

Microlab[®] 600 Series

microLAB
600 Series

Automated Intelligent
Diluting and Dispensing



HAMILTON



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Custom Program Syringe Pump

See more on [page 11](#)



Basic vs. Advanced Comparison

See more on [pages 16 & 17](#)



Custom Methods with On Screen Instructions

See more on [page 18](#)

For more information on the Microlab 600 or to order a product, please visit www.hamiltoncompany.com/microlab600. To place an order by phone, call 888-525-2123 in the U.S. or refer to the back of this catalog for additional contact details.

Introducing the Microlab® 600

The Microlab® 600 is a highly precise syringe pump with a touchscreen interface designed to quickly and easily dilute and dispense fluids. This positive displacement system provides better than 99% accuracy, independent of a liquid's viscosity, vapor pressure and temperature. The inert fluid path minimizes sample carryover and is compatible with harsh chemicals.

All Labs Can Use the Microlab 600

Every laboratory has tasks too small to automate and too large to reliably accomplish by hand. The Microlab 600 is a semi-automated liquid handler designed specifically for these in-between applications that increase throughput and consistency while reducing cost and wasted buffer. Common industries using the product are:

- ▶ Forensics
- ▶ Environmental Analysis
- ▶ Mining
- ▶ Manufacturing

Benefits of the Microlab 600

The Microlab 600 offers labs a way to securely monitor processes and greatly increase efficiency. No more adjusting pipettes and recalculating dilutions. Quickly recall stored dispenses and dilutions with Favorites. Trigger the hand probe or tap the foot switch to actuate the syringe drives according to a predefined program. These are just some of the conveniences of the Microlab 600. Here are a few more:

- ▶ Reduce time preparing samples or dispensing reagents
- ▶ Minimize experimental variation from one user to the next
- ▶ Manage log files from any PC
- ▶ Comply with EPA, FDA, GLP and GMP, 21 CFR Part 11 and ISO
- ▶ N.I.S.T. traceable calibration



Dual Syringe Diluters

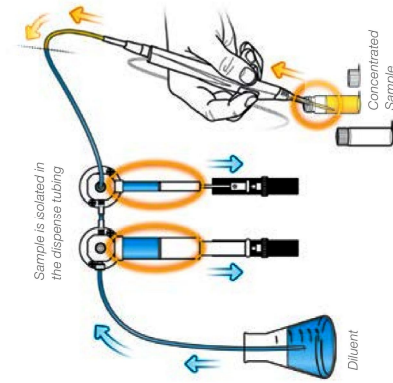
Concorde Hand Probe

The Dual Syringe Diluter configuration uses two syringes to create up to a 1:50,000 dilution in a single step, drastically reducing preparation time and wasted buffer. The diluent washes the tubing between each sample, minimizing carryover for even the most sensitive techniques including:

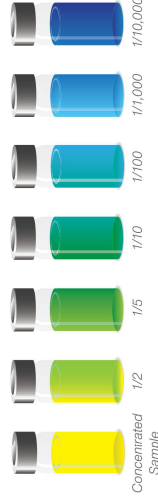
- ▶ Atomic absorption (AA)
- ▶ Inductively coupled plasma spectroscopy (ICP)
- ▶ High performance liquid chromatography (HPLC)
- ▶ Gas chromatography (GC)
- ▶ Liquid scintillation



How Does It Work?



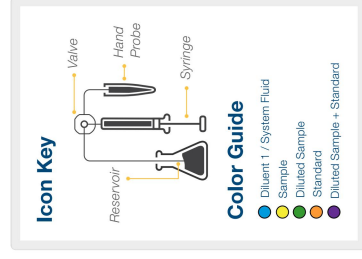
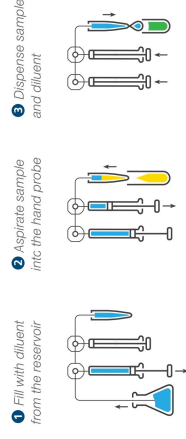
- Step 1.** Program sample and diluent volume.
- Step 2.** Trigger the hand probe to fill left syringe with diluent and aspirate sample into the hand probe with the right syringe.
- Step 3.** Trigger the hand probe to dispense the sample and then the diluent into the vial to complete the dilution and wash the tube for the next sample.



Dilution Wizard

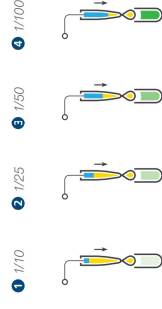
Accurately dilute concentrated samples with diluent over a wide range of dilution ratios.

