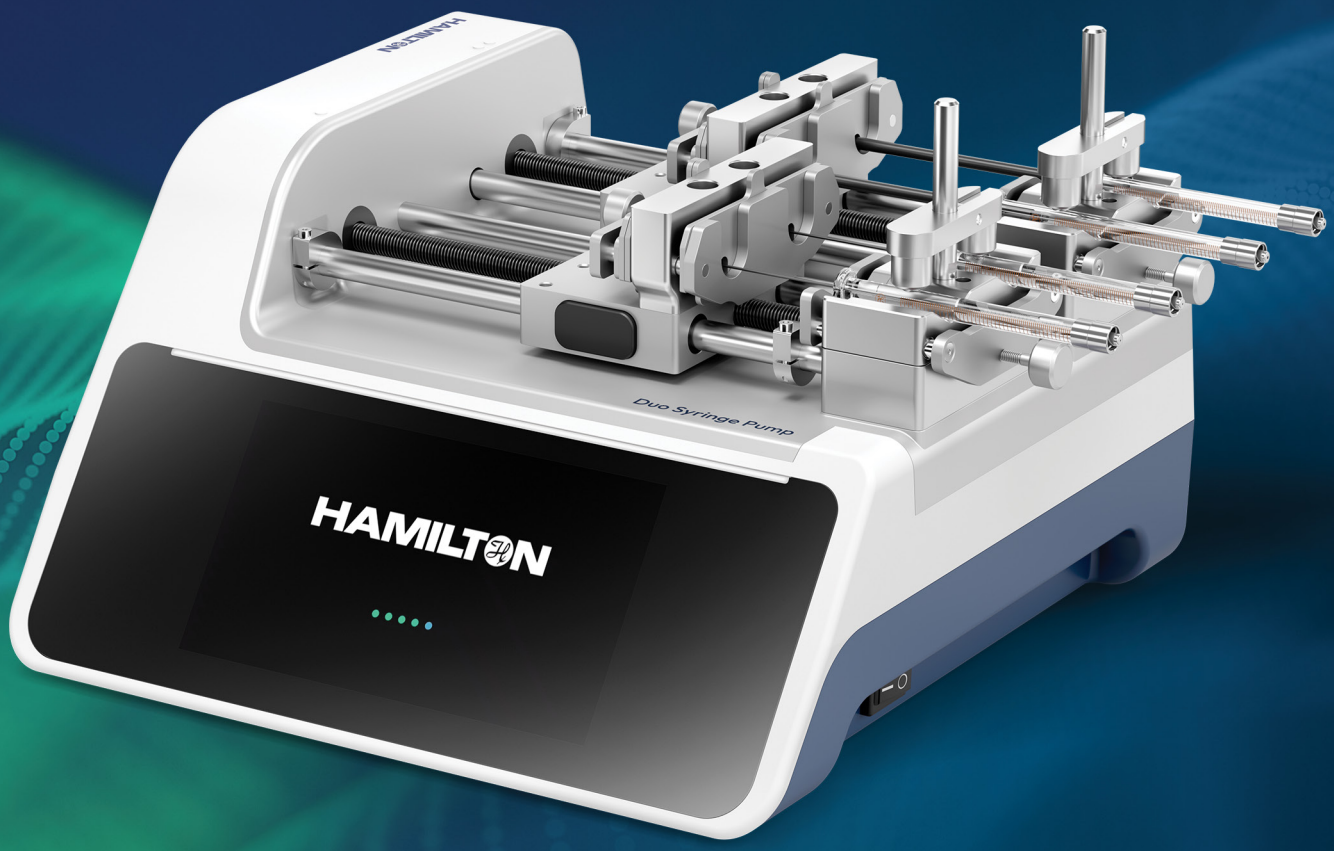
HAMILTON

Duo Syringe Pump

Independent Dual-Drive Syringe Pump



Hamilton
Duo Syringe Pump

Independent Control for Advanced Fluidic Workflows

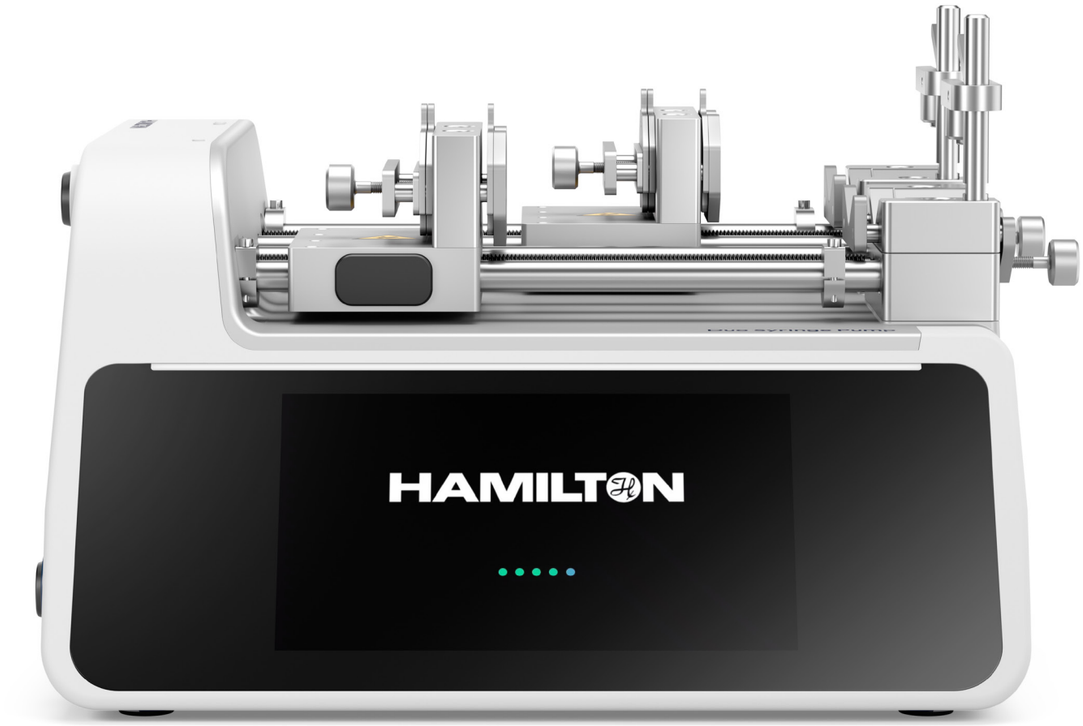
Reliable liquid delivery is fundamental to experimental reproducibility. Workflows that require multiple reagents, synchronized dispensing, or independent flow control depend on precise and consistent fluid handling.

The Hamilton Duo Syringe Pump combines two independently controlled syringe drives, an integrated touchscreen, and a flexible syringe mounting system in a compact benchtop design. Each channel can be configured independently, allowing researchers to perform separate dispensing tasks or coordinated workflows with precise control over flow direction, dispensing parameters, and target values.

Designed for research laboratories, the Hamilton Duo Syringe Pump supports analytical chemistry, microfluidics, life sciences, materials science, and other applications that demand accurate and reproducible liquid handling.

!! Product Disclaimer
Research use only. Not for use in diagnostic procedures or for administration to humans. Product specifications, accessories and availability are subject to change without notice.

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Innovative Design for Maximum Performance

The Hamilton Duo Syringe Pump combines a modern design with practical features that support flexible operation and clear process visibility.

