittings: Standard 1/4-28'' Switching time: <10 ms	2-way Normally open Internal volume: 25 μL	<mark>2-way</mark> Normally closed Internal volume: 25 μL	3-way Internal volume: 32 μL
High pressure valve -0.75 bar to 6 bar (-11 psi to 87 psi) Fittings: 10-32 Switching time: 15 ms	2-way Normally open Internal volume: 55.5 μL	<mark>2-way</mark> Normally closed Internal volume: 55.5 μL	<mark>3-way</mark> Internal volume: 58.25 μL
Low volume valve 0 bar to 5 bar (0 psi to 73 psi) Fittings: 10-32 Switching time: 20 ms		2-way Normally closed Internal volume: 14.7 μL	

Valves DIMENSIONS without connectors (length x width x height): LOW & HIGH PRESSURE: 52 x 34 x 80 mm LOW VOLUME: 57 x 34 x 51 mm

VALVE CONTROLLER	SPECIFICATIONS
Number of controlled valves	8
Bus interface	USB
Power supply	18-24, 1.5 A
Max total power (sum of the power of all connected valves)	36 W
Max valve power	10 W
Valve connectors	USB-C

Non-contractual information, may be changed without notice. VALVE CONTROLLER DIMENSIONS without connectors (length x width x height): 140 x 96 x 35 mm WEIGHT: 374 g TTL TRIGGER: input/output 5 V







PRODUCTS MEASUREMENT & DETECTION



MFS THERMAL BASED FLOW SENSOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MICROFLUIDIC-LIQUID-MASS-FLOW-SENSORS/



HIGH-ACCURACY FLOW MONITORING AND CONTROL



High-accuracy volumetric flow sensors for **ultra-low flow rate monitoring** of liquids. The thermal-based flow sensor comes with an M8 4-pin electrical connection and can be directly controlled through the Elveflow software.

✓ 5 FLOW RATE RANGES

✓ HIGH CHEMICAL COMPATIBILITY

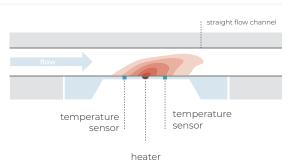
UNIQUE PERFORMANCES

- > Calibrated flows from 0.07 µL/min to 5,000 µL/min
- > Sensor response time: from 2 to 70 ms
- > Resolution down to 1.5 pL/s
- > Wetted materials: glass or quartz

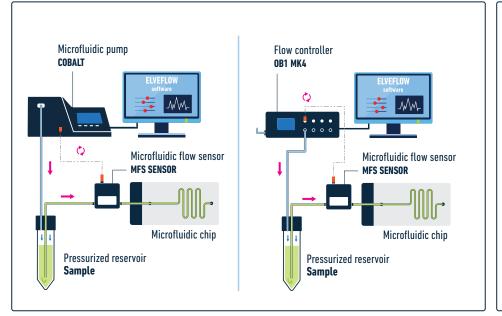
PRINCIPLE



- Couple with an OB1 flow controller or a Cobalt for direct flow rate control
- > Bi-directional flow rate measurement (positive & negative)



WITH ELVEFLOW FLOW CONTROLLERS: MONITORING + CONTROL



Sensor reader MSR

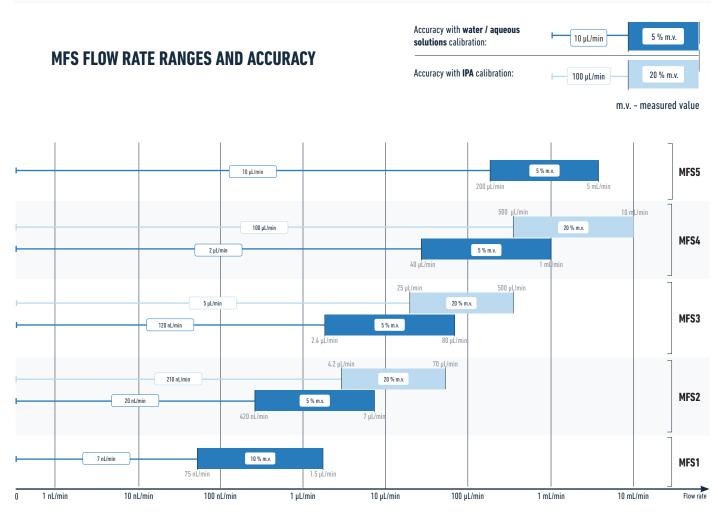
MFS SENSOR

Microfluidic flow sensor

Microfluidic chip

WITH SENSOR READER: MONITORING

TECHNICAL SPECIFICATIONS



MFS FLOW SENSORS	MFS 1	MF	S 2	MF	S 3	MF	S 4	MFS 5
Media calibration	water / aqueous solutions	water / aqueous solutions	IPA	water / aqueous solutions	IPA	water / aqueous solutions	IPA	water / aqueous solutions
Flow rate range	0 to ± 1.5 μL/min	0 to ± 7 μL/min	0 to ± 70 μL/min	0 to ± 80 μL/min	0 to ± 500 μL/min	0 to ± 1 mL/min	0 to ± 10 mL/min	0 to ± 5 mL/min
Accuracy m.v. – measured value applies to negative values (bi-directional)	7 nL/min between [0 to 75] nL/min	20 nL/min between [0 to 0.42] μL/min	210 nL/ min between [0 to 4.2] µL/min	120 nL/ min between [0 to 2.4] μL/min	5 μL/min between [0 to 25] μL/min	2 μL/min between [0 to 0.04] mL/min	100 μL/ min between [0 to 0.5] mL/min	10 μL/min between [0 to 200] μL/min
	10 % m.v. between [75 to 1,500] nL/min	5 % m.v. between [0.42 to 7] μL/min	20 % m.v. between [4.2 to 70] μL/min	5 % m.v. between [2.4 to 80] μL/min	20 % m.v. between [25 to 500] μL/min	5 % m.v. between [0.04 to 1] mL/min	20 % m.v. between [0.5 to 10] mL/min	5 % m.v. between [0.2 to 5] mL/min
Repeatability m.v measured value applies to negative values (bi-directional)	0.9 nL/min between [0 to 80] nL/min	3.5 nL/ min between [0 to 0.7] μL/min	7 nL/min between [0 to 0.7] µL/min	8 nL/min between [0 to 1.4] μL/min	0.25 μL/ min between [0 to 25] μL/min	0.2 μL/ min between [0 to 0.04] mL/min	5 μL/min between [0 to 0.5] mL/min	1 µL/min between [0 to 0.2] mL/min
	< 1 % m.v. between [80 to 1,500] nL/min	0.5 % m.v. between [0.7 to 7] μL/min	1 % m.v. between [0.7 to 70] μL/min	0.5 % m.v. between [1.4 to 80] μL/min	1 % m.v. between [25 to 500] μL/min	0.5 % m.v. between [0.04 to 1] mL/min	1 % m.v. between [0.5 to 10] mL/min	0.5 % m.v. between [0.2 to 5] mL/min
Pressure drop at full scale flow rate, 23 °C	1 bar	3 mbar	60 mbar	1 mbar	7 mbar	< 1 mbar	5 mbar	< 1 mbar
Total internal volume	1 μL	1 μL 1.5 μL 5 μL			μL	25 μL		80 µL
Sensor inner diameter	25 µm	25 μm 150 μm		430 µm		1.0 mm		1.8 mm
Tubing inner length		29 mm						
Operating pressure	20	200 bar		100 bar		15 bar		15 bar
Burst pressure	40	400 bar			200 bar		30 bar 30 ba	
Microfluidic fitting type		UNF 1/4-28						
Wetted material				PE	EK			
Internal sensor capillary material		Quartz Borosilicate glass						