Dual Syringe Dilution



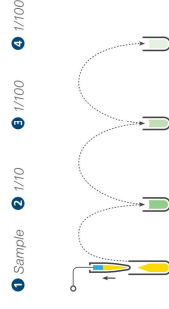
Serial Dilution (Programmed)

Repeat the steps for single or dual dilution with varying dilution ratios and the same final volume.

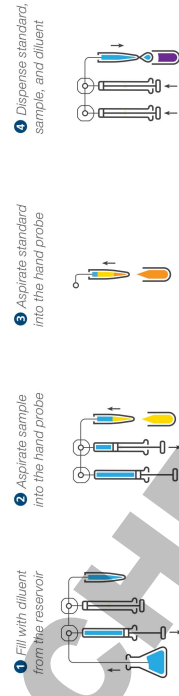


Serial Dilution (Tube to Tube)

Repeat the steps for single or dual dilution and use the resulting dilution as the sample for the next dilution.



Multi Sample Dilution (or Internal Standard Addition)



Diluter Ordering Information

| Part Number | Description |
|-------------|---|
| ML1615-DIL | Dual Syringe Diluter with Basic Controller |
| ML1625-DIL | Dual Syringe Diluter with Advanced Controller |

The -DIL model ships with the Concorde hand probe, universal valves, fill/dispense tubing, accessory holder, country-specific power cord and the choice of two syringes. If syringes are not selected at the time of the order, 25 mL and 250 µL syringes are included.



Dual Syringe Diluters

Disposable Tip Hand Probe (DTHP)

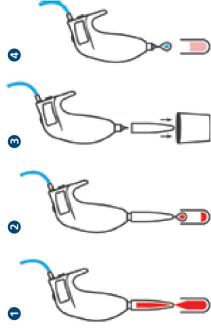
For sensitive applications, the sample is aspirated into a disposable plastic tip which is thrown away between each sample, eliminating any chance for carryover. Applications that benefit from the DTHP include:

- ▶ Forensics – for some applications regulatory considerations make disposable tips the preferred option.
- ▶ Sterile samples – sterile disposable tips can be used to avoid transferring contamination between sample vessels.
- ▶ DNA amplification – for applications where a single amplified strand of DNA is enough to impact results.



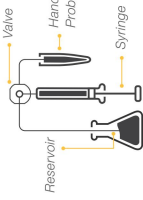
Dilution Options

Single Sample Dilution



- 1 The trigger is pressed and the sample is aspirated into the tip using the right syringe while diluent is drawn into the left syringe.
- 2 The trigger is pressed again and the sample is dispensed from the tip.
- 3 The tip is ejected.
- 4 Another trigger dispenses the diluent to complete the dilution.

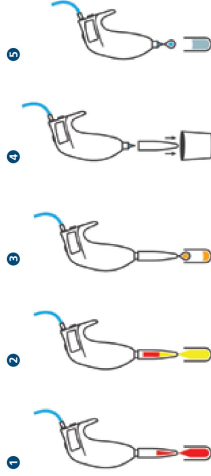
Icon Key



Color Guide

- Sample 1
- Sample 2
- Dispensed Samples
- Diluted Sample
- Diluted Samples

Multi-Sample Dilution



- 1 Aspirate Sample 1 into ClickSure Tip.
- 2 Aspirate Sample 2. Repeat with additional solutions.
- 3 Dispense Samples.
- 4 Discard ClickSure Tip.
- 5 Dispense Diluent.

Ordering Information

Disposable Tip Hand Probe

| Part Number | Description |
|-------------|---|
| ML625-DTHP | Microplate 600 Diluter with Disposable Tip Hand Probe |

ClickSure Tips for DTHP

| Part Number | Description | Part Number | Description |
|-------------|---|-------------|--|
| 235537 | 50 µL, non-sterile ClickSure Tips, 960 tips, racked | 235539 | 1 mL, non-sterile ClickSure Tips, 960 tips, racked |
| 235543 | 50 µL, non-sterile ClickSure Tips, 960 tips, bulk | 235545 | 1 mL, non-sterile ClickSure Tips, 960 tips, bulk |
| 235538 | 50 µL, sterile ClickSure Tips, 960 tips, racked | 235538 | 1 mL, sterile ClickSure Tips, 960 tips, racked |

The DTHP model ships with the Disposable Tip-Hand Probe, universal valves, 1ft tubing, Cable Management System, century-specific power cord and the choice of two syringes. If syringes are not selected at the time of the order, 2.5 mL and 250 µL syringes are included.



