

CHEMYX SYRINGE PUMPS



PERFORMANCE, ACCURACY & PRECISION

01 ABOUT CHEMYX



Performance, Accuracy & Precision



WHAT SETS OUR SYRINGE PUMPS APART IS THEIR EASY TO USE INTERFACE AND FLOW RANGE, WHICH IS CAPABLE OF BATCH INJECTIONS TO VERY SLOW INFUSIONS RATES FOR MICROFLUIDICS.

Chemyx Inc. develops and manufactures microsyringe and high pressure syringe pumps for a variety of R&D and manufacturing applications in biotech, pharma, chemical, as well as oil & gas. Widely recognized for fluidic precision and innovative technology, the company is one of the market leaders in precision dosing, microfluidics, mass spectrometry calibration and related applications.

Chemyx syringe pumps are designed for delivering accurate and precise amounts of fluids for a multitude of applications like pumping injections into a reactor, mass spectrometry, and neuro-drug delivery to animals. What sets our syringe pumps apart is their easy to use interface and flow range, which is capable of batch injections to very slow infusions rates for microfluidics.

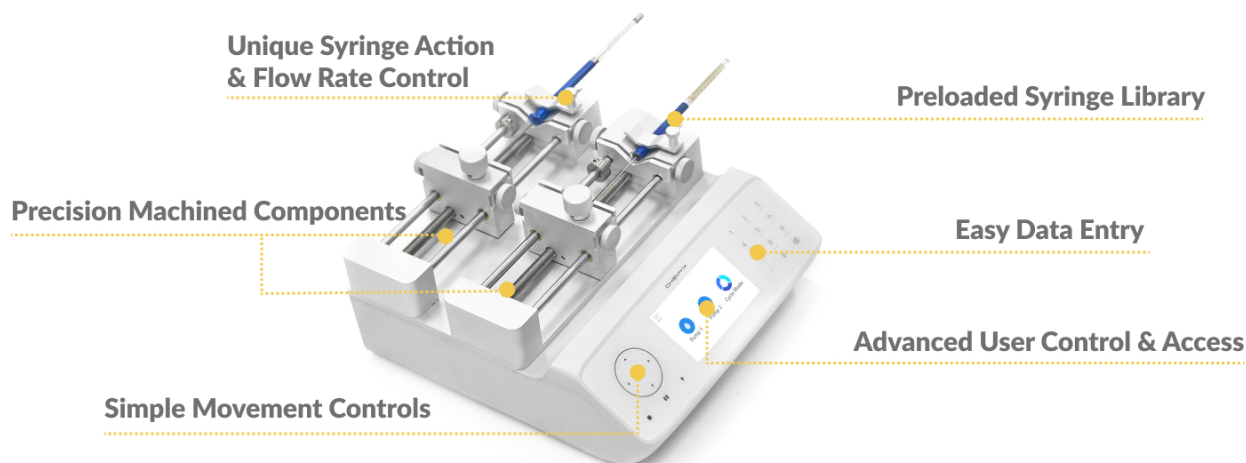
A leader in innovation, Chemyx was the first company to develop the next-generation syringe pump with an interactive LCD interface and integrated syringe database. Today, Chemyx continues to push advancements in the laboratory services industry to facilitate and further the research of the world's scientists, academics, and manufacturing companies.

02 OUR PRODUCTS

Reliability, Service & Value

Chemyx high precision pumps last for years with an equipment value that is hard to match. No matter which system you choose from our extensive range, you will benefit from years of operational performance and a single point of contact for all your service needs.

Not only are Chemyx syringe pumps cost effective, all systems offer such a broad functional range that every unit covers 90% of all applications. This means every system can be shared across numerous functional applications in a single lab, or across entire research departments.



A HISTORY OF & ACCURACY & PRECISION

Nearly Two Decades Of Innovation & Growth

Starting development in year 2000, Chemyx has spawned numerous successful business operations globally and is now the fastest growing scientific syringe pump instrument company worldwide. Chemyx works hard to provide the best user experience.

A historically close collaboration with the scientific, biotech, pharma and industrial communities are the key to Chemyx's tradition of innovation and success. Developing solutions tailored to meet our customers' requirements, allows us to continually provide them with the best technical solutions for their businesses.