ELECTRICAL INPUT: 8V = - - 7 mA ANALOG OUTPUT: 0 - 5 V FLOW SENSOR SIZE (length x width x height): 58 x 52 x 23 mm WEIGHT: 102 g

Non-contractual information, may be changed without notice.

 Excellent chemical resistance and bio-compatibility are ensured
 The recommended storage temperature ranges from -10°C to +60°C

 Liquid Flow Sensor enables fast, and non invasive measurements of very low liquid flow rate below 5mL/min
 The operating temperature is +10°C to +50°C

 The product comes fully calibrated for water
 The flow sensor shows bi-directional and linear transfer characteristics

 Flow calibration for methanol or other media is available on request (all data for medium H2O, 20°C, 1 bar unless otherwise noted)
 The flow sensor shows bi-directional and linear transfer characteristics

BFS CORIOLIS BASED FLOW SENSOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MICROFLUIDIC-FLOW-SENSOR-CORIOLIS/



In partnership with **Bronkhorst**, we have developed a unique Coriolis flow sensor suited to microfluidics. It offers various benefits: **precision**, **wide range, straightforward compatibility with all liquids** (no calibration needed).

✓ COMPATIBLE WITH ALL LIQUIDS & GAS

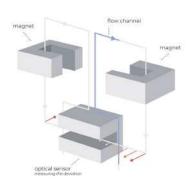
✓ NO CALIBRATION NEEDED

UNIQUE PERFORMANCES

- > Large flow range from 1.6 µL/min to 500 mL/min (for water)
- > Maximum flow rate: 500 mL/min (for water)
- > Sensor response time: 35 ms
- Mass flow accuracy: down to 2 % of measured value (down to 0.2 % of mv on request)

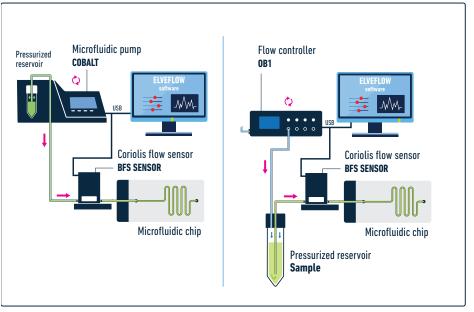
APPLICATIONS

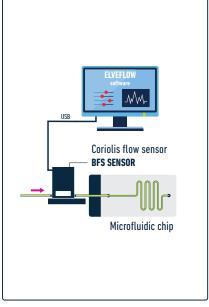
- > Compound semiconductor processing
- > Solar cell and FDP technology
- > Food and pharmaceutical industries
- Medical microchemical or analytical installations
- > Calibration laboratories



PRINCIPLE

WITH ELVEFLOW FLOW CONTROLLERS: MONITORING + CONTROL





WITH EXTERNAL EQUIPMENT: MONITORING

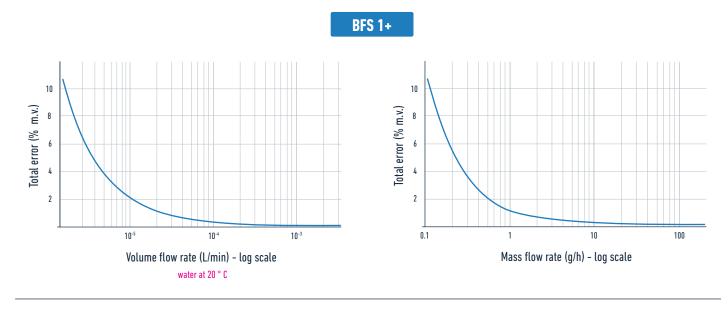
TECHNICAL SPECIFICATIONS

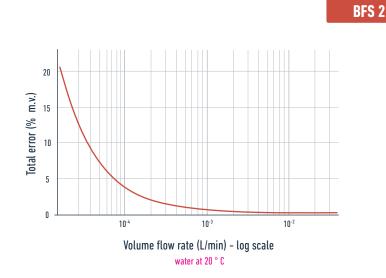
ORIOLIS FLOW SENSOR	BFS 1	BFS 1+	BFS 2	BFS 3	
Flow range	0.1 g/h to 200	lg/h	1 g/h to 2000 g/h	30 g/h to 30000 g/h	
Minimum flow rate (water)	1.6 µL/mir	1	16.6 μL/min	500 µL/min	
Maximum flow rate (water)	3.3 mL/mi	n	33.3 mL/min	500 mL/min	
PERFORMANCE					
Mass flow accuracy liquids	down to ±2 % of measured value		down to \pm 0.2 % of measured value		
Mass flow accuracy gases		up to ± 0.5 % o	measured value		
Repeatability		± 0.05 % of rate ± 1/2 (ZS* x 100	I/flow) % based on digital output		
Zero stability (ZS) ⁽¹⁾	< ± 0.01 g/	h	< ± 0.2 g/h	< ± 6 g/h	
Density accuracy	< ± 5 kg/m ³				
Temperature accuracy		5 °C			
Temperature effect ⁽²⁾	Zero drift: ± 0.01	g/h/°C	Zero drift: ± 0.02 g/h/°C	Zero drift: ± 0.5 g/h/°C	
Mounting ⁽³⁾		Any position, attitude	sensitivity negligible		
Device temperature	070 °C				
Response time (t 98 %)	0.2 s to fill the tubing then 35 ms				
MECHANICAL PARTS					
			Stainless steel 310	6 L or comparable	
Wetted material	Stainless steel 316 L or comparable		Optional: Hastelloy-C22	Optional: Hastelloy-C23	
Pressure rating	200 bar		200 bar; higher on request		
Sensor inner diameter	250 μm		0.5 mm	1.3 mm	
Suitable tubings	1/16"		1/16" (1/8" on request)		
Internal volume	13 µL		0.45 mL 0.82 mL		
Calibration	,		Individual calibration certificate		

