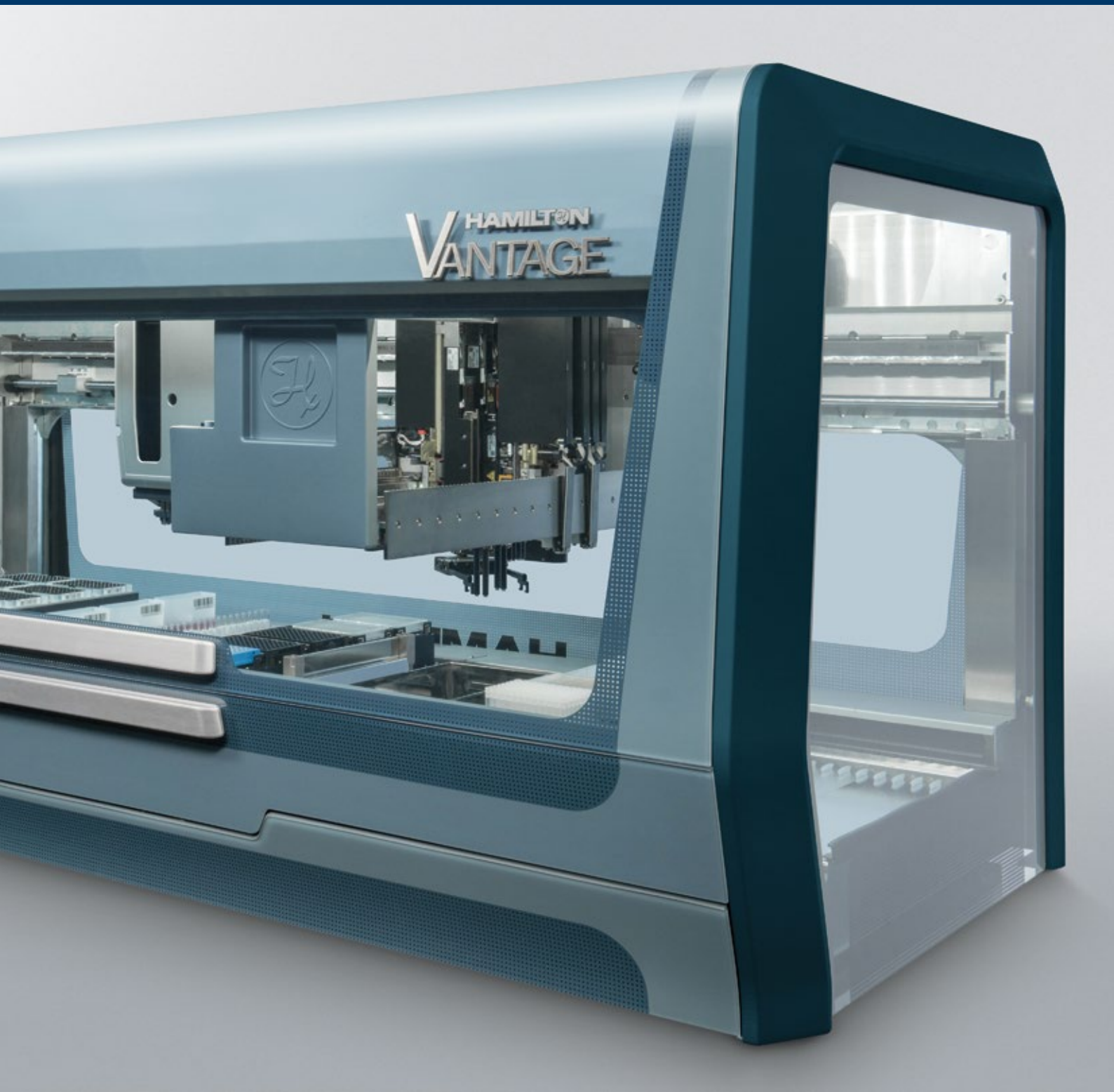
HAMILTON®

Microlab® VANTAGE
Liquid Handling System™



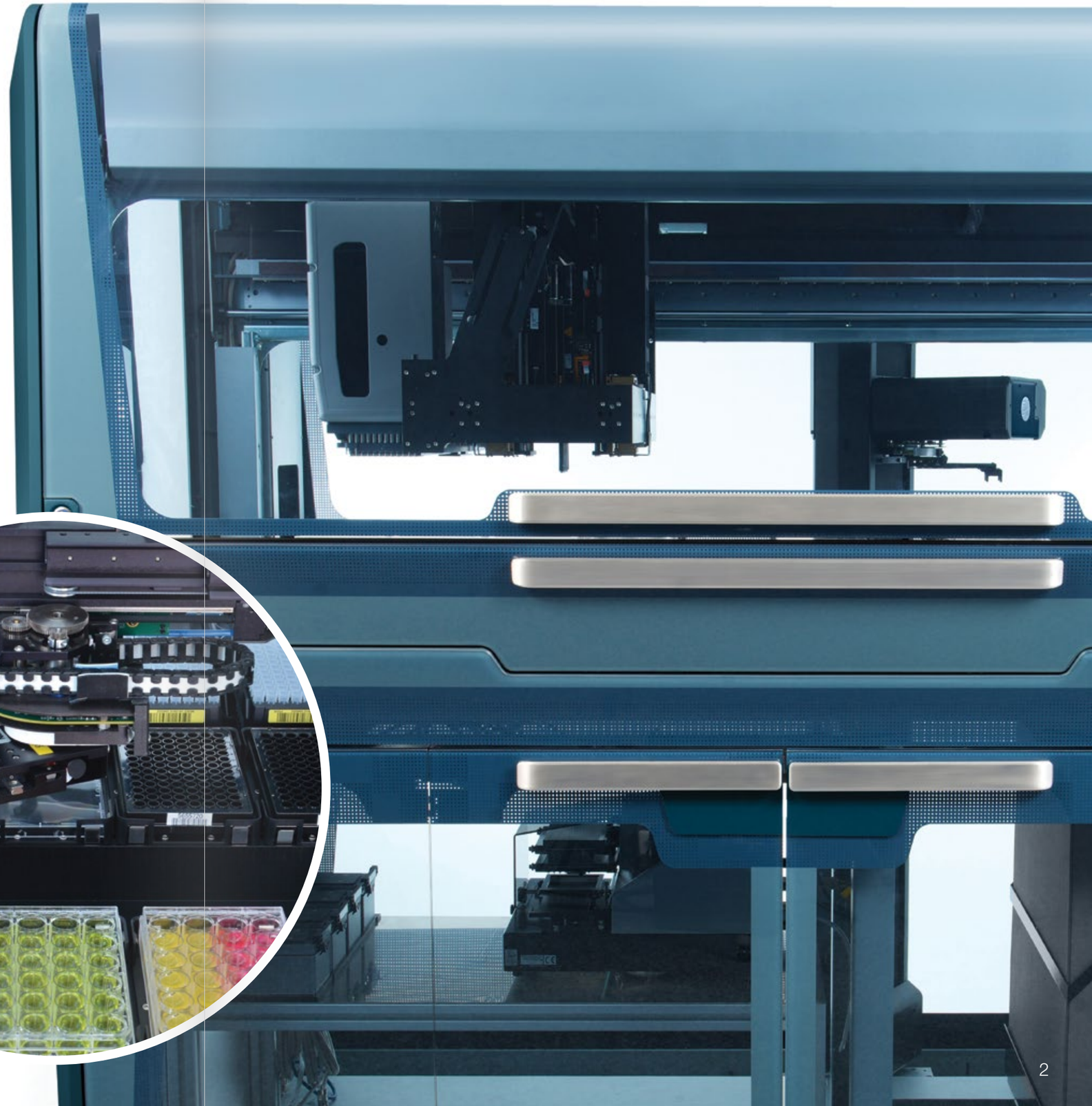
Discover the Hamilton Advantage

PIPETTING EVOLUTION.
LOGISTIC REVOLUTION.
INTEGRATED SOLUTION.