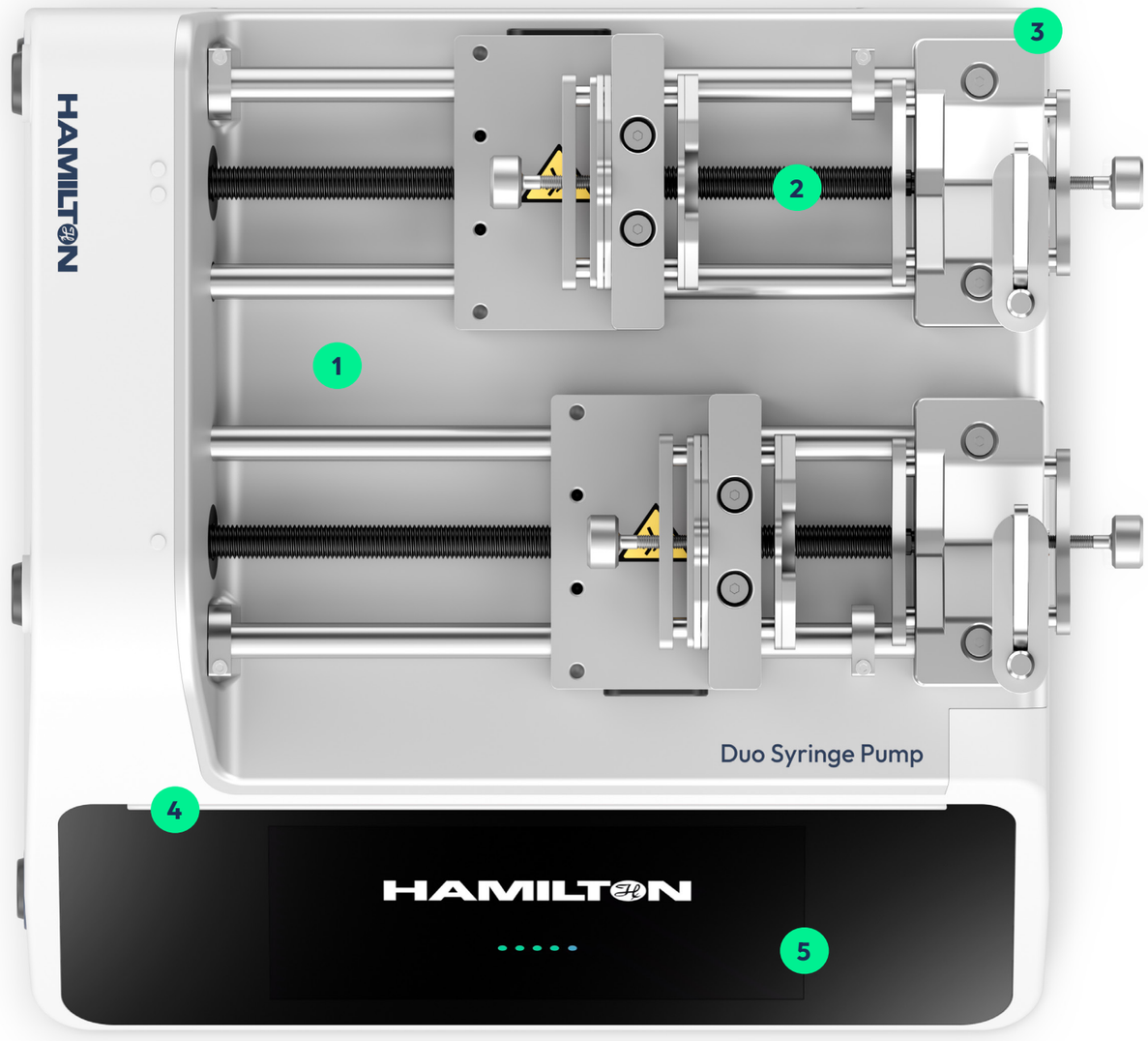
1 **Two Independently Controlled Drives**
Select the syringe volumes, flow parameters, and aspirate/ dispense volumes for each drive independently. This enables two separate processes to operate in parallel and provides a foundation for coordinated dual-channel methods.

2 **Engineered Precision for Long-Lasting Performance**
As the manufacturer of both the syringes and the pumps, Hamilton engineers every component for seamless mechanical synergy. This unrivaled end-to-end control over design and production delivers precise alignment of the syringe barrel and plunger along the drive axis, minimizing lateral stress to protect syringes from premature wear and support dependable, long-term operation.

3 **Up to Four Flexible Syringe Configurations**
Interchangeable holder options allow each drive to be configured for one syringe or for two syringes moving together. The dual-syringe holder drives two syringes in tandem, providing synchronized liquid dispense and withdrawal.

4 **Progress and Status LED Indication**
An integrated LED status bar provides immediate visual feedback on the overall operating status and progress of the workflow. This enables easy identification of the pump's active, paused, completed, or attention-required status.

5 **Integrated Touchscreen Control**
Syringe selection, parameter entry, method setup and process monitoring are available directly on the instrument. A structured interface keeps the two channels clearly separated while making both accessible from the main workflow.



Duo Syringe Pump

Intuitive User Interface Simplifying Operation

The Hamilton Duo Syringe Pump Graphical User Interface (GUI) is designed to make dual-channel liquid delivery straightforward to configure, monitor, and repeat. Guided setup window leads users through syringe selection, operating direction, flow parameters, and aspirate/ dispense volumes for each drive.