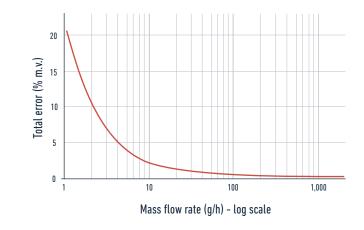
FLOW SENSOR SIZE (length x width x height): 65 x 32 x 144 mm WEIGHT: 3 kg

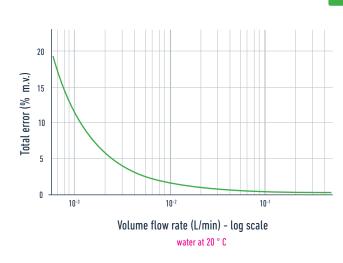
Non-contractual information, may be changed without notice.

(1) Guaranteed at constant temperature and for unchanging process and environment conditions. (2) Depends on flow rate, heat capacity fluid, T amb., T fluid and cooling capacity. (3) To be rigidly bolted to a stiff and heavy mass or construction for guaranteed stability. External shocks or vibrations should be avoided. **TOTAL ERROR** = ACCURACY READING ± [(ZERO STABILITY / FLOW) X 100] [% READING] m.v. - measured value

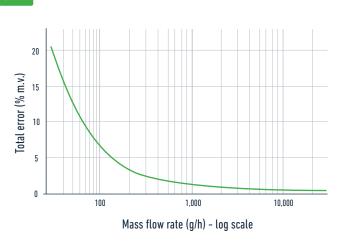




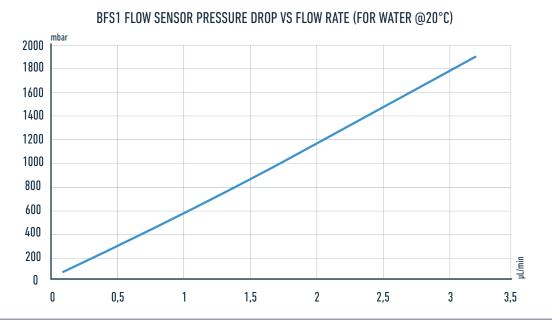




BFS 3



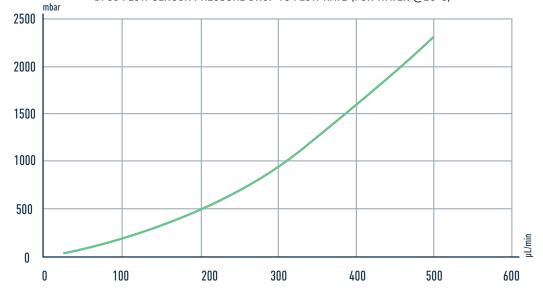
BFS



BFS2 FLOW SENSOR PRESSURE DROP VS FLOW RATE (FOR WATER @20°C)



BFS3 FLOW SENSOR PRESSURE DROP VS FLOW RATE (FOR WATER @20°C)



FLOW SENSORS Comparison	BFS (1 & 1+)	, MFS		
Accuracy	0.2 % of measured value ⁽¹⁾	5 % of measured value		
Range	One sensor for 1.6 µL/min to 3 mL/min	Five sensors from 10 nL/min to 5 mL/min		
Negative flow measurement	Yes	Yes		
Supported fluid types	All without calibration	All with calibration		
Response time	35 ms ⁽²⁾	From 1 to 70 ms ⁽³⁾		
Flow sensor size	65 x 32 x 144 mm	58 x 53 x 23 mm		
Internal diameter	250 µm	From 25 µm to 1.8 mm ⁽⁴⁾		
Weight	3 kg	100 g		
Connectors	1/16" OD tubing	1/16" OD tubing		
Internal volume	13 µL	From 1 µL to 80 µL ⁽⁴⁾		
Wetted material	Stainless steel 316L or comparable	Glass or Quartz		
Principle	Coriolis	Thermal		
Computer connection	Directly via USB to the computer	Directly on the OB1 and the AF1 or with the Sensor reader MSR		
Additional features	Temperature and density measurement			

Non-contractual information, may be changed without notice. (1) Available upon request. 2 % accuracy for the regular model

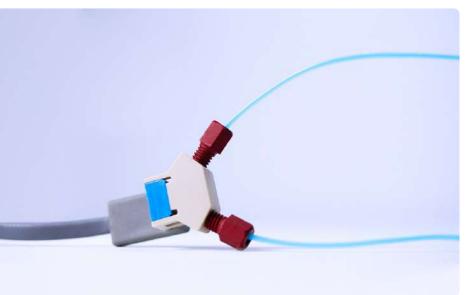
(2) 0.2 s at 98 % (spec) to fill the tubing then 35 ms with temperature measurement

(3) Depending on chosen digital resolution

(4) Depending of the sensor range

MPS LOW VOLUME PRESSURE SENSOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MICROFLUIDIC-LIQUID-FLOW-THROUGH-PRESSURE-SENSOR/



MEASURE AND CONTROL PRESSURE ANYWHERE IN YOUR SETUP



High accuracy pressure sensor adapted to liquid and gas and compatible with 3/32" ID tubing or 10-32 fittings for 1/16" OD tubing. Ideal for monitoring **low pressure flow rate** in your microfluidic setup.