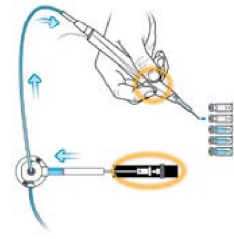
Dispensers

The Microlab 600 is able to dispense volumes from 100 nL to 50 mL. The Microlab 600 uses positive displacement syringes to accurately dispense volatile, viscous and dense liquids independent of atmospheric influences. The inert fluid path is compatible with harsh chemicals, making the Microlab 600 the most reliable and robust dispensing system available.



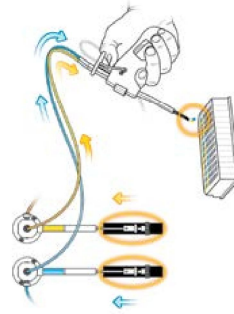
Single Syringe Dispenser

The syringe fills from a reservoir and dispenses from the hand probe.



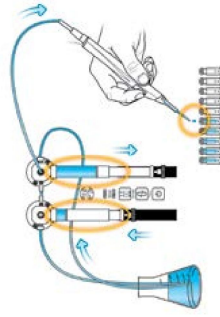
Dual Syringe Dispenser

Each syringe fills from a separate reservoir and dispenses separately from the hand probe.



Continuous Dispenser

One syringe fills while the other syringe is dispensing from the same reservoir.

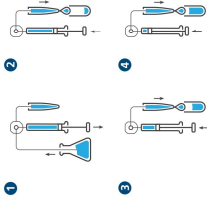


Aliquot Dispense Wizard

Repetitively dispense aliquots of the same volume at the press of a button.

Single Syringe Aliquot or Serial Dispense

- 1 Fill from reservoir
- 2 Dispense through hand probe
- 3 Dispense
- 4 Dispense

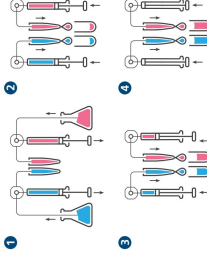


Serial Dispense Wizard

Repetitively dispense aliquots of differing volumes at the press of a button.

Dual Syringe Aliquot or Serial Dispense

- 1 Fill from reservoir
- 2 Dispense through hand probe
- 3 Dispense
- 4 Dispense



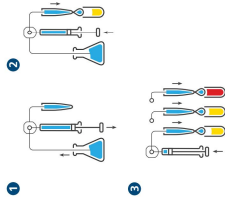
Titration Wizard

Slowly add liquid to another liquid until an end-point is reached. An example of this application is adding acid or base to a pH buffer.

Titration

A large initial volume is dispensed to get close to the endpoint. Then a smaller step volume is dispensed until the endpoint is reached.

- 1 Fill from reservoir
- 2 Dispense the initial volume
- 3 Dispense the step volume

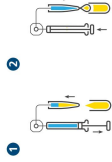


Pipette Wizard

Simulate a manual pipette used to transfer liquid from one vessel to the next.

Pipette

- 1 Aspirate sample into the hand probe
- 2 Dispense sample from the hand probe

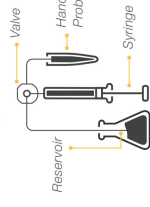


Dispenser Ordering Information

| Part Number | Description |
|-------------|--|
| ML610-DIS | Single Syringe Dispenser with Basic Controller |
| ML620-DIS | Single Syringe Dispenser with Advanced Controller |
| ML615-DIS | Dual Syringe Dispenser with Basic Controller |
| ML625-DIS | Dual Syringe Dispenser with Advanced Controller |
| ML615-CNT | Dual Syringe Continuous Dispenser with Basic Controller |
| ML625-CNT | Dual Syringe Continuous Dispenser with Advanced Controller |

All dispensers ship complete with a Concordia hand probe (the dual-DIS uses the Dual Push Button hand probe), universal valve(s), fill/dispenze tubing assembly, accessory holder, country-specific power cord, and the choice of syringes. If no syringe(s) are selected at the time of the order the -DIS will ship with 1 mL syringe(s) and the -CNT will ship with 10 mL syringes.

Icon Key



Color Guide

- Reagent 1 / System Fluid
- Reagent 2
- Sample
- Titration Endpoint



Standalone Syringe Pumps

Simple to Integrate

Take full command of your diluting and dispensing applications with the Microlab 600 standalone syringe pump. The standalone syringe pump allows you to custom program methods and deploy commands to any instrument on your network from anywhere in the world, giving you unparalleled control of your process.