Once again, Hamilton Robotics set a precedent in liquid handling automation, combining precision engineering, performance, and craftsmanship with first-class support and service to provide a complete solution.

Moving beyond basic platforms that assist lab technicians with protocols and workflows, Hamilton is putting you in control to optimize your lab. Through superior space management, majestic styling, and maximized agility, the Hamilton Microlab VANTAGE Liquid Handling System™ is without a doubt the most intelligent and logistically-efficient platform in our portfolio.

Offering patented liquid handling technologies and intelligent software, Microlab VANTAGE delivers a compact platform with enhanced performance, increased walk-away time, and optimization capability to ensure your lab has the best instrument for the next decade.



BE Advantageous

POWERFUL LIQUID HANDLING, THE WAY IT WAS MEANT TO BE

BE Fast 1
Multi-Probe Head (MPH) allows quick pipetting of entire 96- or 384-well plates, or partial plates. Liquid level detection ensures reliable liquid handling.

BE Flexible 2
The pipetting arm holds pipetting channels, transportation devices, camera technology, and more.

BE Nano 3
NanoPulse™ channels offer a dynamic range of 0.5 µL in Jet Mode up to 1000 µL within a single channel.

BE Unique 4
Carriers, tips, and waste positions can be freely placed and configured on the Pipettor's workspace to reflect your assay's individual needs.

BE Efficient 5
The Logistics Cabinet allows labs to optimize space by placing third-party devices, additional labware and consumables, and liquid and solid waste below the pipetting workspace.

BE Informed 6
Multi-color status light visually indicates system status.

Microlab VANTAGE Liquid Handling System 2.0 m

BE Intuitive 7
Translate your lab protocols into automated assays with a graphical drag-and-drop programming interface.

BE Safe 8
A completely sensor-controlled enclosure guarantees safe operation for users and protocols.

BE Independent 9
Independent transportation with the Track Gripper allows pipetting and labware movements to occur in parallel.

BE Accessible 10
The Internal Plate Gripper (IPG) provides labware transportation to all locations on the pipetting workspace.

BE Free 11
The large labware storage capacity of up to three Entry/Exit modules enables unattended runs.

BE Conscious 12
Separated waste compartments for biohazard and non-biohazard solid waste, and liquid waste makes disposal of consumables and liquids more cost-effective.

BE Confident 13
Identification Loading Device (IDL) detects and scans 1D and 2D labware barcodes.

BE Instinctive

INSTINCT V SOFTWARE MAKES ASSAY DESIGN AS INSTINCTIVE AS CAN BE

BE Flexible 1
INSTINCT V's different editors allow every user to work with the instrument. While the Assay Editor enables quick, graphical programming, the XSL Assay Editor solves more complex demands. To arrange multiple assays, use the Workflow Editor.

BE Informed 2
Use any smart device to monitor the status of your Microlab VANTAGE remotely as well as for guidance during instrument teaching and loading.

BE Safe 3
CARE (Contamination Avoidance Response) triggers automatic or semi-automatic tip changes whenever there is a risk of contamination.

BE Together 4
The Microlab VANTAGE is a group instrument. Multiple users can run different assays on the same instrument.

BE Guided 5
An intuitive guidance concept improves the usability both while editing and at runtime. A clean dashboard, escalating error messages, and clearly indicated parameters are only a few examples of this concept.

BE Economical 6
INSTINCT V's Dynamic Scheduler finds the most efficient way to run assays – even from multiple users. It allows users to add assays to workflows that are already running and provides clear loading instructions and consumable estimations.

BE Protected 7
The user management allows managers to set up to 60 different privileges to accounts and roles to meet all restrictions.

BE Carefree 8
The intelligence of INSTINCT V automatically generates transportation steps and keeps track from the starting position all the way to the final destination.

BE Adaptive 9
The software architecture is SiLA compliant, enabling flexible third-party device exchange as integration needs change.

BE Complete 10
Multiple, definable error recovery strategies are available for every step to keep your assay running. Use manual, semi-automated or walk-away options to cover each error in the best way for your process.

BE Efficient 11
Clear 3D run visualization with adjustable speed reduces setup time as users can optimize runs from their desktop computer before occupying the real instrument.

BE Assisted 12
The Assay Editor automatically pre-populates most values required. Simply input the base values and simulate!

Pipetting

REDUCED VOLUMES TO MAXIMIZE YOUR ASSAYS

To fulfill the need for lower and lower pipetting volumes, Hamilton added NanoPulse technology to the pipetting channels. Instead of creating an impulse with the acceleration of the plunger, a high-speed valve has been added to the barrel of the pipetting head.

The closed valve allows the plunger to generate pressure inside the pipetting head. The high precision valve is then opened for a few milliseconds, allowing the controlled pressure to release the liquid out of the tip.

By leaving the valve open, large volume pipetting is possible. Thus, the Microlab VANTAGE covers a wide dynamic volume range within the same channel without requiring mechanical changes.

Discover the Difference of Hamilton's Pipetting Technology

- Superior positional precision and aerosol protection with Compressed O-Ring Expansion (CO-RE) on all channel types. Individual pipetting channels and MPH use CO-RE technology to smoothly pick up and release tips and needles ranging in size from 10 µL to 5 mL.
- Prevent the loss of samples and reagents due to contamination with Contamination Avoidance Response (CARE). Tips can be changed automatically depending on substances specified during assay setup.
- Real-time detection of pipetting errors, such as aspiration of air or errors due to a clot, with Monitored Air Displacement (MAD).
- Refined liquid handling with the dual detection modes of capacitance (cLLD) and pressure (pLLD) Liquid Level Detection. Detect the presence of conductive liquids, non-conductive liquids such as organic solvents, as well as foam or bubbles. Foam, when detected, triggers an error recovery response as defined by the user.
- Eliminate droplet formation when pipetting volatile fluids using built-in pressure sensors with Anti-Droplet Control (ADC™).
- Verify sample transfers with a traceable digital audit trail using Total Aspirate and Dispense Monitoring (TADM™).