✓ PRESSURE FEEDBACK OPTION

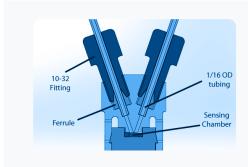
✓ MEASUREMENT & DETECTION

UNIQUE PERFORMANCES

- > Accuracy down to 0.2 % FS
- > 5 ranges from 70 mbar to 7,000 mbar
- > Internal volume: 7 µL
- > Settling time: 20 ms
- > Works with both liquid & gas

APPLICATIONS

> By plugging our pressure sensor anywhere in your microfluidic setup, you can record the pressure on your computer and adjust it accordingly using our pressure pumps



OUR PRESSURE SENSORS WORK AS GAUGE PRESSURE SENSORS,

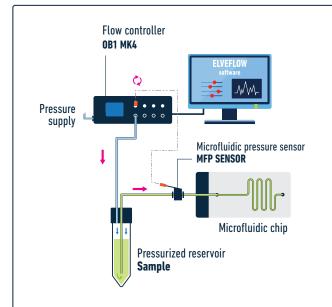
measuring positive and negative pressure relatively to atmospheric pressure.

MICROFLUIDIC Sensor	PRESSURE	MPS 0	MPS 1	MPS 2	MPS 3	MPS 4
Pressure ran	ge	-70 to 70 mbar (-1 to 1 psi)	-340 to 340 mbar (-5 to 5 psi)	-1 to 1 bar (-15 to 15 psi)	-1 to 2 bar (-15 to 30 psi)	-1 to 7 bar (-15 to 100 psi)
Maximum ove	erpressure	1.4 bar (20 psi)	1.4 bar (20 psi)	3 bar (45 psi)	3 bar (60 psi)	14 bar (200 psi)
Pressure acc	uracy liquids	up to \pm 0.5 % of max range	up to ± 2 % of max range		up to \pm 0.2 % of max range	
Linearity %span	Typical	0.25	0.4	0.25	0.1	0.4
	Max.	0.5	0.5	0.5	0.2	0.6
Repeatability & hysteresis %span		± 3.0	± 0.4		± 0.2	
Operating temperature		-40 °C to +85 °C				
Specified tem	perature range	0 °C to +50 °C				

Non-contractual information, may be changed without notice.

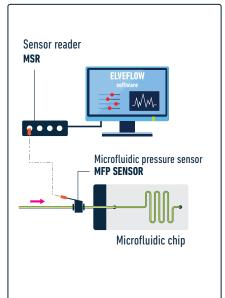


SENSOR SIZE (length x width x height): LARGE: 29 x 13 x 27 mm SMALL: 40 x 33 x 19 mm AMPLIFICATION MODULE SIZE: 52 x 24 x 24 mm



WITH FLOW CONTROLLER: MONITORING + CONTROL

WITH SENSOR READER: MONITORING



MFP LUER-LOCK PRESSURE SENSOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MFP-MICROFLUIDIC-INLINE-PRESSURE-SENSOR/



Flow-through pressure sensors adapted to gases or liquids, and compatible with the Luerlock standard. The MFP fluid sensor is intended to **measure the pressure** of fluid media flowing through the sensor.

✓ HIGH CHEMICAL COMPATIBILITY

✓ UP TO 16 BAR

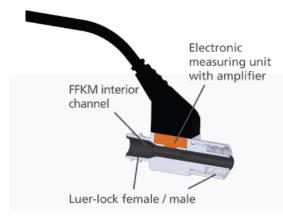
UNIQUE PERFORMANCES

- > Accuracy up to 2 % FS
- > 1 ranges 0 16 bar Overlay 25 bar
- > No dead volume
- > Flow rate up to 100 mL/min*
- > Versatile: works with gas & liquid

* Depending on the viscosity and primary pressure of the medium

APPLICATIONS

> You can plug our pressure sensor anywhere within your microfluidic setup, record the pressure on your computer and adjust the pressure or flow accordingly using our pressure pumps.



WIDE MEDIA COMPATIBILITY

(material in contact: FFKM) FDA-certified and therefore, suitable for food industry use.

LUER-LOCK PRESSURE SENSOR	SPECIFICATIONS		
Maximum flowrate ⁽¹⁾	100 mL/min		
Pressure range	0 to 16 bar		
Power supply	12 to 30 VDC		
Wetted materials	interior flow channel: FFKM		
Housing	coated aluminum		
Output signal	0.1 to 10 V		
Electrical connection	"push-pull" connector / M8 sensor plug		
Mechanical connection	LUER-LOCK DIN EN 1707		
Temperature range	15 to 45 °C		
Internal volume	205 µL		
Dimensions	inner diameter: between 4 mm and 1.8 mm length: 31.2 mm		

(1) Depends on the viscosity and primary pressure of the medium

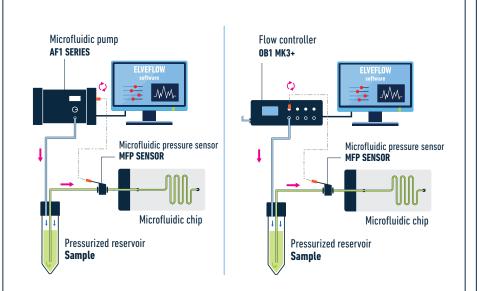
SENSOR SIZE (length): 31.2 mm

Non-contractual information, may be changed without notice.

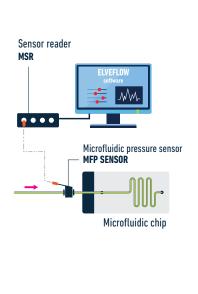
OUR PRESSURE SENSORS WORK AS GAUGE PRESSURE SENSORS,

measuring pressure relatively to atmospheric pressure.

WITH ELVEFLOW FLOW CONTROLLERS: MONITORING + CONTROL



WITH SENSOR READER: MONITORING



MBD MICROFLUIDIC BUBBLE DETECTOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MICROFLUIDIC-LIQUID-SENSOR/



This sensor detects **the presence of fluids inside clear tubing, triggers a signal to another instrument**, and acts as needed - stop, wait, allow enough flow to clear the tubing, or reset the sensor.