Key Milestones

2000

Automation group develops multifunction volumetric infusion pumps for drug development labs

2003

Prototype syringe pumps built and deployed

2005

Chemyx Inc. officially founded

2006

Chemyx releases the Fusion line of syringe pumps, one of the most cited precision pumps on market

2007

Chemyx OEM division allows for custom design services for the Mass Spectrometry and Water Treatment Market

2009

The Nexus line and NanoJet syringe pumps are released

2011-2012

Founding of Anova Industries & Anova Culinary

2015

User experience development center founded

2017

Chemyx releases two innovative new products - **Fusion 4000** and **Fusion 6000**.

02 BASIC MICROFLOW

FUSION 100



PRECISION & VALUE

Standard microinfusion syringe pump for a wide variety of lab and industrial applications

- Mass Spectrometry
- Drug Injection
- Reagent Dispensing

Syringe Sizes: 0.5 μ L to 60 mL

Flow Range: 0.001 μ L/min to 102 mL/min

FUSION 200



ALL-AROUND PERFORMER

Standard microinfusion syringe pump for a wide variety of lab and industrial applications

- Mass Spectrometry
- Microfluidics
- Neuroscience

Syringe Sizes: 0.5 μ L to 60mL

Flow Range: 0.001 μ L/min to 102 mL/min

03 ADVANCED PERFORMANCE

FUSION 4000



INDEPENDENT CHANNELS

High performance microinfusion syringe pump for lab & industrial applications

- Microfluidics
- Neuroscience
- Reagent Dispensing

Syringe Sizes: 0.5 μ L to 60mL

Flow Range: 1.6 μ L/min to 102 mL/min

FUSION 6000



HIGH PRESSURE

High-pressure syringe pump designed for dosing viscous solutions, and semi-solid material injections against pressure.

- Fracking R&D
- Supercritical CO₂
- Hydrogenation Reactions

Syringe Sizes: 0.5 μ L to 225mL

Flow Range: 0.0001 μ L/min to 423 mL/min

NANOJET & OEM MODULE

NANOJET



NEUROSCIENCE

MRI compatible system designed for stereotaxic brain/organ injections and handling radioactive materials

- Animal Infusion
- Neuroscience
- MRI Operation

Syringe Sizes: 0.5 μ L to 1mL

Flow Range: 0.001 μ L/min to 1 mL/min

OEM



INTEGRATABLE MODULE

Bolt-on, modular pump for analytical instruments requiring precision fluid delivery

- Mass Spectrometry
- Microfluidics
- Cytometry

Syringe Sizes: 0.5 μ L to 60mL

Flow Range: 0.001 μ L/min to 60 mL/min

FUSION SERIES COMPARISON



FUSION 100

- Infuse



FUSION 200

- Infuse/Withdraw
- Modular



FUSION 4000

- Independent Channels
- Infuse/Withdraw
- Cycling



FUSION 6000

- High Pressure
- Infuse/Withdraw
- Temperature Control
- Pressure Control

A photograph of the Fusion 100 syringe pump system. The pump is a grey, rectangular device with a digital display and a keypad. A person wearing purple gloves is adjusting a syringe mounted on the pump. To the left of the pump are two small, clear plastic vials with white caps. The background is a dark, reflective surface.

Fusion 100

Performance, User Friendly & Cost-Effective

Highlights

- Microfluidic flow performance with mL scale syringes
- Universal syringe compatibility with ground glass, metal & micro-syringes
- PC and MAC compatible USB & RS232 communication ports
- Multi-step and gradient flow functions come standard
- Precision machined components with long service life
- Touch screen control for ease of use and status feedback
- Complimentary LabVIEW control VI with source code
- Preloaded syringe inner diameter database in pump

Overview

The Fusion 100 syringe pump is a proven laboratory microflow standard cited in hundreds of research publications worldwide. Capable of delivering microliter accurate flows for syringes up to 60mL, this system is ideal for a multitude of applications like injections into a reactor, mass spectrometer, and neuro-drug delivery to animals. The Fusion 100 syringe pumps are designed for the utmost compatibility, with both USB and RS322 communication ports and variable power supplies that are globally compatible.

Technology

The Fusion 100 syringe pump incorporates the latest advanced microstepping technology and precision machining to maximize flow performance. Touch screen features allow anyone to operate the system while providing greater operational control and informational feedback. The system also comes with stepwise and gradient flows modes to accommodate complex experimental and operational demands.

Fusion 100 - Data Sheet



The Fusion 100 high-precision infusion pump has a broad range of applications and supports both simple runs and variable, multi-step volume and rate profiles.