The integrated syringe library applies the appropriate dimensional data for accurate flow calculation, while support for compatible user-defined syringes provides additional flexibility. Both drives can be controlled independently from the same interface, even when different syringes and operating parameters are used.

During operation, a clear real-time overview displays channel direction, status, delivered volume, progress, and elapsed or remaining process information. On-screen notifications highlight setup issues, completed runs, and abnormal conditions, while optional bubble and pressure sensors bring relevant fluidic events into the same operating environment.

Frequently performed procedures and advanced multi-step workflows can be created and saved as reusable methods, reducing repeated configuration and supporting consistent operation.

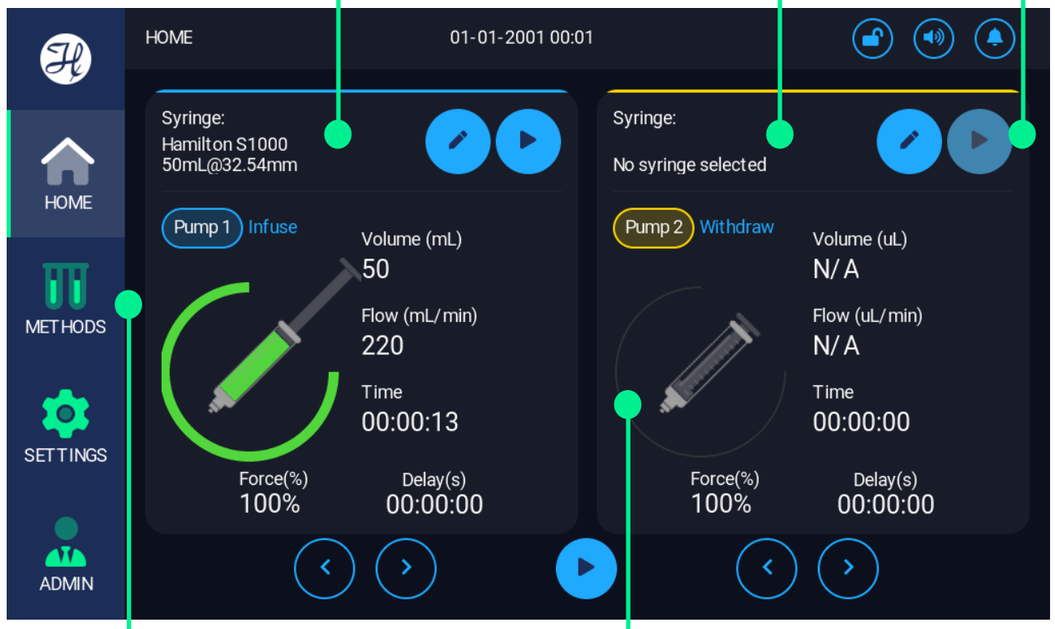
Intuitive Control for Advanced Syringe Pump Workflows

Whether configuring a first experiment or refining a complex fluidic workflow, the clearly structured interface makes operation straightforward. From configuring independent syringe channels to monitoring process conditions in real time, every feature is engineered to deliver greater flexibility, operational efficiency, and precise control.

Guided Channel Setup
Configure each drive step by step, including syringe selection, operating direction, flow parameters and target values. Structured input reduces unnecessary navigation and helps users prepare the process consistently.

Independent Channel Control
Manage the two drives separately from the same interface. Individual channel controls make it easier to start, pause, stop and review processes when both drives are in use.

Syringe Library
Select a predefined syringe from the integrated library to apply the correct dimensional data for flow calculation. Users can also create and save custom syringe profiles for compatible third-party syringes.



Create Custom Methods
Create and save custom methods for routine procedures or advanced multi-step workflows, making experiments easier to reproduce and adapt to different requirements.

Real-Time Process Overview
Easily monitor each drive's progress during operation, including volumes dispensed or aspirated, and remaining process information.

Advanced Control, Reliable Performance

Precise and Stable Flow Control

The drive system is designed to deliver consistent flow with minimal pulsation, including at low flow rates. Stable delivery supports repeatable operation and gives users greater confidence in sensitive dosing and controlled-flow applications.