Modularity

WE DON'T JUST BUILD A ROBOT, WE BUILD YOUR ROBOT

PIPETTOR

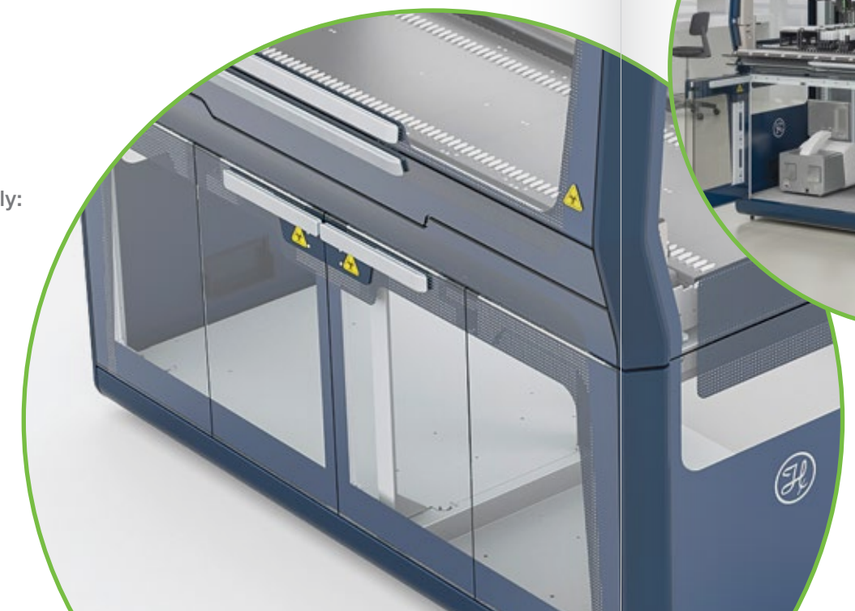
The keystone of every Microlab VANTAGE, the Pipettor houses the Hamilton air displacement liquid handling technology. Completely enclosed to increase operator and sample safety, the Pipettor incorporates linear motors to increase uptime and reduce operational noise. Multi-color lights signal assay and instrument status for the operator. Available in two sizes (1.3 m and 2.0 m), the Pipettor is configurable based on your liquid handling needs:

- CO-RE 96- and 384-Multi-Probe Head (MPH)
- Standard and NanoPulse Pipette Channels with variable y-spread
- Internal Plate Gripper (IPG)
- Quad CO-RE Gripper
- Imaging Channel
- ID Loading Device (IDL)

LOGISTICS CABINET

The vertical integration of the Microlab VANTAGE is, in part, achieved with the Logistics Cabinet.

- **Entry/Exits:** maximum walk away time with high capacity labware and tip storage
  - Up to 2 Entry/Exits are available with the 1.3 m
  - Up to 3 Entry/Exits are available with the 2.0 m
- **Configurable solid and optional liquid waste system:** easy access via enclosed, compact drawer within the Logistics Cabinet
- **Integrated power supply:** multiple configurations offer on-board power for the entire system, multiple Hamilton and third party devices
- **Device integration:** automate more processes by using this space for Hamilton and 3rd party devices



TRACK GRIPPER

With a large work envelope and speeds as fast as 10 seconds for any point-to-point transport, the Track Gripper is an integrated transport device performing labware transportation on the Pipettor, and between it, the Logistics Cabinet, Rear Integration Cabinet, and optional third-party devices.

- No teaching is required for positions on the Pipettor deck
- Teaching for other locations is available via a tablet
- Simplified programming with automatic transport in INSTINCT V
- Optional automatic teaching of positions

REAR INTEGRATION CABINET

Maximizing valuable lab space, the enclosed Rear Integration Cabinet rounds out the configurable options on the Microlab VANTAGE.

- Houses third-party devices and additional labware storage
- Accessible by the Track Gripper
- Provides increased safety with multiple lockable entry points

THIRD-PARTY INTEGRATION

As an integration platform, the Microlab VANTAGE offers plenty of space for third-party devices. Accommodating washers, readers, peelers, sealers, incubators, and more, devices can be located beside the Pipettor, below in the Logistics Cabinet, or behind the instrument in the full-height Rear Integration Cabinet. All areas can be accessed in just seconds with the independent Track Gripper. Increase instrument walk-away time with microplate and tip shuttles using the Entry/Exits below the workspace.

SiLA

SILA INTERFACE

All device integrations, including external systems like Cytomats, are controlled by the INSTINCT V software via the SiLA* interface.

* Standards in Laboratory Automation www.sila-standard.org

Expandability

CONFIGURED FOR TODAY, UPGRADEABLE IN THE FUTURE

Invest in your future needs today. It's not always possible to predict how your research and automated workflows will change, so Hamilton designed a platform from your vantage point.

A modular system configured for your current needs that can adapt to changing requirements by adding or upgrading pipette channels, arms, transport devices, and even entire cabinets, the Microlab VANTAGE protects your initial investment over a longer period of time.

1. Microlab VANTAGE **Pipettor**

2. Microlab VANTAGE **Pipettor**
   + **Logistics Cabinet**

3. Microlab VANTAGE **Pipettor**
   + **Logistics Cabinet**
   + **Track Gripper**

4. Microlab VANTAGE **Pipettor**
   + **Logistics Cabinet**
   + **Track Gripper**
   + **Rear Integration Cabinet**

FUTURE

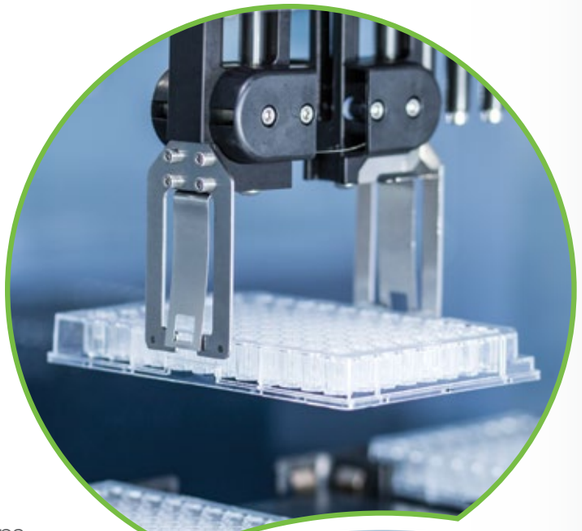
TODAY

Versatility

AUTOMATED WORKFLOW SOLUTIONS CENTER AROUND YOUR ASSAY

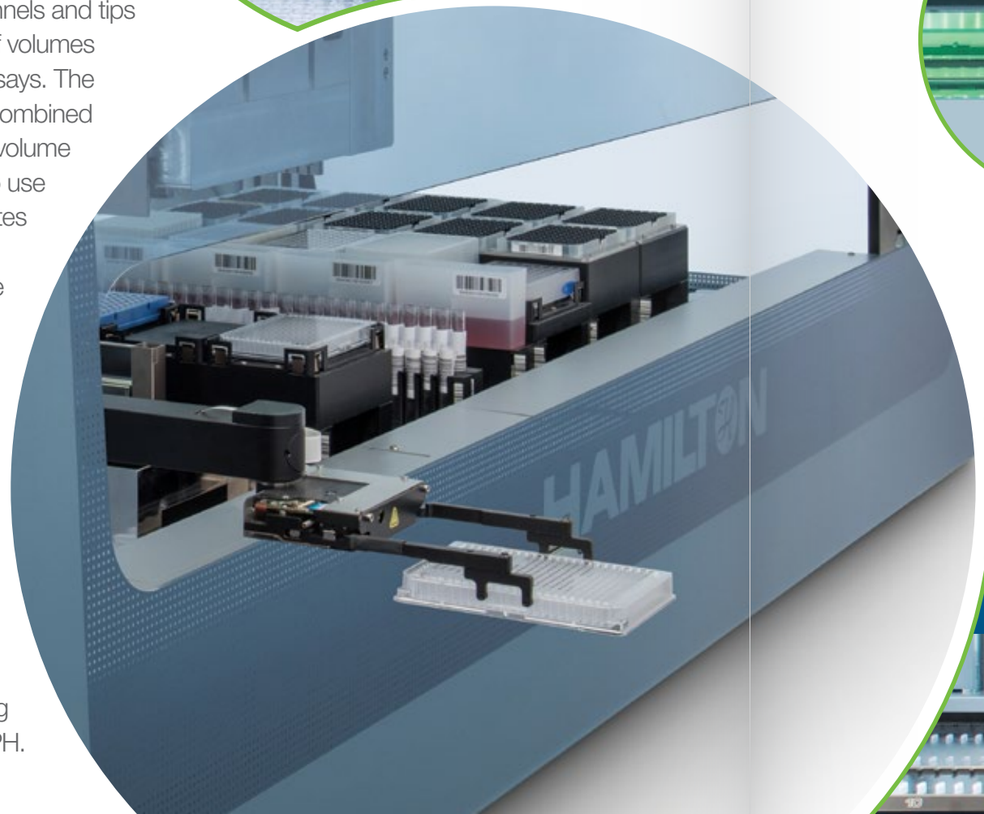
QUAD CO-RE GRIPPER

Using the pipetting channels, the Microlab VANTAGE is able to pick up the Quad CO-RE Gripper and transport plates on deck with ease. By using four channels, the gripping force is maximized, ensuring any plate type can be moved. Capable of transporting plates and lids, this cost-efficient transportation tool can move plates through the workspace, such as to a heating module or stack plates, optimizing the labware capacity.