TECHNICAL SPECIFICATIONS

MODE	Infuse Only
MINIMUM FLOW RATE	0.0001 $\mu\text{L}/\text{min}$ (with 0.5 μL syringe)
MAXIMUM FLOW RATE	128 mL/min (with 60 mL syringe)
LINEAR FORCE	35lb (15.9kg)
SYRINGE SIZE (MIN/MAX)	0.5 μL to 60mL
STEP RESOLUTION	0.098 $\mu\text{m}/\text{step}$
OPERATIONAL TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	$\pm <0.35\%$
REPRODUCIBILITY	$\pm <0.05\%$
CONNECTIVITY	USB-B, RS232 and TTL Ports
POWER	110/220 VAC

i SELECT APPLICATIONS

- Microfluidics
- Animal Infusion
- Neuroscience
- Mass Spectrometry Infusion
- Electrospinning
- Reagent Dispensing
- Microdialysis
- Stem Cell Injections
- Reactor Feeding

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Fusion 200

Flexible, Feature-Packed, Modular

Highlights

- Infusion & withdraw functionality with anti-siphon ability
- Universal syringe compatibility with ground glass, metal & micro-syringes
- PC and MAC compatible USB & RS232 communication ports
- Multi-step and gradient flow functions come standard
- Precision machined components with long service life
- Touch screen control for ease of use and status feedback
- Complimentary LabVIEW control VI with source code
- Preloaded syringe inner diameter database in pump
- Accepts 10 channel racks for parallel infusion and withdraw

Overview

The Fusion 200 syringe pump is a feature packed laboratory microflow delivery system designed to scale up or down for a multitude of lab and industrial applications. This system is used by a wide range of lab and chemical production functions due to modular holders and expandable racks that can greatly increase delivery. Fusion 200 syringe pumps are designed for the utmost compatibility, with both USB and RS322 communication ports and variable power supplies that are globally compatible.

Technology

The Fusion 200 syringe pump incorporates the latest advanced microstepping technology and precision machining of all metal components to maximize flow performance. Touch screen features allow users to operate the system while providing greater operational control and feedback. The system also comes with stepwise and gradient flow modes to accommodate complex experimental and operational demands.

Fusion 200 - Data Sheet




The Fusion 200 high-precision infuse/withdraw syringe pump has a broad range of applications. This system supports both simple runs and variable, multi-step volume and rate profiles, along with a multi-syringe rack accessory.

TECHNICAL SPECIFICATIONS

MODE	Infuse/Withdraw
MINIMUM FLOW RATE	0.0001 $\mu\text{L}/\text{min}$ (with 0.5 μL syringe)
MAXIMUM FLOW RATE	128 mL/min (with 60 mL syringe)
LINEAR FORCE	50lb (23kg)
SYRINGE SIZE (MIN/MAX)	0.5 μL to 60mL
STEP RESOLUTION	0.046 $\mu\text{m}/\text{step}$
OPERATIONAL TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	$\pm <0.35\%$
REPRODUCIBILITY	$\pm <0.05\%$
CONNECTIVITY	USB-B, RS232 and TTL Ports
POWER	110/220 VAC
SYRINGE RACK OPTION	10-Channel Syringe Rack

SELECT APPLICATIONS

- Microfluidics
- Animal Infusion
- Neuroscience
- Mass Spectrometry Infusion
- Electrospinning
- Reagent Dispensing
- Microdialysis
- Stem Cell Injections
- Reactor Feeding



Fusion 4000

High Precision, Nanoflow & Wide Flow Range

Highlights

- Two independent pump channels
- Universal syringe compatibility with ground glass, metal & micro-syringes
- PC and MAC compatible USB & RS232 communication ports
- Multi-step and gradient flow functions come standard
- Precision machined components with long service life
- Touch screen control for ease of use and status feedback
- Complimentary LabVIEW control VI with source code
- Preloaded syringe inner diameter database in pump

Overview

The Fusion 4000 is configured with two independently controlled, precision syringe pump channels with programmable step-rate functionality, making it one of the most unique and advanced systems in the market. This system allows for complex dual rate, push-pull and oscillatory flow requirements for difficult research applications. With an all-glass touch screen interface and machined metal design, the Fusion 4000 syringe pumps are resistant to chemicals and have superior durability for lab environments of all types.