Choose Ethernet or RS-232 Communication

Choose Ethernet Communication If:

- ▶ The application requires control over all details of the pump like the front LED lights, acceleration speeds, custom initialization routines, etc.
- ▶ Remote control or monitoring of the pump is important. This includes dispensing in restricted environments like clean rooms, rooms with high radioactivity or chemical contamination, etc.
- ▶ Development is being done in a Microsoft .NET 2.0 programming environment. The API simplifies programming with on screen help in an industry standard format.

Choose RS-232 Communication If:

- ▶ The control device is a Programmable Logic Controller.
- ▶ The control device is not a PC running Windows® or the programming language is not compatible with Microsoft® .NET 2.0 framework.
- ▶ The application has already been implemented using an older RS-232 device like Microlab 500.
- ▶ The application requires the use of another Hamilton RS-232 device like Modular Valve Positioner.

Standalone Pump Ordering Information

| Part Number | Description |
|-------------|---------------------|
| ML630 | Single Syringe Pump |
| ML635 | Dual Syringe Pump |

All standalone pumps ship complete with a universal valve(s), country-specific power supply and power cord. Power supply and power cord details are selected at the time of the order. (For syringes) will be included automatically.

Program your own methods in:

Visual C#®
Visual Basic®
LabVIEW™



Microlab Hardware

Controller Features

The Microlab 600 controller features a large, easy-to-use touchscreen with a processor more than 20 times faster than the original controller. A dedicated host USB port enables connection to a keyboard, mouse, printer and barcode reader.



Back view of Microlab 600 Controller

- 1 Memory Slot
- 2 Optional Power Input
- 3 Host USB for Mouse, Keyboard, Printer, and Barcode Scanner
- 4 Ethernet
- 5 Slave USB Port
- 6 Optional RS-232

Controller Accessories



2 GB Method Storage



Screen Protector



Keyboard



Mouse



Printer



Barcode Scanner

Syringe Pump Features

The Microlab 600 is available as a single or dual syringe system. The high torque, precision stepper motors provide unsurpassed positional accuracy across the full range of Hamilton syringes from 10 µL to 50 mL. The instrument communicates with the controller or a corporate network via an Ethernet port. Serial communication via RS-232 is also possible for programming in a non Windows® environment.



- 1 Fanless heat vent
- 2 24 volt power input
- 3 CAN daisy chain input/output
- 4 RS-232 console port
- 5 Power over Ethernet (PoE)
- 6 TTL input/output

- 1 High torque valve motors
- 2 Precision syringe drives with 48000 deg/revolution over 60 mm
- 3 Lighted power and prime buttons
- 4 Independent left and right trigger ports

Pump Accessories



AirShield (see page 19)



Microlab Software

Choosing a Controller

Hamilton conducted human factor studies to create a clear and understandable system that is communicated through a straightforward user interface. Each screen was thoughtfully designed to simplify the flow of each process and maximize its ease of use.

Basic Controller

The Basic Microlab 600 controller quickly performs standard dilutions and dispensing using a Quick Start screen.

Advanced Controller

The Advanced controller contains a significant number of additional features and allows users to create methods using all gaps, washing, repetitive dispensing and more. For users with the Basic controller that would like to upgrade, it can be easily converted to the Advanced using a simple software kit (P/N 61500-02).

Basic Controller Software

The basic controller is ideal for completing simple diluting and dispensing tasks. Quickly set the desired volume in the Quick Start Run Screen and begin.

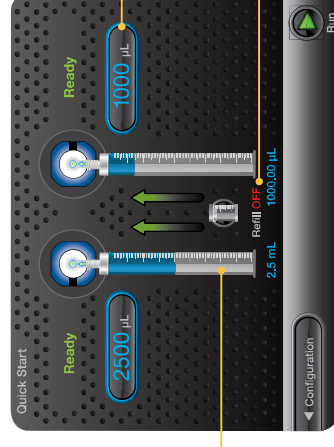
Simple Diluting

Diluent is drawn by the left syringe and sample is drawn into the tubing by the right syringe. Both syringes dispense to complete the dilution.

Simple Dispensing

Solvent is drawn into the syringe and dispensed out through the hand probe. With the Basic controller it is not possible to perform multiple dispenses from a single fill syringe.

Run Screen



Graphical status of the current valve and syringe position

Press this button to adjust the dispense volume at any time

Toggle the Auto Refill button ON and OFF

Configuration Screen



Press to proceed to the Run screen

Configure valves, syringes, system settings, view firmware revision, etc.

Review system logs and run system updates.