✓ BUBBLE MONITORING

✓ LIQUID INTERFACES DETECTION

APPLICATIONS

- > Bubble detection
- > Liquid level sensing
- > Blood processing equipment
- > Patient connected medical devices
- > Perform bilateral recirculation based on air detection

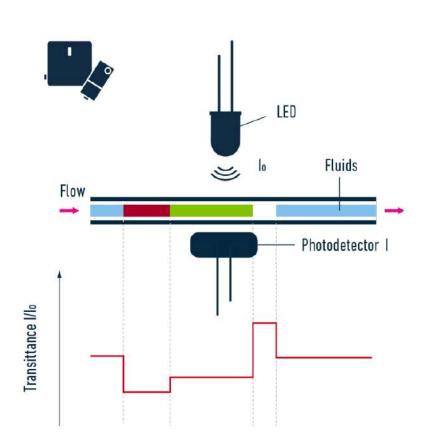
UNIQUE PERFORMANCES

- > Cost-effective compared to camera
- > Based on true/false logic
- > Reliable non invasive technique
- Prevents damage in cells with bubble bursts
- > The microfluidic bubble detector comes in two different casings suited to the use with 1/16" or 1/8" outside diameter tubes

DETECTION MODULE SIZE (length x width x height): 68 x 29 x 33 mm **AMPLIFICATION MODULE SIZE:** 69 x 59 x 22 mm

HOW IT WORKS

A light beam is emitted by a LED at known power. This light beam goes through the capillary and the fluid passing through. It is then collected by an NPN silicon phototransistor. This phototransistor converts the light power into an electrical power. When a fluid changes, the optical index and the light absorption coefficient change accordingly. It induces a change in the electrical power and allows to detect changes in the fluid.



WAVELENGTH = 890 nm

MSR SENSOR READING UNIT

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-FLOW-MEASUREMENT-SENSORS/MICROFLUIDIC-SENSOR-READER/



The sensor reader is an interface allowing the **acquisition** of many kinds of **analog & digital sensors**, including Elveflow pressure sensors and flow sensors.

✓ MONITOR UP TO 4 SENSORS

✓ REAL-TIME CONTROL & FEEDBACK

UNIQUE PERFORMANCES

- > Fast acquisition frequency 1 kHz
- > From 9 to 16 bits resolution
- > Real-time control & feedback loops
- > Read simultaneously up to 4 sensors

APPLICATIONS

- > The Sensor Reader can be used to monitor flow rate, pressure, or other physical parameters on any type of flow control instrument (syringe pump, peristaltic pump, perfusion, pressure controller)
- It embeds different independent power supplies which allows the use of a wide variety of sensors simultaneousy, functionning with different voltages for their power supply

TECHNICAL SPECIFICATIONS

SENSOR READER UNIT	T SPECIFICATIONS		
Number of sensors	4		
Sensor connectors	M8 female (4 pins)		
USB reading current min - max	200 mA - 800 mA		
Sensor power supplies voltage (2 power supplies tunable independently each of which feeding 2 sensors)	5 - 24 V		
Total power on the 4 channels	0.9 W		
SENSOR INPUTS			
SENSOR INPUTS Impedance	1 ΜΩ		
	1 MΩ 200 Hz		
Impedance			
Impedance Acquisition frequency	200 Hz		
Impedance Acquisition frequency Acquisition resolution	200 Hz from 9 to 16 bits		
Impedance Acquisition frequency Acquisition resolution Input range	200 Hz from 9 to 16 bits 0 - 10 V		

SENSOR READER SIZE without connectors (length x width x height): 91 x 69 x 29 mm WEIGHT: 320 g

Non-contractual information, may be changed without notice.

ESI ELVEFLOW SOFTWARE

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/ELVEFLOW-SOFTWARE/

ESI – ELVEFLOW SMART INTERFACE A UNIQUE SOFTWARE FOR ALL INSTRUMENTS

✓ DIRECTLY INPUT FLOW RATE ✓ CUSTOM FLOW PROFILE ✓ ADVANCED WORKFLOW AUTOMATION



Elveflow Smart Interface allows an intuitive control of our microfluidic instruments in a few clicks. It is designed both for basic control and **complex tasks** thanks to the use of the scheduler.

The ESI microfluidic software makes many applications easy, such as: generation of continuous fluid streams, dosing of volumes, generation of dynamic flow profiles, Optomicrofluidic control, and many more...

FEATURES THAT MATTER

- > Pressure & flow rate visualization and recording
- > Programming & automation of complex sequences
- > Easy alternative instrument control through the provided C++, Python, MATLAB[®] and LabVIEW[®] libraries



ACCESSORIES ELVEFLOW ACCESSORIES

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-ACCESSORIES/



You can contact us anytime to order **Elveflow Accessories** or request tech support. The Elveflow team is always ready to **make your experience fast and easy.** Alternatively, you can browse the Elveflow Accessories product line on Darwin Microfluidics and order online. Darwin Microfluidics is our official online reseller. Check it out!

MICROFLUIDIC ACCESSORIES

MICROFLUIDIC RESERVOIRS BUBBLE REMOVER RESERVOIR XXS ON CHIP 4 TUBES HOLDER PRESSURIZED AIR SOURCE VACUUM GENERATOR KIT FITTINGS STARTER PACK LUER KIT FITTINGS STARTER PACK PUSH IN MANIFOLD 13 PORTS PTFE TUBING 1/16" OD X 1/32" ID, 50M PRESSURE SOURCE VACUUM SOURCE



13-PORT SPLITTER FOR MICROFLUIDICS



✓ SPLIT/MERGE UP TO 12 LINES ✓ COMPATIBLE WITH LIQUID AND GAS

This device allows a single pressure line to be divided into 12. It enables to pressurize up to 12 microfluidic reservoirs from a single pressure source, facilitating parallel or sequential injection using the MUX Distribution.

RESERVOIRS MICROFLUIDIC RESERVOIRS

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-ACCESSORIES/RESERVOIRS/

✓ AUTOCLAVABLE: INFINITELY REUSABLE ✓ COMPATIBLE WITH 1/4-28 FITTINGS FOR 1/16 OD TUBING

RESERVOIRS TECHNICAL SPECIFICATIONS



RESERVOIRS	Volume	2 ports	4 ports	
XXS	800 µL	NA	NA	
XS	1.5 - 2 mL	available	not available	
S	15 mL	available	available	
М	50 mL	available	available	
L	100 mL	available	available	
HP	150 mL	available	not available	
HP	350 mL	available	not available	

Non-contractual information, may be changed without notice.

RESERVOIRS SPECIFICATIONS DEDICATED TO THE OB1 PRESSURE CONTROLLER

PRESSURIZED		OB1 PRESSURE CHANNEL RANGES					
TANK VERSION	0 to 200 mbar (0 to 2.9 psi)	0 to 2,000 mbar (0 to 29 psi)	0 to 8,000 mbar (0 to 116 psi)				
XXS	~	*	*	*	*		
XS	~	~	~	~	~		
S	✓	~	~	~	~		
М	~	~	~	~	~		
L	~	~	**	~	**		
HP	✓	~	~	✓	~		

*not tested in these conditions

** The reservoir passed the pressure resistance tests in these conditions; nevertheless, Elveflow

doesn't recommend using it as they are sensitive to mechanical damage

KCP-230/120 PRESSURIZED AIR SOURCE

ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-ACCESSORIES/AIR-PRESSURE-GENERATOR/



A **ROBUST AND POWERFUL** AIR COMPRESSOR



This **lubricated air compressor** is a powerful alternative to laboratory gas line supplies. Anticorrosion treatments of the receiver and long-life synthetic oil utilization makes this pressurized air source the most robust companion for **pressuredriven control** in laboratories.