Technology

The Fusion 4000 syringe pump incorporates two independent motors with the latest advanced microstepping technology and heavy duty metal machining of all metal components to maximize delivery. The LCD screen combined with physical keys allows anyone to operate the system while providing greater operational control and information feedback. The system also comes with stepwise and gradient flow modes to accommodate complex experimental and operational demands.

Fusion 4000 - Data Sheet



The Fusion 4000 programmable syringe pump comes with a dual drive system that allows two independent pumping channels to be controlled for simultaneous infusion and withdrawal at same/different flows.

TECHNICAL SPECIFICATIONS

MODE	Infuse/Withdraw
MINIMUM FLOW RATE	1.6 pL/min (with 0.5µL syringe)
MAXIMUM FLOW RATE	150 mL/min (with 60mL syringe)
LINEAR FORCE	65lb (29kg)
SYRINGE SIZE (MIN/MAX)	0.5µL to 60mL
STEP RESOLUTION	0.0293 µm/step
OPERATIONAL TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	± <0.35%
REPRODUCIBILITY	± <0.05%
CONNECTIVITY	USB-B, RS232 and TTL Ports
POWER	110/220 VAC
MOTOR DRIVE	0.9° Stepper Motor with Micro-stepping

SELECT APPLICATIONS

- Micro/Nanofluidics
- Animal Infusion
- Neuroscience
- Mass Spectrometry Infusion
- Electrospinning
- Reagent Dispensing
- Microdialysis
- Stem Cell Injections
- Reactor Feeding

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Fusion 6000

High-Precision, High-Pressure



Highlights

- Up to 500lb of pushing force.
- Pumps high viscosity, irregular fluids & slurries over 250,000 cP
- PC and MAC compatible USB & RS232 communication ports
- Microfluidic flow performance with ml scale metal syringes
- Multi-step and gradient flow functions come standard
- Touch screen control for ease of use and status feedback
- Complimentary Labview control VI with source code
- Preloaded syringe inner diameter database in pump

Overview

The Fusion 6000 syringe pump is the most powerful high pressure syringe pump in the market with 500lb of total force to the plunger. This system is specifically designed to pump high viscosity solutions and semi solids against pressure with microflow accuracy. Fusion 6000 syringe pumps are designed for compatibility, with RS232 communication ports and globally compatible power supplies.

Technology

The Fusion 6000 syringe pump incorporates a high pressure motor with the latest advanced microstepping technology and heavy duty machining of all metal components to maximize force delivery. The LCD screen combined with movement keys allow anyone to operate the system while providing greater operational control and informational feedback. The system also comes with stepwise and gradient flow modes to accommodate complex operational demands.

Fusion 6000 - Data Sheet



The Fusion 6000 high-pressure syringe pump is designed for dosing viscous solutions, and semi-solid material injections against pressure. This system allows also for both heated syringe temperature control and pressure modulation while providing precision flow and performance that are critical to experimental success.

TECHNICAL SPECIFICATIONS

MODE	Infuse/Withdraw
MINIMUM FLOW RATE	0.0001 $\mu\text{L}/\text{min}$ (with 0.5 μL syringe)
MAXIMUM FLOW RATE	423 mL/min (with 225mL syringe)
LINEAR FORCE	500lb (227kg)
SYRINGE SIZE (MIN/MAX)	0.5 μL to 225mL
STEP RESOLUTION	0.0938 $\mu\text{m}/\text{step}$
OPERATIONAL TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	$\pm <0.35\%$
REPRODUCIBILITY	$\pm <0.05\%$
CONNECTIVITY	USB-B, RS232 and TTL Ports
POWER	110/220 VAC
SYRINGE RACK OPTION	4-Channel Syringe Rack

i SELECT APPLICATIONS

- High Pressure Applications
- Vaporizer Filling
- Fracking Research
- Supercritical CO₂
- Electrospinning
- Reagent Dispensing
- Pressure Reactor Injection
- High Viscosity Fluid Dosing
- Polymer Dosing

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Nanojet

Remote Infusion, MRI compatible Stereotaxic



Highlights

- MRI compatible infusion & withdraw functionality with anti-siphon ability
- Remote movable pump headers for both stereotaxic and radioactive material handling
- Individual control of each header holding micro-syringes
- PC and MAC compatible USB & RS232 communication ports
- Stereotaxic arm attachment standard on every header
- Precision machined components with long service life
- Touch screen control for ease of use and status feedback
- Complimentary LabVIEW control VI with source code
- Preloaded syringe inner diameter database in pump

Overview

The Nanojet syringe pump is a remote MRI compatible infusion system designed for neuroscience and radioactive material handling. Capable of delivering microliter accurate flows this unit is great for microdialysis, neuroscience drug injection, and a multitude of applications involving drug delivery to animals requiring needle location positioning.