Basic & Advanced Functionality Comparison

| Features | Basic | Advanced |
|--|-------|----------|
| Quick Start Screen – Prime the instrument, program the dispense volume and start dispensing. | ✓ | ✓ |
| Graphical Pump Status – Animations of the fluid path display the current and future state of the syringe pump. | ✓ | ✓ |
| Adaptive Dispense Control – Adjust dispense volumes in mid-process and the instrument will recalculate the remaining dispenses and proper time to refill. | ✓ | ✓ |
| Configuration Guide – Step-by-step help to set up the instrument. | | ✓ |
| Wizards – Dedicated Wizards for aliquot dispensing, serial dispensing, dilution, pipetting and titration. | | ✓ |
| Favorites Menu – Quickly access frequently used methods. | | ✓ |
| Custom Method Programming – Create custom applications not covered by a Wizard. | | ✓ |
| Enhanced Security – Meet 21 CFR Part 11 and FDA GMP/GLP requirements using custom security options. | | ✓ |
| Method Storage – Create and run more than 1,000 methods on a single controller. | | ✓ |
| Log File Creation – Create and store files on a memory card, or permanently on a PC using LyncStore™, to meet hardcopy archive requirements. | | ✓ |
| Language Options – Operate the instrument in 10 languages. | | ✓ |
| Software Upgrades – Download software updates and receive exciting new features. | | ✓ |



Advanced Controller

Wizards

Wizards are designed to simplify the programming of common everyday methods. The controller ships with the most popular Wizards installed but it is simple to add or delete Wizards from the menu. Visit www.hamiltoncompany.com/microlabwizards to see a complete list of available Wizards.



Wizards that come installed on the controller

Favorites store frequently used Wizard settings for later use

Custom Methods

Custom methods can be created to accomplish unique liquid handling tasks. Incorporate loops, delays, external triggering and execution counters with valve and syringe movements to create complex methods.



On screen instructions tell the user exactly what to do at each step



Compliance and Logging

The software provides a variety of security protections, simplifies adherence to FDA GXP regulations, ability to administer user accounts and passwords, create log files that conform to 21 CFR Part 11 and manage log files on a PC using the LyncStore application.



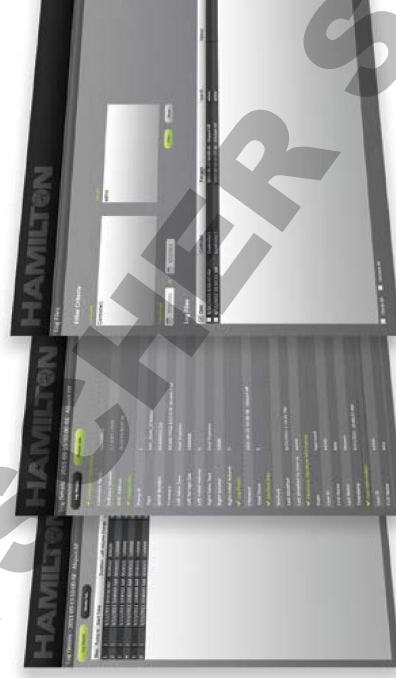
Language Support

The Microlab 600 features language support for English, Spanish, German, French, Italian, Portuguese, Korean, Japanese, Traditional Chinese and Simplified Chinese.



Archiving and Sharing Methods

Favorites and Custom Methods are stored on the Hardware Key. The card can be used to transfer methods between Microlab 600 Controllers or to a PC for archiving. Methods can also be transferred by e-mail between colleagues.



LyncStore Software

LyncStore, the new PC-based management system from Hamilton, allows users to easily view, manage, filter, archive and print log files generated on Advanced Microlab 600 diluters and dispensers. LyncStore meets 21 CFR Part 11 and FDA GMP/GLP requirements making it a valuable addition to regulated labs or labs with increased security protocols.



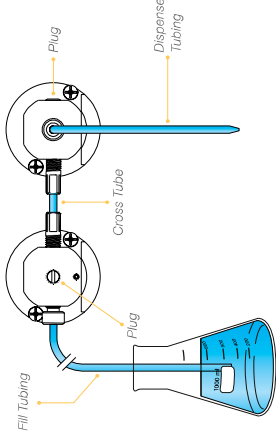
Universal Valves

Innovative fluid logic allows the same universal valve to be used in all MicroLab 600 diluting and dispensing applications. Interchange the valve plugs and tubing to achieve the following configurations in a matter of minutes.