- **Flow rate range: 4.97 pL/ min – 220 mL/ min**
- **Accuracy: ±0.25%**
- **Reproducibility: ±0.05%**

Hands-Free Footswitch Operation

A dedicated footswitch connection allows supported operations to be activated without using the touchscreen.

Hands-free control is useful when the operator must simultaneously handle samples, fluidic connections, or other components of the experimental setup, providing greater convenience and control at the point of delivery.

Automated Liquid Path Control

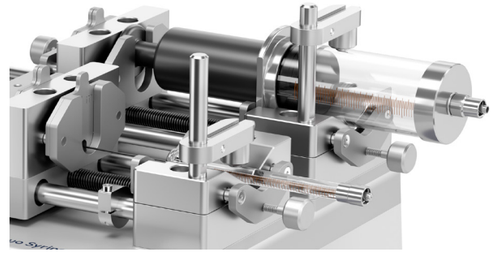
Optional solenoid valves and sensors extend control beyond syringe movement. Automated path switching reduces manual intervention, while pressure and bubble monitoring provides real-time insight into fluidic conditions.

When a defined abnormal condition is detected, the system can stop the affected operation and alert the user, helping protect the workflow.

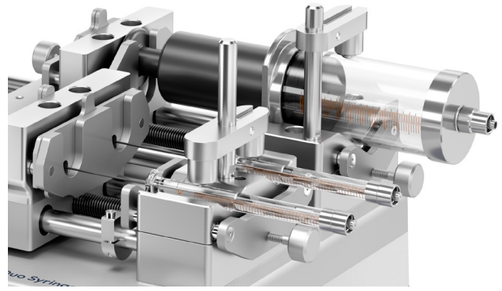


Adaptable Syringe Configurations

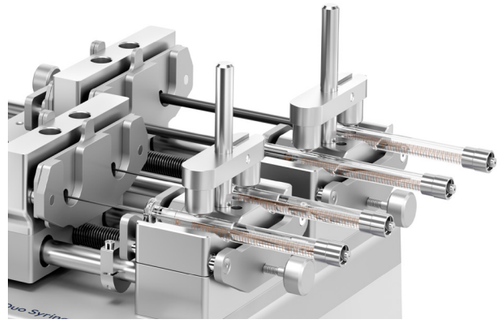
Interchangeable single- and dual-syringe holders allow the system to be adapted to different workflows. Each drive can operate one syringe independently or move two syringes in tandem, enabling configurations with one, two, three, or four syringes. Each drive supports a single syringe up to 50 mL or two syringes up to 25 mL each when using the optional Dual-Syringe Holder.



One or Two Syringes
Use a single-syringe holder on one or both drives for single or dual syringe use.



Three Syringes
Combine a dual-syringe holder on one drive with a single-syringe holder on the other for one matched pair and one independently controlled syringe.



Four Syringes
Equip both drives with dual-syringe holders to operate two matched syringe pairs, with each pair controlled independently.

Two Drives,
Multiple Possibilities

The syringe is a critical part of any syringe-pump workflow. Selecting the appropriate volume, material, termination, and mechanical configuration helps ensure a secure fit and reliable liquid delivery across different applications.

Optimized for Hamilton Syringes
The Hamilton Duo Syringe Pump is optimized for use with Hamilton syringes, providing a precise mechanical fit and consistent liquid handling performance.