UNIQUE PERFORMANCES

- > Positive pressure: 8 bar
- > Low noise level: <35 dB
- > Internal receiver volume: 4 L

✓ HIGH PERFORMANCES

✓ LOW NOISE LEVEL

APPLICATIONS

- > The in-built 5 µm oil filter prevents microdroplets from entering into the instruments.
- > The Air compressor is available in two versions: 230V/50Hz or 120V/60Hz



A CLEAN PRESSURIZED AIR SOURCE

We designed an oil-free pressure source to ease the integration in a laboratory environment thanks to its small footprint and integrated tank. This pressurized air source is ideal to supply compressed air to a pressure regulator.

TECHNICAL SPECIFICATIONS COMPARISON

KCP & EPS

		KCP-230 / KCP-120	PRESSURE SOURCE (EPS)	
	Max pressure	8 bar (120 psi)	3 bar (44 psi)	
Performances	Air flow rate (at operating pressure)	11 L/min	1.5 L/min (at 2 bar)	
	Noise level	<35 dB	<53 dB	
Mechanical specifications	Dimensions (without connectors, cm)	38.4 x 33.3 x 34.2	16.1 x 19.4 x 19.5	
	Weight	18 Kg	2 Kg	
	Pneumatic connection	6mm push-in		
	Internal receiver volume	4 L	350 mL	
	Operating temperature	-	5-40 °C	
	Operating humidity	-	Up to 80%	
Electrical specifications	Input voltage range	-	24 V	
	AC supply frequency	50-60 Hz		
	Power supply voltage	100-240 VAC		
	Max current consumption	0.9 A	1.5 A (typical: 0.8 A)	
	Max power consumption	-	36 W	

Non-contractual information, may be changed without notice.

KVP-230 VACUUM GENERATOR

ELVEFLOW.COM /MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-ACCESSORIES/VACUUM-GENERATOR/



This **high accuracy** microfluidic vacuum source generates negative pressure for microfluidic flow control without installation/connection of any instrument. The **anticorrosive coating** of the receiver ensures a long lifespan of the instruments.

UNIQUE PERFORMANCES

- > Negative pressure -980 mbar
- > Low noise level <42 dB
- > Pumping speed: 18 L/min

✓ OIL-FREE

✓ LOW NOISE & VIBRATION

APPLICATIONS

- > This pressurized air source is ideal to supply vacuum to a pressure regulator such as the OB1.
- > This Vacuum Pump is available in two versions: 230V/50Hz or 110V/60Hz

OTHER VACUUM SOURCE: ELVEFLOW VACUUM SOURCE (EVS)



ELVEFLOW.COM/MICROFLUIDIC-PRODUCTS/MICROFLUIDICS-ACCESSORIES/NOISELESS-VACUUM-SOURCE/

A **COMPACT** & **LIGHT** VACUUM SOURCE

We designed an oil-free vacuum source to ease the integration in a laboratory environment thanks to its small footprint and integrated tank.

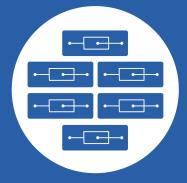
TECHNICAL SPECIFICATIONS COMPARISON

KVP & EVS

		KVP-230 / KVP-110	VACUUM SOURCE (EVS)	
	Vacuum pressure (relative)	-980 mbar (-15 psi)	-850 mbar (-13 psi)	
Performances	Vacuum pressure (absolute)	20 mbar (0.1 psi)	150 mbar (2.3 psi)	
Performances	Pumping speed	18 L/min	8 L/min at 0 bar	
	Noise level	<42 dB	<53 dB	
	Dimensions (without connectors, cm)	30 x 17 x 24	14 x 18 x 14	
	Weight	3 Kg	1.4 Kg	
Mechanical specifications	Pneumatic connection	6mm push-in		
Mechanical specifications	Internal receiver volume	-	250 mL	
	Operating temperature	-	5-40 °C	
	Operating humidity	-	Up to 80%	
	Input voltage range	-	24 V	
Electrical specifications	AC supply frequency	-	50-60 Hz	
	Power supply voltage	100-240 vac		
	Max current consumption	-	1.5 A (typical: 0.8 A)	
	Max power consumption	140 W	36 W	

Non-contractual information, may be changed without notice.







PRODUCTS MICROFABRICATION STATIONS



STATION SU-8 MOLD STATION

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/MICROFABRICATION-STATIONS/SOFT-LITHOGRAPHY-SU8-PHOTOLITHOGRAPHY-STATION-MICROFABRICATION-TOOL/

A COMPLETE STATION TO FABRICATE YOUR SU-8 MOLD

HIGH RESOLUTION WITHOUT CLEANROOM ACCESSIBLE WITHOUT EXPERIENCE FLEXIBLE AND UPGRADABLE PLATFORM



The benchtop SU-8 photolithography station includes everything you need to make high-resolution master molds in a reproducible manner.

Whether you are an experienced user or a beginner, our station provides robust and tabletop equipment to allow you to fabricate your mold & chip independently after only a week of training with one of our experts.

INCLUDED IN THE STATION



- > High-quality and robust spin-coater
- > Programmable hot plate for photoresist baking
- > High-collimated UV lamp with LEDs
- All the accessories and chemicals needed to develop a quality process
 - One week installation and training

Each pack can be adapted to your laboratory and technical requirements.

CUSTOMIZE YOUR STATION

We offer a wide range of adaptable and upgradable alternatives to obtain a super-fast process with mid-resolution or to produce multilayer devices with a very high-performance direct laser process.

Talk to our experts and find the right offer for your experimental needs and lab infrastructure.

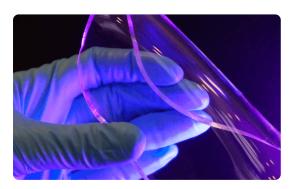
We ensure a clean installation of the station in your lab and will train your team to fabricate your microfluidic chips straight away.