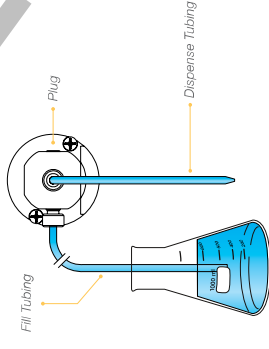


Valve Plumbing Based on Instrument Configuration

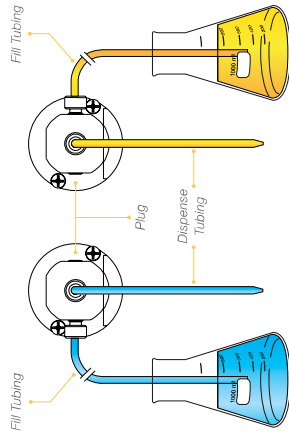
Dual Syringe Diluter



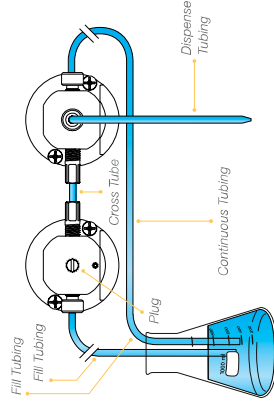
Single Syringe Dispenser



Dual Syringe Dispenser



Continuous Dispenser



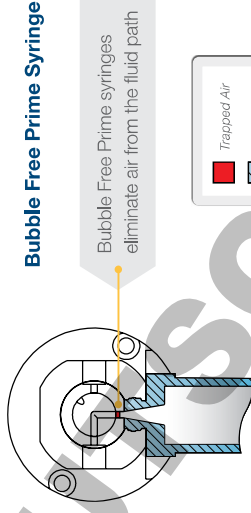
Bubble Free Prime Syringes

For any syringe pump, the key to achieving the most accurate dispenses is eliminating all air from the fluid path. Traditional syringes trap approximately 50 μL of air between the tip of the syringe and the valve. For small syringes, this trapped air is the last to leave the syringe and the first to be drawn back in, making them difficult if not impossible to prime.

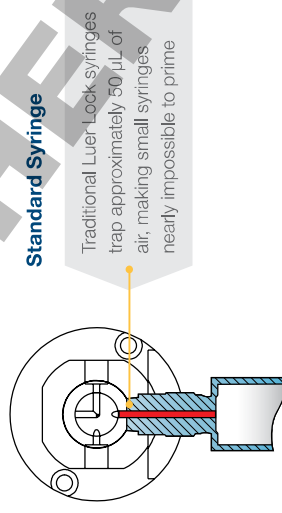
The Bubble Free Prime syringe has a conical plunger tip that extends through the threaded termination and into the valve. This unique design expels the air from the syringe and valve decreasing the number of priming cycles required.

Bubble Free Prime vs. Standard Syringes

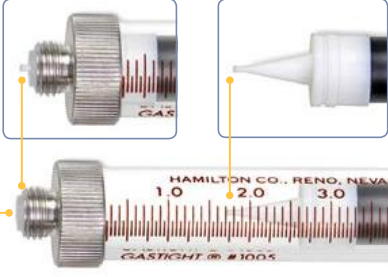
Bubble Free Prime Syringe



Standard Syringe



Patented conical tip extends through the threaded termination and into the valve



Accessories

Protect Your Investment with AirShield



The AirShield is a separate accessory that can be purchased for any Microlab 600 instrument. It creates a positive pressure blanket of fresh air inside the pump that pushes air out over critical components on the outside of the pump, protecting them from the environment.



Localized Harsh Environment

In many labs the air is relatively clean but samples and reagents placed near the instrument result in a localized environment that can be harmful. For these labs, it is sufficient to source clean air from the back of the instrument away from the microenvironment.

Optional Snorkel for Fresh Air Supply

For labs with a more demanding atmosphere it is possible to source clean air via a snorkel that connects directly to the AirShield. Fresh air is then brought from outside the harmful environment to create a shield of clean air around all critical instrument components.