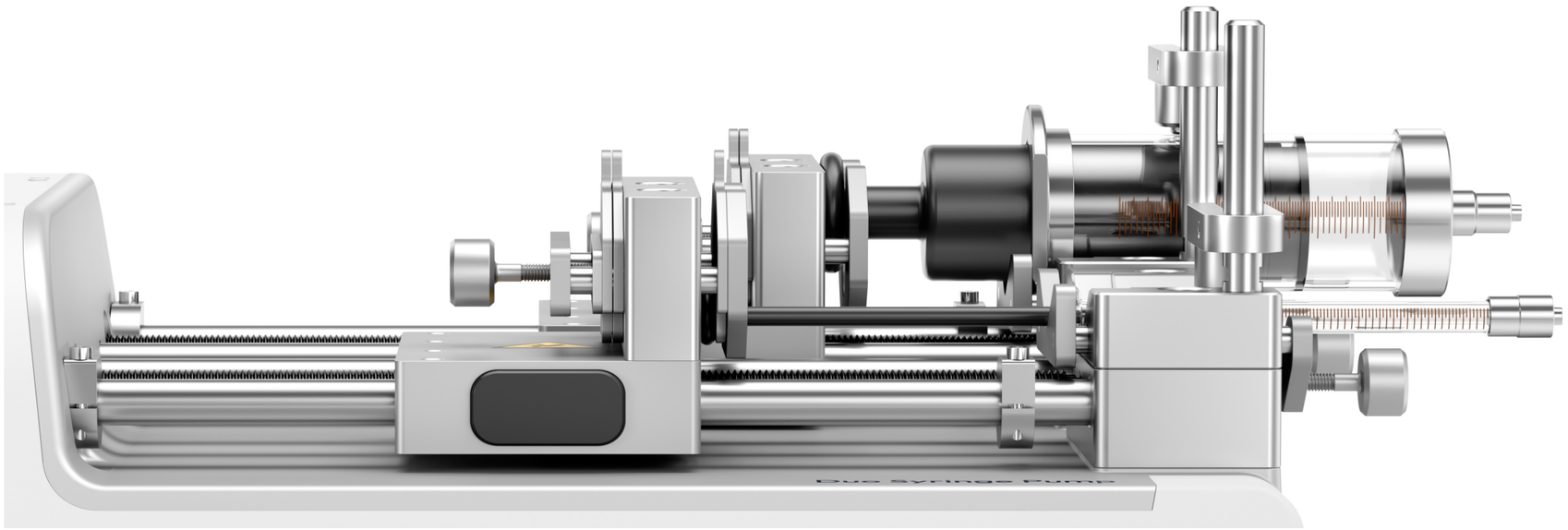
A broad selection of syringe volumes, materials, and terminations allows the system to be configured for a wide range of applications while maintaining compatibility across the Hamilton fluidic portfolio.

Compatible syringe volumes: 0.5 µL to 50 mL

Flexible Syringe Compatibility
Application requirements vary, and so do syringe preferences. In addition to Hamilton syringes, the Hamilton Duo Syringe Pump supports selected third-party syringes with compatible dimensions, flange and plunger geometry, materials, and operating characteristics.

Recommended Compatibility Statement
For reliable performance, use Hamilton syringes or compatible third-party syringes that meet the dimensional, mechanical and material requirements specified in the product documentation.

The user is responsible for verifying the suitability of the complete fluidic setup for the intended research application.



With support for syringe volumes from 0.5 µL to 50 mL, the Hamilton Duo Syringe Pump can be adapted from microvolume dosing to higher-volume transfer workflows.

Syringes

Find the Hamilton syringe that best fits your application by selecting the appropriate volume.

Tubing

Complete your fluidic setup with Hamilton tubing for reliable, leak-free connections.

Versatile Solution for Advanced Research

Whether delivering reagents, generating controlled flow, or automating repeatable dispensing workflows, the Hamilton Duo Syringe Pump provides the precision, flexibility, and independent channel control required for a wide range of research applications.

Academia and Life Science Research
Support method development, reagent delivery, infusion, withdrawal, sampling and experimental validation across multidisciplinary laboratories. The flexible dual-channel setup is well suited to exploratory research and frequently changing protocols.

Analytical Chemistry
Provide stable liquid delivery for direct infusion to analytical instruments, calibration and tuning workflows, reagent addition, sampling and other applications where controlled flow supports reliable measurements.

Microfluidics and Organ-on-Chip Research
Control low-volume flow into microfluidic devices, cell-based models and organ-on-chip systems. Independent channels allow two liquids or flow conditions to be managed from one instrument.

Chemical Synthesis and Materials Research
Automate controlled reagent addition, ratio-based liquid delivery and time-dependent dosing for reaction studies, formulation, electrospinning and materials development.

Preclinical and Physiological Research
Support research-only liquid delivery and sampling workflows, including microdialysis and controlled infusion in experimental models. The product is not intended for administration to humans.

One pump. Two orientations.

Vertical Configuration
Reduces the horizontal footprint and can simplify tubing routing in compact or vertically arranged setups, making it easier to integrate the pump alongside other laboratory equipment.