5 mL CHANNELS

Combining flexibility and power, Hamilton's 5 mL channels and tips expand the range of volumes available in your assays. The unique tip design combined with the channel's volume range allows you to use small tubes and plates in your application while still pipetting large volumes, maximizing the instrument's flexibility.



INTERNAL PLATE GRIPPER

Without limiting the types of devices or how they are accessed, our Internal Plate Gripper (IPG) offers freedom to integrate third-party devices on either side, or even behind, the bench-top instrument. Its compact design allows full deck access for all pipetting channels and the MPH.

Usability

MAKING YOUR WORK FLOW

ASSAY EDITOR

Simpler than ever, the Assay Editor intuitively allows you to design an assay graphically using drag-and-drop of labware and actions, such as aspirate, dispense, shake, heat, etc. Working default values make sure that only minimal input is required to get an assay running. All values and settings are accessible if more fine-tuning is desired. To increase variability, XSL extensions (programming code pieces) can be included in the Assay Editor, giving all the benefits of intuitive, flexible assay programming, without the need to visit a week-long programming class.

STATUS LIGHT

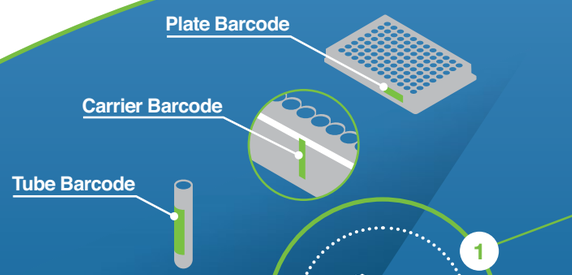
The Status Light can be configured by the user to display various system states. Preconfigured but customizable colors are used for running, error, finished or user input required visual status indication. Additional status indications can be defined by the user. The Status Light will illuminate the inside of the Pipettor so the status can be seen from a distance.

Multiple Users. Different Assays. One Instrument.

Microlab VANTAGE Liquid Handling System offers maximum flexibility in assay design and workflow integration, increasing the efficiency of the entire laboratory.

Traceability

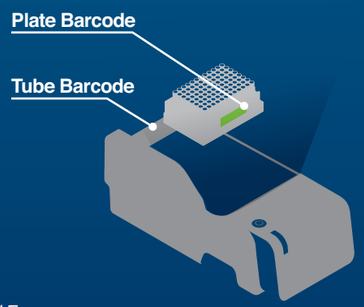
CONFIDENCE IS KNOWING YOUR ASSAY IS TRACKED



IDL
Identification Detection Loading device
- Positions
- Volume
- Error(s)

Third-Party Device
Identification Detection
- Presence
- Position
- Barcodes

INSTINCT V
Tracking Database



Labware Report
- Barcodes
- Positions
- Volume
- Error(s)

.XLS
.CSV
.XML
.MDB
.PDF

ID LOADING DEVICE

The ID Loading Device (IDL) detects and reads 1D and 2D barcodes on various types of labware giving you the flexibility to use virtually any common labware within your application. The information from the barcodes is used to create full sample traceability from the beginning to end of the process, giving you the confidence to know exactly where your samples are located. With its dedicated device for labware recognition, even unlabeled labware can be detected and used in the assay.

ENTRY/EXIT BARCODE READER

Labware entering the process using the Entry/Exit is identified using the optional barcode reader on the Entry/Exit. The small device reads the barcodes using a camera making them available for complete sample tracking throughout the process.

TRACK REPORTING

All actions such as loading, pipetting, and transportation are tracked in the database. This data can be used to generate a detailed history report of labware, including data such as source and destination barcodes, pipetting positions, transferred volumes, and the error status of each well. Reports can be customized and are available in different output file formats for full control of all steps in your assay.

Security

A PLATFORM DESIGNED WITH SAFETY IN MIND

USER PROTECTION

An enclosed housing with sensor-controlled door locks to protect users against injuries and samples from unwanted access.

PROCESS CONTROL

Multiple optimization systems, including the Dynamic Scheduler, pressure-sensed pipetting tools, CARE, TADM, and many more guarantee the safest process handling in the industry.

DATA SAFETY

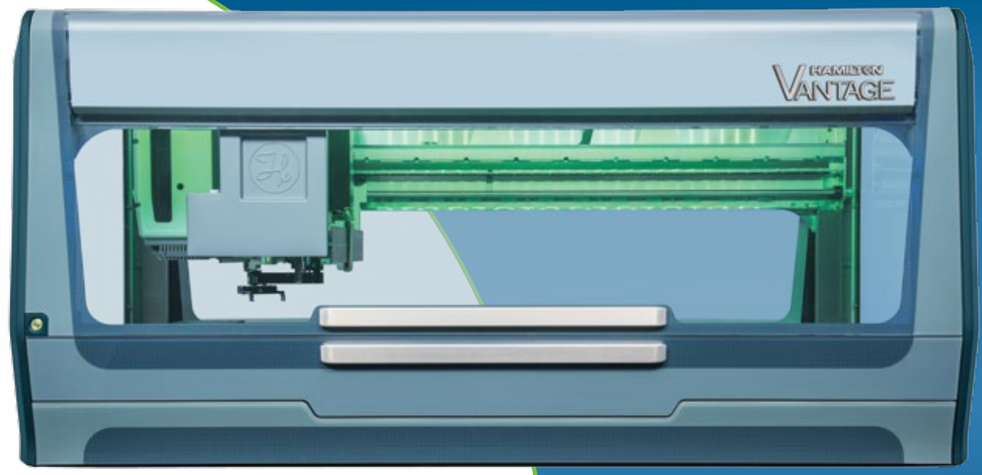
A database software structure prevents data manipulation and data loss, and the controlled user access and role definition allow tailored access to any level of the software.

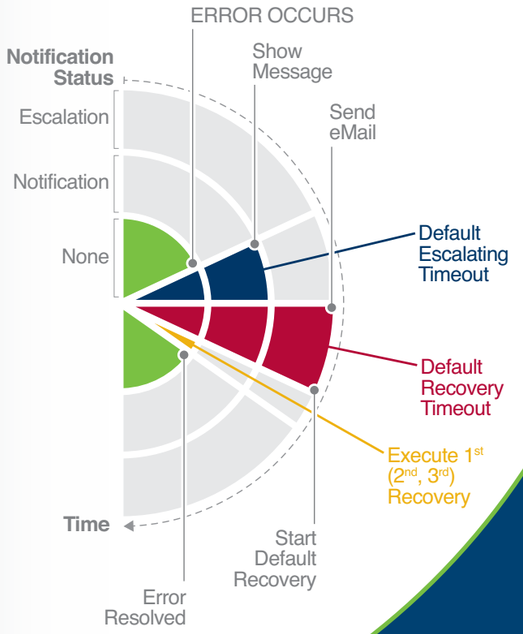
FUTURE PROOF CONTROL

A versatile instrument structure, amazing network capabilities, and flexible software make your investment future-proof.