Hand Probes, Foot Switch and Printer Kit

Concorde CT Hand Probe

(Standard with the Single Syringe Dispenser, Dual Syringe Diluter and Continuous Dispenser)



Disposable Tip Hand Probe

(0.5 - 1000 µL)



Dual Push Button Hand Probe

(Standard with the Dual Syringe Dispenser)



Large Volume Disposable Tip Hand Probe

(1 - 5 mL)



Foot Switch



Printer



AirShield, Hand Probes, Foot Switch and Printer Kit

Part Number Description

| | |
|----------|---|
| 61401-01 | Concorde CT Hand Probe |
| 62541-01 | Dual Push Button Hand Probe |
| 63860-02 | Disposable Tip Hand Probe (0.5 - 1000 µL)* |
| 62575-01 | Large Volume Disposable Tip Hand Probe (1 - 5 mL) |
| 75702 | 5 mL Disposable Tips (250/pk) |
| 62576-01 | Foot Switch |
| 68562-01 | AirShield |
| 93009-01 | AirShield Tubing (includes tubing clamp) |
| 61500-04 | Microlab Printer |

*Tips for this probe are listed on page 68



Replacement Parts

Syringes and Power Supplies

Standard Syringes

| Part Number | Syringe Size | Optimal Range |
|-------------|--------------|---------------|
| 59000-05 | 10 µL | 1–10 µL |
| 59000-10 | 25 µL | 2.5–25 µL |
| 59000-15 | 50 µL | 5–50 µL |
| 59000-20 | 100 µL | 10–100 µL |
| 59000-25 | 250 µL | 25–250 µL |
| 59000-30 | 500 µL | 50–500 µL |
| 59000-35 | 1.0 mL | 100 µL–1.0 mL |
| 59000-40 | 2.5 mL | 250 µL–2.5 mL |
| 59000-45 | 5.0 mL | 500 µL–5.0 mL |
| 59000-50 | 10.0 mL | 1–10.0 mL |
| 59000-55 | 25.0 mL | 2.5–25.0 mL |
| 59000-60 | 50.0 mL | 5–50.0 mL |

SaltLine Syringes

| Part Number | Syringe Size | Optimal Range |
|-------------|--------------|-----------------|
| 208335 | 1 mL | 100 µL - 1.0 mL |
| 208336 | 5 mL | 500 µL - 5.0 mL |
| 208337 | 10 mL | 1 - 10.0 mL |

Power Supply & Power Cords

| Part Number | Description | Diagram of Plug |
|-------------|---|-----------------|
| 61092-01 | Power Supply Universal (110–220 VAC) | |
| 355006 | Switzerland | |
| 3892-01 | Continental Europe, Russia, Schuko | |
| 3892-02 | Australia, New Zealand, Argentina, China | |
| 3892-03 | UK, Ireland, Malaysia, Middle East | |
| 3892-05 | USA, Canada, Mexico, Central America, Brazil, Japan | |

Selecting a Syringe:

Select the smallest syringe with a maximum volume that is greater than the largest volume to be dispensed. Ideally the smallest volume to be dispensed should fall within the optimal ranges listed to the left. The MicroLab 600 can dispense volumes below the optimal range but there will be some impact on accuracy and precision. The SaltLine Syringes should be used when working with solutions that have a high salt concentration. Contact a Hamilton sales representative for additional assistance.

Valves, Tubing, Upgrade Kits and Miscellaneous Accessories

Universal Valves & Accessories

| Part Number | Valve Assembly Description |
|-------------|----------------------------|
| 60676-01 | Left Valve Assembly |
| 60675-01 | Right Valve Assembly |
| 61498-01 | Valve Cross Tube Assembly |
| 61729-01 | Valve Plug (1/pkg) |



Left Valve

Right Valve



Valve Plugs



Cross Tube

PTFE Tubing Assemblies

| Part Number | Gauge | Type | Length | Internal Volume |
|-------------|-------|------------------------|---------------|-----------------|
| 61615-01 | 18 | Fill Tubing | 48" (1219 mm) | 1.15 mL |
| 240134 | 18 | Dispense Tubing | 54" (1372 mm) | 1.29 mL |
| 1174-02 | 18 | Fill Tubing | Custom Length | 0.94 µL/mm |
| 1173-02 | 18 | Dispense Tubing | Custom Length | 0.94 µL/mm |
| 61614-01 | 12 | Fill Tubing | 48" (1219 mm) | 4.57 mL |
| 240133 | 12 | Dispense Tubing | 54" (1372 mm) | 5.15 mL |
| 1172-02 | 12 | Fill Tubing | Custom Length | 3.75 µL/mm |
| 1171-02 | 12 | Dispense Tubing | Custom Length | 3.75 µL/mm |
| 61491-02 | 18 | Continuous Fill Tubing | | 0.94 µL/mm |
| 61491-01 | 12 | Continuous Fill Tubing | | 3.75 µL/mm |



Fill & Dispense Tubing

(Dispense tubing has tapered end)