Horizontal Configuration
Provides a familiar, stable benchtop layout with direct access to the syringe holders, touchscreen, and fluidic connections, ideal for routine operation and frequent syringe changes.



Configure for Your Application

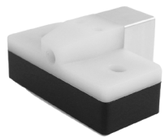
From interchangeable syringe holders to optional fluidic modules, each accessory is designed to extend the pump's functionality while maintaining the same intuitive operation and precise liquid handling.



Dual Syringe Holder
Secures two syringes on the same drive for matched simultaneous movement. Designed for applications where two syringes need to deliver or withdraw liquid at the same programmed drive speed.



Footswitch
Provides an alternative way to start and stop pump operations without using the touchscreen. It connects easily to the Duo Syringe Pump and offers a practical solution for laboratory procedures where precise timing and convenient operation are important.



Solenoid Valve with Pressure Sensor
Automates liquid path switching without removing the syringe from the pump, supporting filling, dispensing, and repeated liquid-transfer workflows.

The integrated pressure sensor monitors pressure conditions, helping identify restrictions or excessive back pressure.



Bubble Sensor
Detects air in the tubing and provides an early warning when a bubble is present in the monitored liquid path. This helps users react before air reaches a sensitive downstream process.

Ordering Information

Description	Part Number	Includes
Hamilton Duo Syringe Pump	10212610*	2 x Single-syringe holders 1 x Power cord for the country of destination

Table 1. Ordering information for Duo Syringe Pump unit.

Note: *One power cord suitable for the country of destination is included with each Duo Syringe Pump unit. Additional power cords or accessories must be purchased separately.

Accessories

Description	Part Number
Dual-Syringe Holder	10208930
Footswitch	10209843
Bubble Sensor for Ø2 mm tubing	10209851
Bubble Sensor for Ø3 mm tubing	10209853
Solenoid Valve with Pressure Sensor	10209837

Table 2. Ordering information for Duo Syringe Pump accessories.



Order Your Duo Syringe Pump.

Scan the QR Code.

Specifications

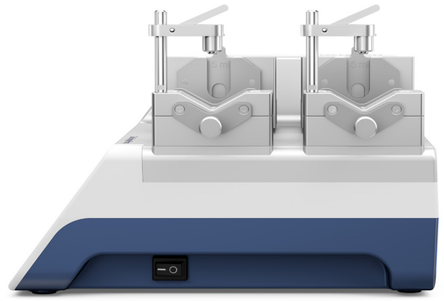
General Specifications		
Dimensions (L x W x H)		28.7 x 29.7 x 16.6 cm (11.30 × 11.69 × 6.54 inches)
Accuracy		± 0.25%
Reproducibility		± 0.05%
Maximum Linear Force (per drive)		34 kgf (±15%) approximately 333 N (±15%) when 100% Force Selected
Syringe Size		0.5 µL to 50 mL
Flow Rate	Minimum 0.5 µL Syringe (0.103 mm minimum inner diameter of the syringe barrel)	4.97 pL/ min
	Maximum 50 mL Syringe (32.573 mm maximum inner diameter of the syringe barrel)	220 mL/ min
Drive Motor		Two independent stepper motors 1.8˚ MicroStepper Motor
Motor Drive Control		Microprocessor with 1/32 microstepping
Step Rate	Minimum	6 sec/ µstep
	Maximum	13.18 µsec/ µstep
Step Resolution		0.0579 µm/ µstep
Display		7” TFT Color Display with Touch Screen
Modes of Operation		Simple Mode
		Complex Methods
Real-time Clock		Yes, with battery backup (battery included)
Connectors		Power- Barrel connector
		USB - Type A
		Footswitch Connections - Jack 3.5 mm x1
Power Supply		Input 100-240 VAC, 50/60 Hz, Output 24 VDC, 2.71 A, 65W
Weight		6.2 Kg
Operating Temperature		4°C to 40°C
Storage Temperature		-10°C to 70°C
Operating Humidity		Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40 °C
Storage Humidity		20% to 80% RH, non-condensing
Pollution		Degree 2
Accessories		Footswitch, Dual-Syringe Holder, Solenoid Valve with Pressure Sensor, Bubble Sensor
EMC Classification		Class B Equipment tested for use in a Basic Electromagnetic Environment according to IEC 61326-1
Certifications		CE, CSA, KC