Enclosed and Locked System

To guarantee a safe process for samples and operators, the system is enclosed and locked when running an assay. This gives users maximum confidence that the process is performed undisturbed maximizing the reliability of the results generated.



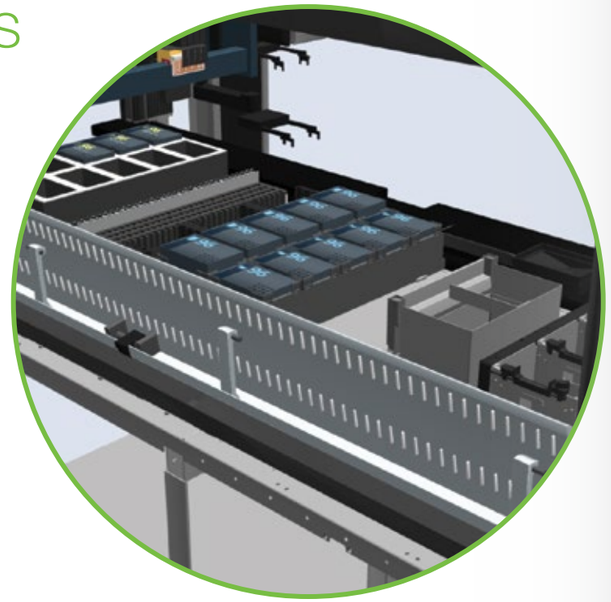


Safeguarded Samples

Losing samples is never an option. The sophisticated error handling strategies allows finishing the assay in almost every case, by offering a clear indication whenever a user interaction is needed. It is possible to define further action and/or a semi- or fully-automated execution of error recoveries, configurable in every command. Due to the dynamic scheduling engine, an alternative scenario can be planned, which guarantees the most efficient use of the given resources.

Optimization

REDUCE YOUR COSTS WHILE MAXIMIZING YOUR RESULTS

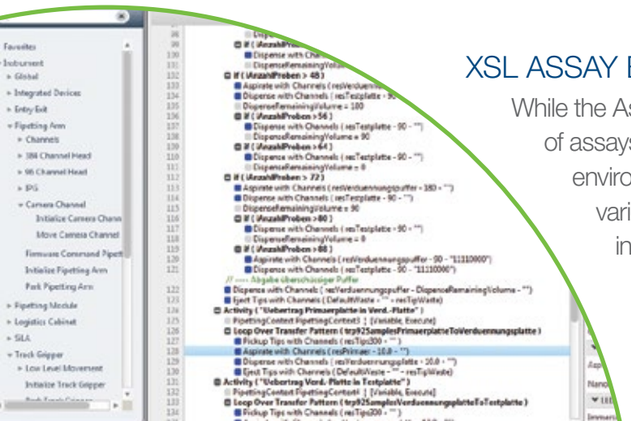


3D SIMULATION

INSTINCT V includes a detailed 3D simulation of your assays and workflows. While the instrument is productively running, new assays can be simulated to prove their functionality. The simulation speed can be chosen to accelerate or slow down the virtual execution. Saving both test materials, such as tips, labware and expensive reagents, and precious instrument time, the assay development workflow is optimized.

DYNAMIC SCHEDULER

Dynamic scheduling organizes multiple assay runs depending on their usage of resources and duration. This provides the most efficient use of the instrument, giving users the chance to run their experiments in parallel. Additionally, the Dynamic Scheduler calculates the amount of required labware, liquids, and tips which simplifies the loading process and minimizes user interactions.



XSL ASSAY EDITOR

While the Assay Editor provides intuitive drag-and-drop programming of assays, the XSL Assay Editor is a text-oriented programming environment supporting maximal flexibility. Full support of variables is available, as well as debugging functionalities, interfaces to multiple input/output file types, and the dynamic scheduling engine. Resources, consumables, and assay timing are dynamically optimized to maintain the most efficient use of the Microlab VANTAGE.

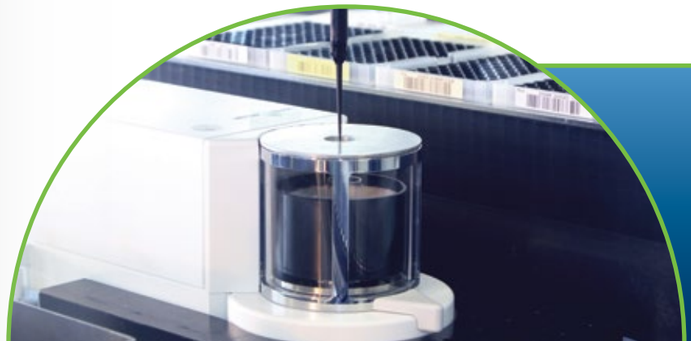
Quality

BECAUSE EXCELLENCE IS NOT OPTIONAL

At Hamilton, we are passionate about excellence. With over sixty years of experience, Hamilton continues to fulfill scientists' high expectations for quality products. Our continuous commitment to precision and quality has earned us the global ISO 9001 Certification.

From high levels of in-house product development to our state-of-the-art manufacturing facilities, all Hamilton products, systems, and processes are constantly tested and continuously improved. In-house manufacturing of many components, combined with a remarkable depth of production at our facilities in Reno, Nevada and Bonaduz, Switzerland, ensures we use only the highest quality system components to manufacture our pipetting robots. State-of-the-art quality control systems and a final inspection further guarantee high standards throughout the manufacturing process.

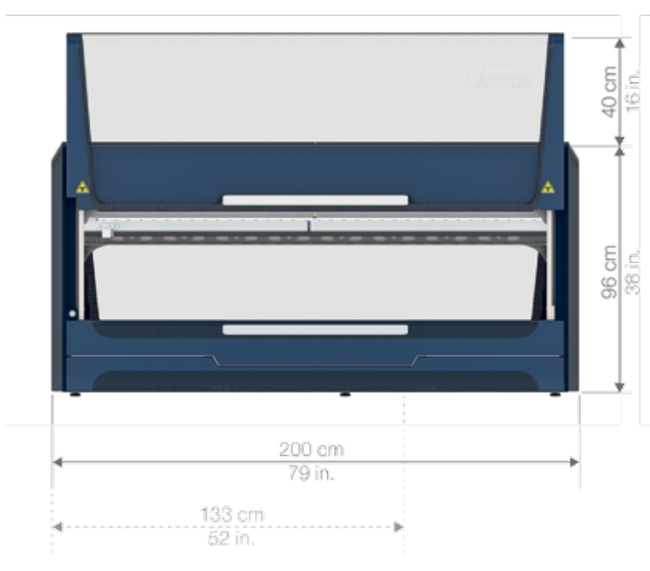
Building the best pipetting system not only demands a modern infrastructure, advanced manufacturing processes, and highly skilled personnel, it also requires the ability to listen, understand, and partner with our customers to provide the best solutions to meet your needs. At Hamilton, quality is not a department. Quality is part of our culture, throughout the entire organization and in every part of our operation.

