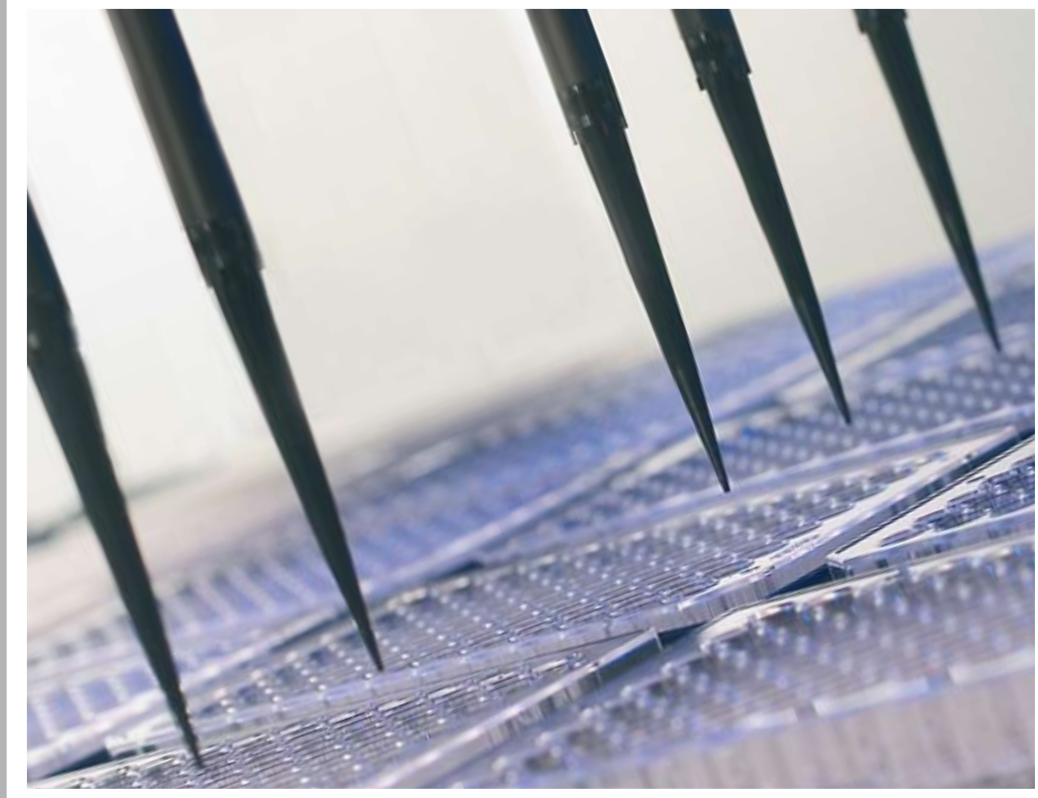
LIFE SCIENCE ROBOTICS



MICROLAB® STAR LINE

MICROLAB® STAR Line

Today's laboratories require flexible and fast compact robotic workstations to efficiently automate assays and sample preparation. HAMILTON's MICROLAB® STAR line liquid handling platforms deliver this performance by combining:

- Leading pipetting technology
- Highly scalable platforms
- A wide range of applications
- Easy to use software
- Modular accessories

Expertise in Liquid Handling Automation

When you choose a STAR line workstation, you get a system that has been developed based on 50 years of expertise in liquid handling. Valuable feedback from many customers has been constantly incorporated into our product development and has lead to innovative solutions for a broad range of applications.

Commitment to Quality

In order to ensure that HAMILTON instruments reliably operate in the laboratory for many years, HAMILTON strives to apply quality thinking to all levels of product development, manufacturing, application engineering, installation and support.

MICROLAB® STAR Line

The Industry Standard for Laboratory Automation

Advanced Liquid Handling

- Up to 16 independent pipetting channels
- Optional multiprobe head (96, 384 or Nano)
- Air displacement pipetting technology
- Easy maintenance and serviceability
- CO-RE precision tip attachment
- Tip ejection without aerosol production
- Dynamic Positioning System (DPS) with independently spreadable pipetting channels
- Monitored Air Displacement (MAD)
- Total Aspiration and Dispense Monitoring (TADM)
- Dual liquid level detection (pLLD/cLLD)
- Easy to use VENUS software
- Complete sample traceability
- Positional accuracy for 1536-well plates

Designed Flexibility

- Modular pipetting heads, deck layouts and accessories
- Compatible with sample tubes, microplates, and custom labware
- Barcode identification for samples, microplates, reagents and carriers
- Data output in multiple formats for LIMS integration
- Wide integration possibilities for readers, washers, incubators etc.
- Microplate storage/stacking on deck