Product Dimensions

Horizontal Use



28.7 cm/ 11.30 inches



29.7 cm/ 11.69 inches

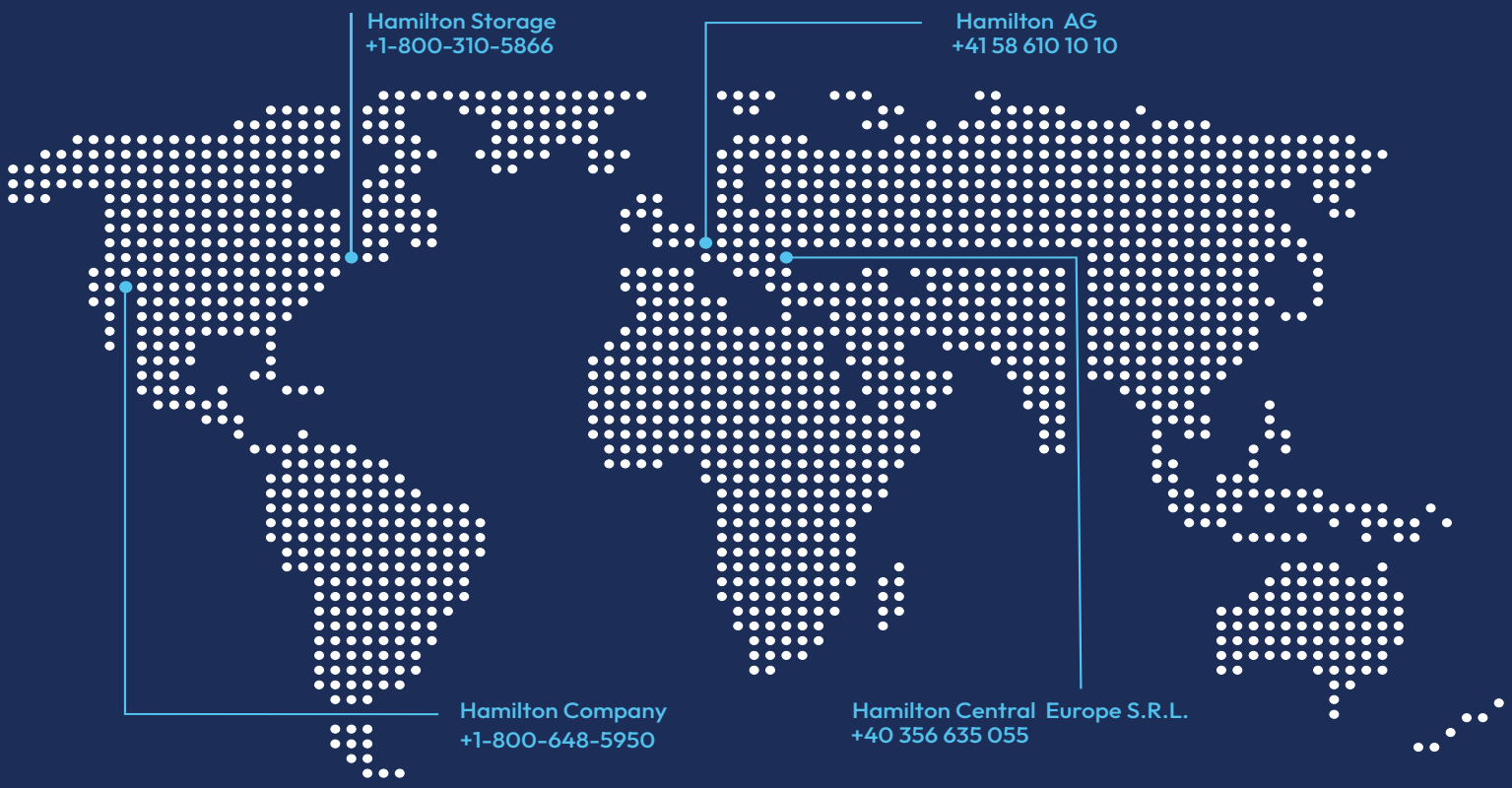
Vertical Use



28.7 cm/ 11.30 inches

16.6 cm/ 6.54 inches

HAMILTON



Years of Experience
75+

Locations Worldwide
22+

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