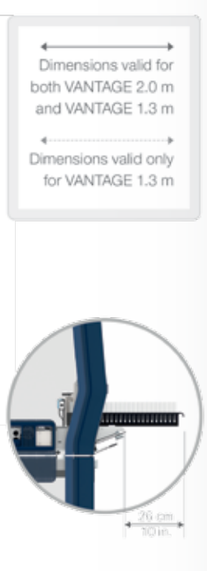


Certificates

Hamilton fulfills your needs through:
EN ISO 9001:2008
EN ISO 13485:2003 + AC:2009

Specifications





Rear Integration Cabinet Dimensions

VANTAGE 2.0 m		
Width	200 cm	79 in.
Width (doors open)	334 cm	132 in.
Depth	192 cm	75 in.
Depth (doors open)	309 cm	121 in.
Height (door closed)	182 cm	72 in.
Height (door open)	222 cm	88 in

VANTAGE 1.3 m		
Width	133 cm	52 in.
Width (doors open)	267 cm	105 in.
Depth	192 cm	75 in.
Depth (doors open)	309 cm	121 in.
Height (door closed)	182 cm	72 in.
Height (door open)	222 cm	88 in

Instrument Weights

Pipettor		
Pipettor (2.0 m)	694.5 lbs	315.0 kg
Pipettor (1.3 m)	397.0 lbs	180.0 kg
Logistics Cabinet		
Logistics (2.0 m)	300.0 lbs	136.0 kg
Logistics (1.3 m)	205.0 lbs	93.0 kg
Entry/Exit	99.2 lbs	45.0 kg
Power Socket	17.6 lbs	8.0 kg
AC Box	21.0 lbs	9.5 kg
Waste	32.0 lbs	14.5 kg
Track Gripper		
Track Gripper (2.0 m)	320.0 lbs	145.0 kg
Track Gripper (1.3 m)	250.0 lbs	113.4 kg

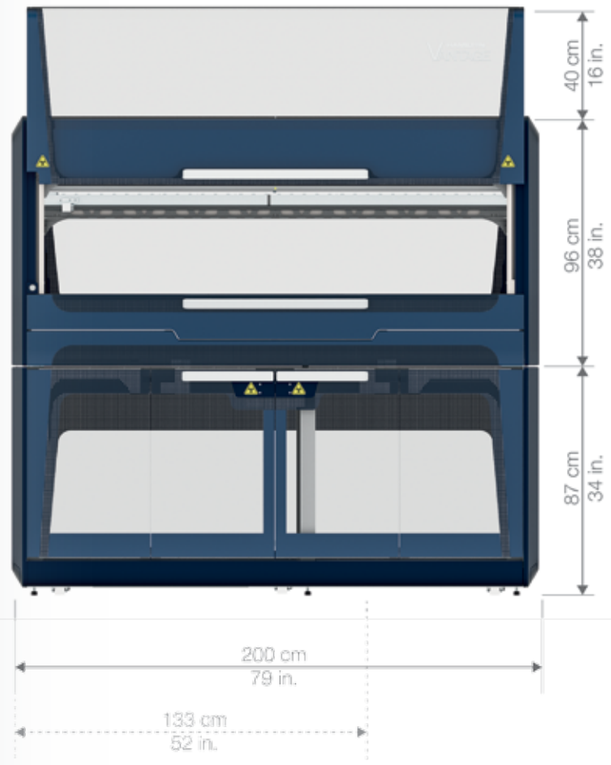
Workspace Accessibility

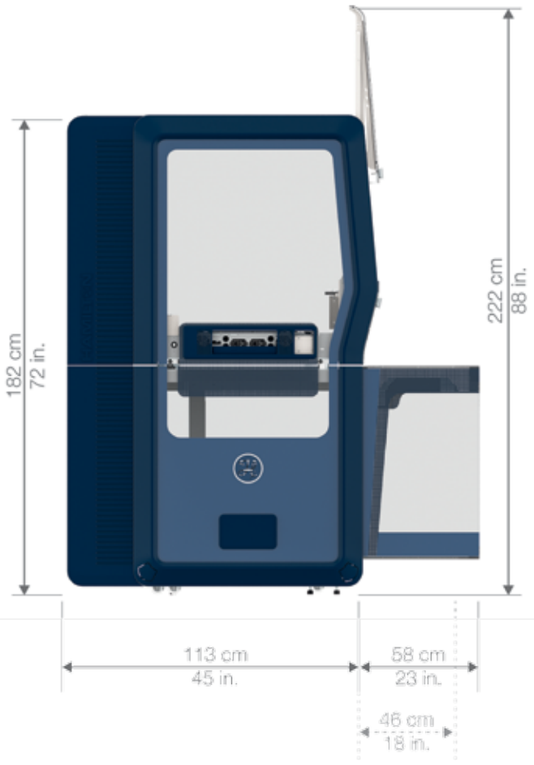
Pipettor	Total Number of Tracks	Accessible Tracks*
2.0 m	80	72
1.3 m	54	46

* Track positions reachable by the ID Loading Device

Operating Conditions

Temperature Range	15°C – 30°C
Operating Humidity	15% – 85% (no condensation, indoors)
Electrical Power Requirements	110-230V AC 50/60Hz +-5%
Operating Altitude	up to 2000 m / 6561 ft. above sea level





Pipetting Specifications for 1000 µL Pipetting Channel**

Tip Size	Volume	Accuracy (%)	Precision CV (%)	Contact Free
10 µL	0.5 µL	10.00 %	6.00 %	
	1 µL	5.00 %	4.00 %	
	5 µL	2.50 %	1.50 %	
	10 µL	1.50 %	1.00 %	
50 µL	1 µL	5.00 %	4.00 %	
	5 µL	2.50 %	1.50 %	
	10 µL	1.50 %	1.00 %	
	50 µL	2.00 %	0.75 %	•
300 µL	5 µL	7.00 %	4.00 %	
	10 µL	5.00 %	2.00 %	
	100 µL	2.00 %	0.75 %	•
	300 µL	1.00 %	0.75 %	•
1000 µL	10 µL	7.50 %	3.50 %	
	100 µL	2.00 %	0.75 %	•
	1000 µL	0.75 %	0.50 %	•

Pipetting Specifications for CO-RE 96 MPH

Tip Size	Volume	Accuracy (%)	Precision CV (%)	Contact Free
10 µL	1 µL	5.00 %	5.00 %	
	5 µL	2.50 %	2.00 %	
	10 µL	1.50 %	2.00 %	
50 µL	1 µL	5.00 %	5.00 %	
	5 µL	2.50 %	2.00 %	
	50 µL	1.50 %	0.75 %	•
300 µL	10 µL	3.00 %	2.00 %	
	100 µL	1.50 %	2.00 %	•
	300 µL	1.00 %	2.00 %	•
1000 µL	1000 µL	1.00 %	0.75 %	•

Pipetting Specifications for 1000 µL NanoPulse Channel**

Tip Size	Volume	Accuracy (%)	Precision CV (%)	Contact Free
10 µL	0.5 µL	5.50 %	3.25 %	•
	1 µL	4.25 %	2.50 %	•
	5 µL	2.00 %	1.25 %	•
	10 µL	1.50 %	1.00 %	•
50 µL	0.5 µL	6.00 %	5.75 %	•
	1 µL	3.50 %	3.25 %	•
	5 µL	1.00 %	1.00 %	•
	10 µL	0.50 %	0.50 %	•
300 µL	2 µL	2.25 %	3.75 %	•
	5 µL	1.25 %	2.00 %	•
	10 µL	0.75 %	1.25 %	•
	15 µL	0.50 %	1.00 %	•
1000 µL	3 µL	1.25 %	3.25 %	•
	5 µL	0.75 %	2.00 %	•
	10 µL	0.50 %	1.25 %	•
	20 µL	0.25 %	0.75 %	•

** The pipetting accuracy and precision was measured in a controlled environment with defined liquids. Tests with other liquids may deliver different results.