STATION PDMS CHIPS STATION

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/MICROFABRICATION-STATIONS/PDMS-STATION-SOFT-LITHOGRAPHY-MICROFABRICATION-TOOLS/

ALL YOU NEED TO **PRODUCE YOUR PDMS CHIPS**

✓ ALL-IN-ONE PLATFORM ✓ REPRODUCIBLE PROCESS ✓ FAST FABRICATION PROCESS



Our **PDMS molding station** comprises all the equipment needed to replicate PDMS chips from premade molds in an optimized manner.

Our plug & play system, detailed tutorials, and technical support will make you skilled in the softlithography process so you can manufacture high-quality PDMS chips.

INCLUDED IN THE STATION



Fitted desiccator to prepare your PDMS mix

- Oven and soundwave bath for clean chips generation
- > Robust Air plasma for strong bonding
- Fitted pump and pressure controller for an easy and reproducible process
- All the accessories and chemicals needed to develop a quality process

technical requirements.

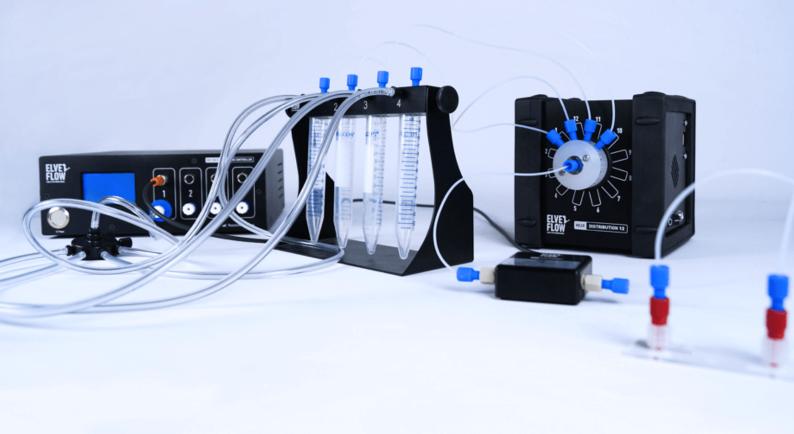
Each pack can be adapted to your laboratory and

CUSTOMIZE YOUR STATION

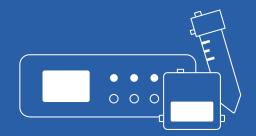
Our offers are versatile and customizable. We can suggest options to fabricate more complex stacks (with PDMS membranes, for example) or ways to reduce the station footprint.

Talk to our experts and find the right offer for your experimental needs and lab infrastructure.

We provide detailed tutorials and technical support for you to fabricate your microfluidic chips straight away.



PRODUCTS APPLICATION PACKS







MICROFLUIDICS PACK MICROFLUIDIC STARTER

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/MICROFLUIDICS-PACKS/STARTER-PACK/

ALL YOU NEED TO **DISCOVER** MICROFLUIDICS

✓ GET STARTED NOW ✓ GREAT FOR MANY APPLICATIONS ✓ EASY UPGRADE



Elveflow's Starter Pack is customized according to your needs so that you will benefit from highly-accurate pressure-driven control in your microfluidic applications.

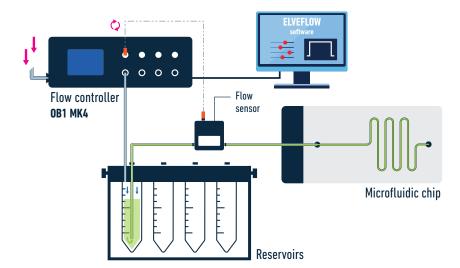
The powerful ESI software controls your entire setup, allowing you to fully control pressure, monitor your experiment, or try advanced functions such as full automation and running scripts.

CONTENT OF THE PACK

Microfluidics can be applied to several different applications. Thus, the Starter Pack is adjusted to suit your specific experimental needs.

Generally included:

- > 4 x Pressure channels
- > 4 x 50 mL Reservoirs
- > All necessary accessories: tubing, connectors, etc...



Additional Options:

- > Flow rate sensors
- Microfluidic chips

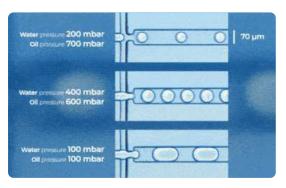
Talk to our experts and build the pack perfectly fitted to your needs.

MICROFLUIDICS PACK **DROPLET GENERATION**

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/MICROFLUIDICS-PACKS/STARTER-PACK/

TURNKEY SYSTEM TO EASILY GENERATE DROPLETS

REPRODUCIBLE & EASY GENERATION PERFECT FOR MANY APPLICATIONS PLUG & PLAY

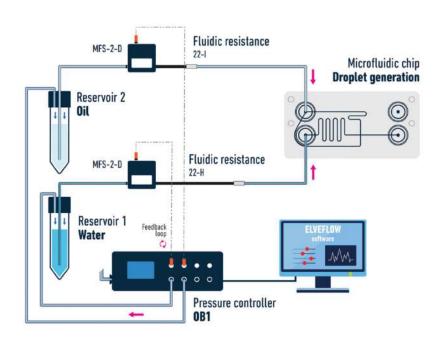


This Dropet Pack is based on the premium Elveflow instrument range and our best-seller - the OB1 flow controller.

Thanks to the OB1's high performance and accuracy, you will be able to generate highly monodisperse droplets (CV<3%) ranging from 10 to 80 µm diameter (and more using alternative microchips).

CONTENT OF THE PACK

This pack includes all you need to understand the droplet generation process from 0 to 1.



Generally included:

- > 2 x Pressure channels
- > 2 x Flow rate sensors
- > Fluidic resistances
- > A complete user guide
- > Microchips
- All necessary accessories: tubing, reservoirs, etc...

INTERESTED IN DROPLET?

Talk to our experts and build the pack perfectly fitted to your needs.

MICROFLUIDICS PACK SEQUENTIAL INJECTION

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/MICROFLUIDICS-PACKS/SEQUENTIAL-FLUID-INJECTION-PACK

QUICKLY SWAP BETWEEN **UP TO 12 FLUIDS** (GAS OR LIQUIDS)

HIGH STABILITY AND PRECISION WORKFLOW AUTOMATION HIGH VERSATILITY



The Sequential Injection Pack includes all the necessary elements to sequentially inject up to 12 (or more) solutions in a fully automated fashion using our computer-controlled 12 to 1 MUX Distribution bidirectional valve.