Upgrade Kit

| Part Number | Upgrade Kit Includes |
|-------------|---|
| 61500-02 | Basic to Advanced Controller Upgrade Kit |
| 61500-03 | Advanced manual, 2 GB SD card, SD to USB converter and programmer software CD |
| | Programmer software CD with manual, Application Programming Interface and example LabVIEW™, Visual C#® and Visual Basic® programs |



Software CD & SD Card

Misc. Accessories

| Part Number | Description |
|-------------|--------------------------------------|
| 88990 | Tubing Clips (5/pkg) |
| 61710-01 | Accessory Holder & Tubing Wire Stand |
| 65160-01 | Cable Management System |



Accessory Holder & Wire Stand

Tubing Clips



Power Cord

Power Supply



Specifications

Controller Specifications

| | |
|---------------------------|---|
| Screen size | 5.7 inch (15 cm diagonal) |
| Screen resolution | 640(W) x 480(H) pixels |
| Tilt positions | 5 positions from 90° to flat |
| Mounting options | On top of the syringe pump, bench top, or wall mount |
| Program memory | 2 GB (with Advanced upgrade) |
| Communication type | Ethernet, 10/100 BASE-T |
| Power rating | 24 VDC, 2.5 A |
| Dimensions | 2.29 x 6.5 x 7 inch (57.2 x 165.1 x 177.8 mm) in down position |
| Weight | 1.9 lbs (0.86 kg) |

Single and Dual Syringe Pump Specifications

| | |
|--------------------------------|---|
| Accuracy | +/- 1% |
| Precision | +/- 0.2% |
| Syringe drive mechanism | 1.8" stepper motor with variable volumetric flow rate |
| Flow rate | 0.008-6000 µL/second (depending on the syringe that is selected) |
| Syringe resolution | 0.002% of the nominal syringe volume |
| Compatible syringes | 10, 25, 50, 100, 250, 500 µL, 1, 2.5, 5, 10, 25 and 50 mL |
| Volume range | 1.0 µL - 50 mL |
| Fluid path | Borosilicate, PTFE, CTFE |
| Communication type | Ethernet, 10/100 BASE-T |
| Communication protocol | .NET, 20 Application Programming Interface (API) |
| Pump memory | One method stored in non-volatile memory |
| Calibration | Factory tested and traceable to N.I.S.T. standards |
| Certifications | CE, CSA |
| Power requirements | 100 - 240 V ±1.5 A max 50/60 Hz |
| Power rating | 24 VDC, 2.5 A |
| Dimensions | 7 x 5.5 x 10.5 inch (177.8 x 139.7 x 266.7 mm) |
| Weight | 13 lbs (5.9 kg) |

About Hamilton Company

Hamilton Company is a global enterprise with affiliates in Reno, Nevada; Franklin, Massachusetts; and Bonaduz, Switzerland and sales offices throughout the world.

We are an industry leader in the design and manufacture of liquid handling, process analytics, robotics and automated storage solutions. For more than 60 years, Hamilton has been satisfying customer needs by combining quality materials with skilled workmanship to ensure the highest level of performance. Hamilton's lifelong commitment to precision and quality has earned us global ISO 9001 Certification.



Founded on the technology of analytical Microflier™ and Gastight® syringes, Hamilton Company has a broad offering of laboratory products including manual and semi-automated precision fluid measuring instruments, chromatography products, process sensors, laboratory electrodes, pipettes and more. Top innovations from these lines include Arc® pH, DO and Conductivity Intelligent Sensors, Microlab® 600 Diluters/Dispensers and the Microlab® 300 Guided Pipetting System.

A pioneer in liquid handling equipment and laboratory automation technology, Hamilton Robotics is known for advancing life science and biotechnology industries through reliability, performance and flexibility. Hamilton Robotics is the industry leader in design and manufacturing with patented technologies such as Compression-induced O-Ring Expansion (CO-RE™), Total Aspiration and Dispensing Monitoring (TADM®) and Anti-Droplet Control (ADC™). Hamilton Robotics' platforms include Hamilton VANTAGE™ Liquid Handling System, its newest vertically-integrated liquid handler, Microlab STAR™, Hamilton Robotics' highest selling automated pipetting platform, and Microlab NIMBUS®, the first in its class of compact, high-speed, personalized pipetting workstations.



Hamilton Storage Technologies offers comprehensive ultra-low temperature automated sample management systems for microtube and microplate storage. Hamilton Storage Technologies' line of biobanking and compound storage solutions, as well as consumables, are designed for a broad array of life science processes. Products include Hamilton BIOS®, SAM™ and ASM™, designed for sample integrity, flexibility and reliability.



Hamilton Company is focused on blending invention and accuracy to deliver customers unparalleled products.



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