Pipetting Specifications for CO-RE 384 MPH

Tip Size	Volume	Accuracy (%)	Precision CV (%)	Contact Free
50 µL	0.5 µL	5.00 %	6.00 %	
	1 µL	4.00 %	4.00 %	
	50 µL***	1.00 %	2.00 %	•

*** The 384 CO-RE MPH uses special 50 µL 384 tips (usable as 96 channel CO-RE head with the 4 to 1 tip adapters).

Consumables

CO-RE Tips (10 µL)

Available Options	Part Number	Case
10 µL Conductive Non-Sterile Filter Tips	235901	Case of 5760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Non-Sterile Non-Filter Tips	235900	Case of 5760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Sterile Filter Tips	235936	Case of 5760 tips (Blister 5 x 96 tips per rack)
10 µL Conductive Sterile Non-Filter Tips	235935	Case of 5760 tips (Blister 5 x 96 tips per rack)

CO-RE Tips (50 µL)

Available Options	Part Number	Case
50 µL Conductive Non-Sterile Filter Tips	235948	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Non-Sterile Non-Filter Tips	235966	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Sterile Filter Tips	235979	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Conductive Sterile Non-Filter Tips	235978	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Non-Sterile Non-Filter Tips	235836	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Sterile Non-Filter Tips	235837	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Non-Sterile Filter Tips	235829	Case of 5760 tips (Blister 5 x 96 tips per rack)
50 µL Clear Sterile Filter Tips	235831	Case of 5760 tips (Blister 5 x 96 tips per rack)

CO-RE Tips (300 µL)

Available Options	Part Number	Case
300 µL Conductive Non-Sterile Filter Tips	235903	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Non-Sterile Non-Filter Tips	235902	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Sterile Filter Tips	235938	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Conductive Sterile Non-Filter Tips	235937	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Non-Sterile Non-Filter Tips	235834	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Sterile Non-Filter Tips	235835	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Non-Sterile Filter Tips	235830	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Clear Sterile Filter Tips	235832	Case of 5760 tips (Blister 5 x 96 tips per rack)

Piercing CO-RE Tips

Available Options	Part Number	Case
250 µL Piercing Conductive Non-Sterile Filter Tips	235658	Case of 5760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Non-Sterile Non-Filter Tips	235805	Case of 5760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Sterile Filter Tips	235649	Case of 5760 tips (Blister 5 x 96 tips per rack)
250 µL Piercing Conductive Sterile Non-Filter Tips	235659	Case of 5760 tips (Blister 5 x 96 tips per rack)

Slim CO-RE Tips

Available Options	Part Number	Case
300 µL Slim Conductive Non-Sterile Filter Tips	235647	Case of 3840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Non-Sterile Non-Filter Tips	235806	Case of 3840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Sterile Filter Tips	235646	Case of 3840 tips (Blister 5 x 96 tips per rack)
300 µL Slim Conductive Sterile Non-Filter Tips	235648	Case of 3840 tips (Blister 5 x 96 tips per rack)

Wide Bore CO-RE Tips

Orifice 1.2 mm | Orifice 3.2 mm | Orifice 0.71 mm | Orifice 1.55 mm

Available Options	Part Number	Case
300 µL Wide Bore (0.71 mm) Conductive Non-Sterile Filter Tips	235452	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (1.55 mm) Conductive Non-Sterile Filter Tips	235449	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (0.71 mm) Conductive Non-Sterile Non-Filter Tips	235688	Case of 5760 tips (Blister 5 x 96 tips per rack)
300 µL Wide Bore (1.55 mm) Conductive Non-Sterile Non-Filter Tips	235451	Case of 5760 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Sterile Filter Tips	235677	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Non-Sterile Filter Tips	235678	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (1.2 mm) Conductive Non-Sterile Non-Filter Tips	235679	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Wide Bore (3.2 mm) Conductive Non-Sterile Non-Filter Tips	235444	Case of 3840 tips (Blister 5 x 96 tips per rack)

Rocket CO-RE Tips

Available Options	Part Number	Case
300 µL Rocket Conductive Non-Sterile Non-Filter Tips 384- to 96-head	235974	Case of 4,800 tips (Blister 5 x 96 tips per rack)

CO-RE Tips (1,000 µL)

Available Options	Part Number	Case
1000 µL Clear Non-Sterile Filter Tips	235820	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Clear Non-Sterile Non-Filter Tips	235822	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Clear Sterile Filter Tips	235821	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Clear Sterile Non-Filter Tips	235823	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Conductive Non-Sterile Filter Tips	235905	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Conductive Non-Sterile Non-Filter Tips	235904	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Conductive Sterile Filter Tips	235940	Case of 3840 tips (Blister 5 x 96 tips per rack)
1000 µL Conductive Sterile Non-Filter Tips	235939	Case of 3840 tips (Blister 5 x 96 tips per rack)

CO-RE Tips (4,000 µL – 5,000 µL)

Available Options	Part Number	Case
4000 µL Conductive Non-Sterile Filter Tips; 4 Tips/Sheath	194053	Case of 96 tips (4 tips/sheath, individual bagged)
4000 µL Conductive Non-Sterile Filter Tips	184021	Case of 720 tips (Blister 5 x 24 tips per rack)
4000 µL Conductive Sterile Filter Tips	184023	Case of 720 tips (Blister 5 x 24 tips per rack)
5000 µL Conductive Non-Sterile Non-Filter Tips; 4 Tips/Sheath	194050	Case of 96 tips (4 tips/sheath, individual bagged)
5000 µL Conductive Non-Sterile Non-Filter Tips	184020	Case of 720 tips (Blister 5 x 24 tips per rack)
5000 µL Conductive Sterile Non-Filter Tips	184022	Case of 720 tips (Blister 5 x 24 tips per rack)

Nested 96-Tip Racks

NTR rack with 96 tips

Available Options	Part Number	Case
10 µL Nested Clear Non-Sterile Non-Filter Tips	235971	Case of 11520 tips (NTR 5 x 4 stack)
10 µL Nested Conductive Non-Sterile Non-Filter Tips	235949	Case of 11520 tips (NTR 5 x 4 stack)
10 µL Nested Conductive Sterile Non-Filter Tips	235983	Case of 11520 tips (NTR 5 x 4 stack)
50 µL Nested Clear Non-Sterile Non-Filter Tips NTR	235964	Case of 11520 tips (NTR 5 x 4 stack)
50 µL Nested Conductive Non-Sterile Non-Filter Tips NTR	235947	Case of 11520 tips (NTR 5 x 4 stack)
50 µL Nested Conductive Sterile Non-Filter Tips NTR	235987	Case of 11520 tips (NTR 5 x 4 stack)
300 µL Nested Clear Non-Sterile Non-Filter Tips NTR	235965	Case of 11520 tips (NTR 5 x 4 stack)
300 µL Nested Conductive Non-Sterile Non-Filter Tips NTR	235950	Case of 11520 tips (NTR 5 x 4 stack)
300 µL Nested Conductive Sterile Non-Filter Tips NTR	235985	Case of 11520 tips (NTR 5 x 4 stack)

Nested 384-Tip Racks

NTR for CO-RE 384 MPH stacked with 96 tips

NTR for CO-RE 384 MPH stacked with 384 tips

Available Options	Part Number	Case
50 µL Nested Clear Non-Sterile Non-Filter Tips 384 NTR	235446	Case of 7680 tips (NTR 5 x 4 stack; 384/rack)
50 µL Nested Clear Non-Sterile Non-Filter Tips 384/96 NTR	235447	Case of 1920 tips (NTR 5 x 4 stack; 96/rack)
50 µL Nested Conductive Non-Sterile Non-Filter Tips 384 NTR	235989	Case of 7680 tips (NTR 5 x 4 stack; 384/rack)
50 µL Nested Conductive Non-Sterile Non-Filter Tips 384/96 NTR	235993	Case of 1920 tips (NTR 5 x 4 stack; 96/rack)
50 µL Nested Conductive Sterile Non-Filter Tips 384 NTR	235694	Case of 7680 tips (NTR 5 x 4 stack; 384/rack)
50 µL Nested Conductive Sterile Non-Filter Tips 384/96 NTR	235695	Case of 1920 tips (NTR 5 x 4 stack; 96/rack)

Service

OUTSTANDING. RELIABLE. EVERYWHERE.