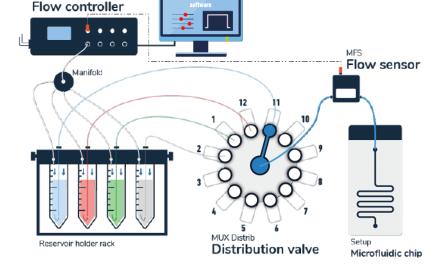
An extensive flow rate range (from 7 nL/min to 30+ mL/ min) and volumes (100 µL to up to several Liters) are accessible with this system.

CONTENT OF THE PACK

OB1

This pack can be adapted for more complex and advanced experiments such as using 20 or more solutions, removing bubbles, integration into larger systems or testing multiple chip/devices simultaneously. Generally included:

- > 4 x Pressure channels
- > 1 x Mux Distribution rotary valve
- > 1 x Flow sensor
- > 1 x Pressure splitter manifold
- > All necessary accessories: reservoirs, tubing, etc...



INTERESTED IN LIQUID INJECTION?

This is only a suggestion of what could be included in this pack

Talk to our experts and build the pack perfectly fitted to your needs.

BIOLOGY PACK RECIRCULATION

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/BIOLOGY-PACKS/ONE-WAY-RECIRCULATION/

AUTOMATE YOUR EXPERIMENTS FOR SEVERAL DAYS

UNIDIRECTIONAL LIQUID FLOW NO MORE MEDIA DEPLETION UNIFORM SHEAR STRESS



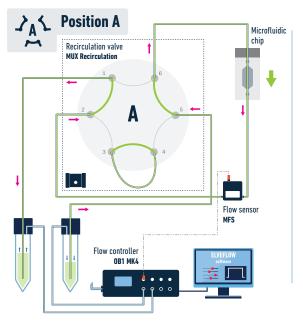
The Recirculation Pack uses two pressure channels to flow medium through your microfluidic device unidirectionally and continuously.

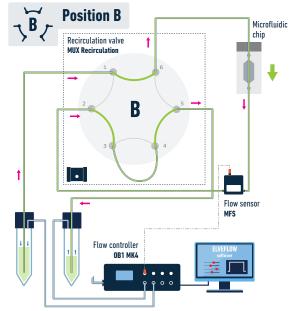
The recirculation valve allows switching between two reservoirs, ensuring the medium always flows from the most filled one. The injection loop consists of a network of inputs/outputs that can connect in two configurations.

CONTENT OF THE PACK

Additional features, such as medium switch, on-off sample injection, etc. are also possible by adding other Elveflow equipment to your Recirculation Pack. Generally included:

- > 2 x Pressure channels
- > 1 x Recirculation valve
- > 2 x Reservoirs
- All necessary accessories





BIOLOGY PACK ORGAN-ON-A-CHIP

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/BIOLOGY-PACKS/ORGAN-ON-A-CHIP-PACK/

FLOW MEDIUM THROUGH ONE OR SEVERAL **PARALLEL CHIPS**

MIMIC PHYSIOLOGICAL CONDITIONS REPRODUCIBLE AND SCALABLE EFFORTLESS LONG-TERM EXPERIMENTS

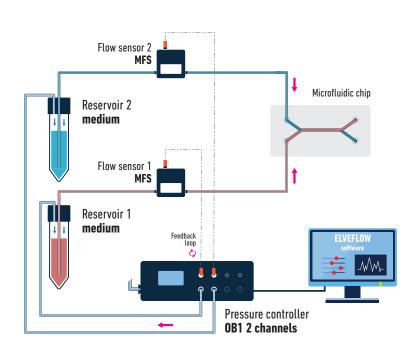


The Organ-On-Chip Pack allows you to perfuse media through a chip containing living cells to mimic in vivo physiology better.

The setup includes one flow controller that allows accurate control of multiple parameters, such as chemical concentration gradient, fluid shear stress, cell patterning, tissue-tissue interface, organ-organ interaction, and physiological responses.

CONTENT OF THE PACK

Several chip designs are available for organ-on-chip experiments, depending on the type of organ you want to mimic and your experimental protocol.



Generally included:

- > 2 x Pressure channels
- > 2 x Flow rate sensors
- > 2 x Reservoirs
- All necessary accessories: tubing, connectors, etc...

Additional Options:

- > Microfluidic chip advices
- > MUX Distribution

INTERESTED IN ORGAN-ON-CHIP?

Talk to our experts and build the pack perfectly fitted to your needs.

BIOLOGY PACK LIVE CELL PERFUSION

ELVEFLOW.COM/MICROFLUIDICS-APPLICATION-PACKS/BIOLOGY-PACKS/PERFUSION-FOR-CELLS-AND-BIOLOGY/

LIQUID HANDLING FOR **CELL-BASED EXPERIMENTS**

MULTIPLE MEDIA PERFUSION CONTROLLED SHEAR STRESS WORKFLOWS AUTOMATION

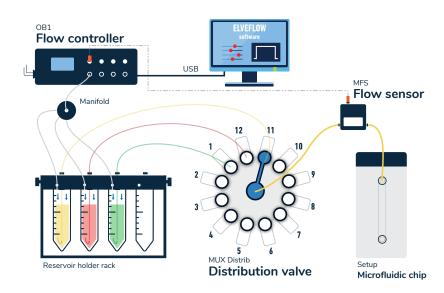


The Cell & Biology Pack uses one pressure channel to flow multiple solutions into the microfluidic chip. It is ideal for shear stress assays and imaging cell response to various media or drugs.

You will be able to design flow injection sequences and create complex patterns, such as oscillating flow to mimic physiological conditions.

CONTENT OF THE PACK

This pack is ideal for complex and advanced Cell & Biology experiments and can be adapted to your needs. For example, you may choose a suitable microfluidic chip, use more than 20 solutions, remove bubbles, or have multiple chip/inlet perfusion.



Generally included:

- > 1 x Pressure channel
- > 1 x Flow rate sensor
- > 1 x MUX Distribution valve
- > 3 x Reservoirs
- > 1 x Bubble remover
- All necessary accessories: tubing, connectors, etc...

Additional Options:

> Microfluidic chips advices

INTERESTED IN PERFUSION?

Feel free to contact our experts.

PLUG & PLAY MICROFLUIDICS

GENERAL INFORMATION contact@elveflow.com +33(0).184.163.807

www.elveflow.com

ELVESYS – Microfluidics innovation center

172 rue de Charonne 75011 Paris, FRANCE



an uncommon, conceptual and sensitive vision of the microfluidic field, on the blurring border between art & science.