Technology

The Nanojet syringe pump incorporates a high resolution microstepping motor and precision machining to maximize flow performance. The LCD screen allows anyone to operate the system, while providing greater operational control, and feedback. The Nanojet's individual headers can be controlled independently.

Nanojet - Data Sheet



Nanojet is a remotely controlled syringe pump designed for neuroscience use and handling radioactive and highly volatile materials.

TECHNICAL SPECIFICATIONS

MODE	Infuse/Withdraw
MINIMUM FLOW RATE	0.0001 $\mu\text{L}/\text{min}$ (with 0.5 μL syringe)
MAXIMUM FLOW RATE	1 mL/min (with 1 mL syringe)
LINEAR FORCE	10lb (4.5kg)
SYRINGE SIZE (MIN/MAX)	0.5 μL to 1mL
STEP RESOLUTION	0.298 $\mu\text{m}/\text{step}$
OPERATIONAL TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	$\pm <0.35\%$
REPRODUCIBILITY	$\pm <0.05\%$
CONNECTIVITY	RS232
POWER	110/220 VAC
PUMP HEADER SUPPORT	Up to 4 independent headers

SELECT APPLICATIONS

- Stereotaxic Infusion
- Animal Infusion
- Neuroscience
- Radioactive Material Handling
- Electrospinning
- Reagent Dispensing
- Microdialysis
- Stem Cell injections
- Reactor Feeding

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OEM MODULE

Integration Ready & Cost-Effective



Highlights

- Bolt-on microfluidic flow performance to any instrument
- Designed to draw minimal power from on instrument power supplies
- PC and MAC compatible USB & RS232 communication ports
- Multi-step functions standard stored in internal memory
- Precision machined components with long service life
- Compatible with PLC and industrial control systems
- Certification ready with - CE ROHS, WEEE, FCC and Prop66
- Easy programming protocols with sample source code available

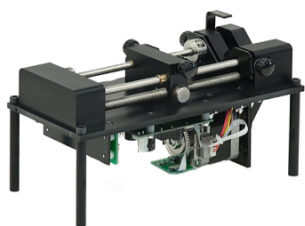
Overview

The OEM syringe pump is designed for integration into analytical instruments requiring precision flow functions with a removable syringe. Capable of delivering microliter accurate flows from syringes up to 60mL, this system is ideal for a multitude of applications like injections into a reactor, mass spectrometer, and neuro-drug delivery to animals. The OEM is designed for compatibility with both USB and RS322 communication ports and globally-compatible variable power supplies.

Technology

The OEM syringe pump also incorporates the latest advanced microstepping technology and precision machining to maximize flow performance. The system comes with multi-step functions. Operators can store and execute programs that run complex flow profiles. Additionally, operators can adjust communication speeds to optimize for specific requirements.

OEM MODULE - Data Sheet



The Chemyx OEM syringe pump is a bolt-on microfluidic pump designed for integration into analytical instruments requiring precision flow functionality with a removable syringe.

TECHNICAL SPECIFICATIONS

MODE	Infuse/Withdraw
MINIMUM FLOW RATE	0.001 $\mu\text{L}/\text{min}$ (with 0.5 μL syringe)
MAXIMUM FLOW RATE	60 mL/min (with 60mL syringe)
LINEAR FORCE	30lb (14kg)
SYRINGE SIZE (MIN/MAX)	0.5 μL to 60mL
STEP RESOLUTION	0.098 $\mu\text{m}/\text{step}$
OPERATION TEMPERATURE	4°C to 40°C (40°F to 104°F)
STORAGE TEMPERATURE	-10°C to 70°C (14°F to 158°F)
ACCURACY	$\pm <0.35\%$
REPRODUCIBILITY	$\pm <0.05\%$
CONNECTIVITY	USB-B, RS232 and TTL Ports
POWER	110/220 VAC

i SELECT APPLICATIONS

- Stereotaxic Infusion
- Animal Infusion
- Neuroscience
- Radioactive Material Handling
- Electrospinning
- Reagent Dispensing
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