OUTSTANDING

Hamilton's service organization is committed to providing the best, quality service and support in the industry. Worldwide, we offer highly qualified support from local service engineers. Trained by certified Hamilton trainers, these engineers are supported by our local service headquarters and distribution partners.

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Investment in a high-performance liquid handling system sets high expectations of quality, reliability, and precision. From in-house manufacturing to state-of-the-art quality control systems and final inspection, Hamilton guarantees high standards for all of our products. Reliability is an essential part of our products and our support team. From our technical support hotline to local service engineers and dedicated application specialists, know that Hamilton is available with qualified support teams.

EVERYWHERE

Our field service and support network links our headquarters with our worldwide subsidiaries to ensure quick response time, thus minimizing downtime. Whether you need routine maintenance, service, or application support, Hamilton is there to support you. Customer satisfaction has the highest value at Hamilton and we've built our worldwide support network to meet all of your needs.

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Hamilton Company specializes in the development, manufacturing and customization of precision measurement devices, automated liquid handling workstations, and sample management systems.

Hamilton's processes are optimized for quality and flexibility. Whether it's a custom needle with a quick delivery timeframe, a special length pH sensor, or a comprehensive solution to fully automate your assay workflow, trust that Hamilton's products will always meet your needs.

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Hamilton Storage offers ultra-low temperature automated sample management systems for storage of a variety of labware. Hamilton's line of biobanking and compound management systems, benchtop devices and consumables are designed for sample integrity, flexibility, and reliability.

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Process Analytics includes innovative solutions for the online measurement of pH, dissolved oxygen, conductivity, ORP, viable cell density and total cell density. Hamilton's proprietary Arc® intelligent sensor technology eliminates the need for transmitters and moves the functionality to your smartphone or tablet.

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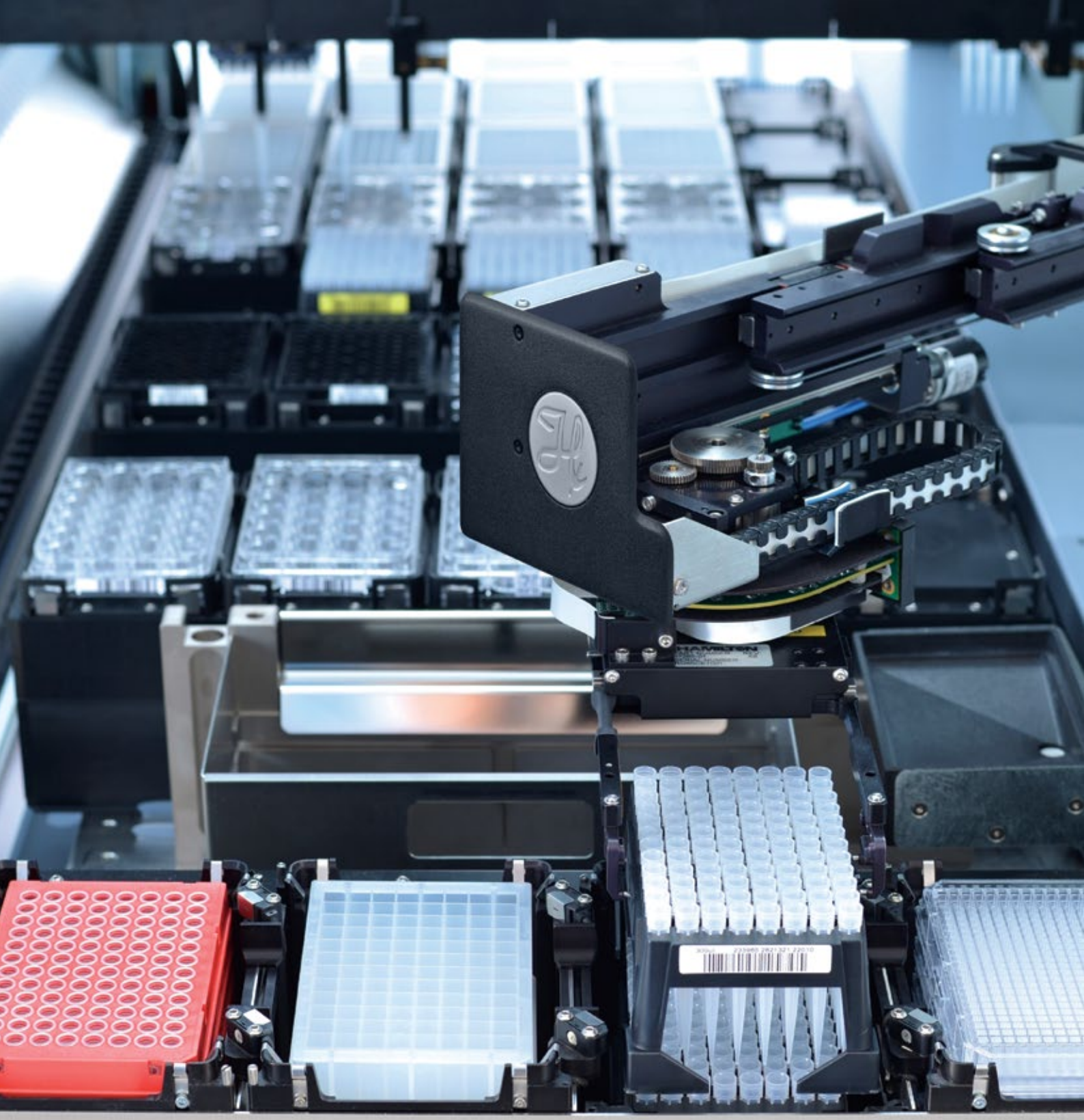
Hamilton Company has been a leading global manufacturer for more than 60 years, with headquarters in Reno, Nevada; Franklin, Massachusetts; Timișoara, Romania; and Bonaduz, Switzerland; and subsidiary offices throughout the world.



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HAMILTON®

Web: www.hamiltoncompany.com/Microlab-VANTAGE
Email: infoservice@hamiltonrobotics.com

United States
Tel: +1-775-858-3000

United Kingdom & Ireland
Tel: +44 (0) 121 272 92 80

Brazil
Tel: +55 (11) 126-50562

China
Tel: +86 21 6164 6567

France
Tel: +33 184 008 420

Italy
Tel: +39 (039) 930 06 06

Denmark, Norway, Sweden, Finland
Tel: +46 8403 09 090

Germany, Switzerland, Austria, Benelux
Tel: +49 89 248 804 804

To find a representative in your area, please visit hamiltoncompany.com/contacts.