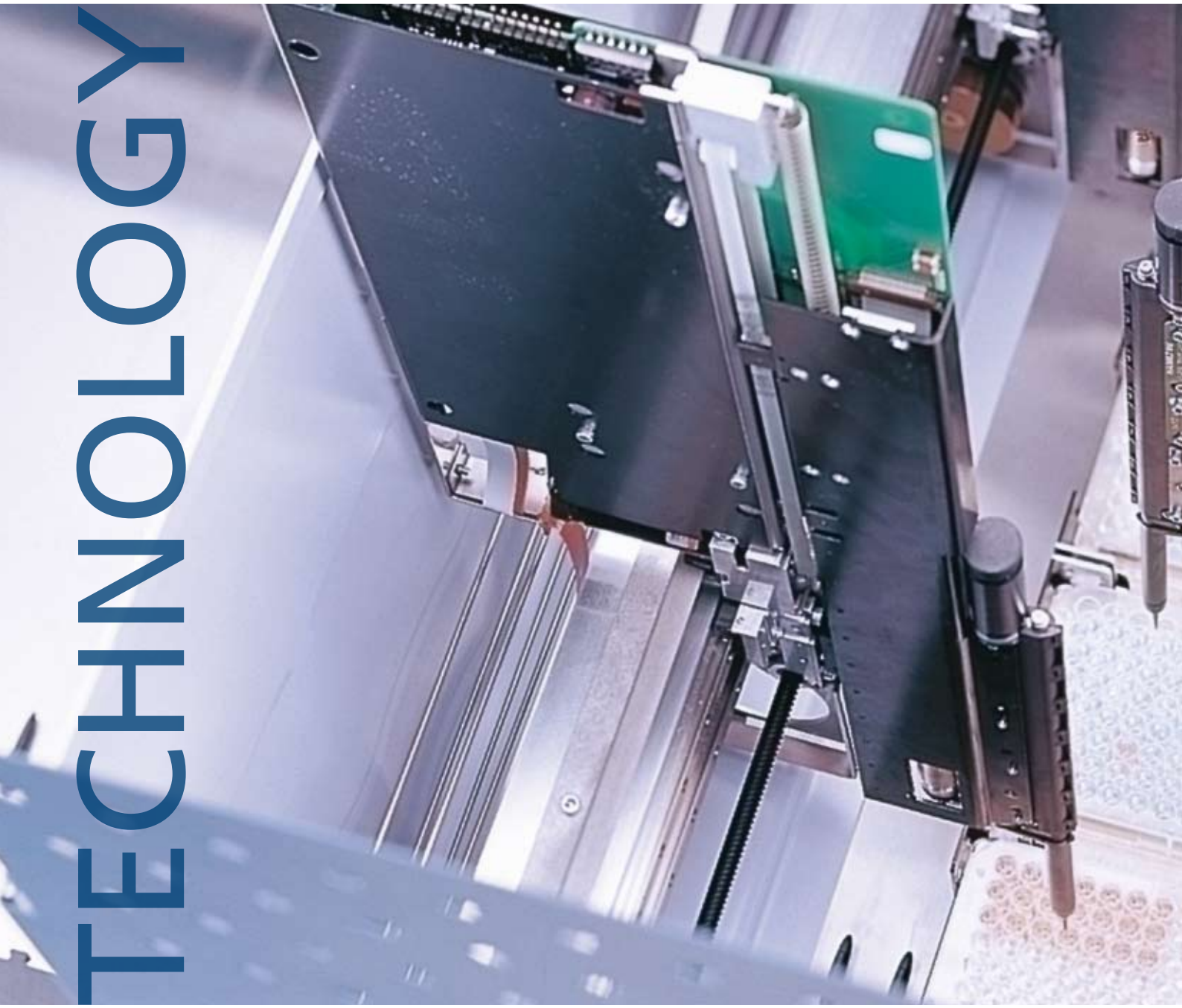
Regulatory Compliance

The STAR line offers all the tools you need for fully compliant GMP operation, including 21 CFR Part 11 compliance tools.
The MICROLAB® STAR line was specifically designed for regulated laboratories, ensuring productive and safe operation. HAMILTON has served the clinical market for many years and continues to excel at meeting the demands of regulated environments.

Advanced Technology

Technological innovations implemented on the STAR line include independent and asymmetric positioning of pipetting channels, precise tip attachment and unrivalled dual liquid level detection. These innovations provide a wide volume range and quality pipetting.

Thus the STAR line meets the strictest requirements regarding positional accuracy, precision and flexibility. With MAD, CO-RE, and DPS, you can be assured that your application will be automated with the best process security, reliability and throughput available.



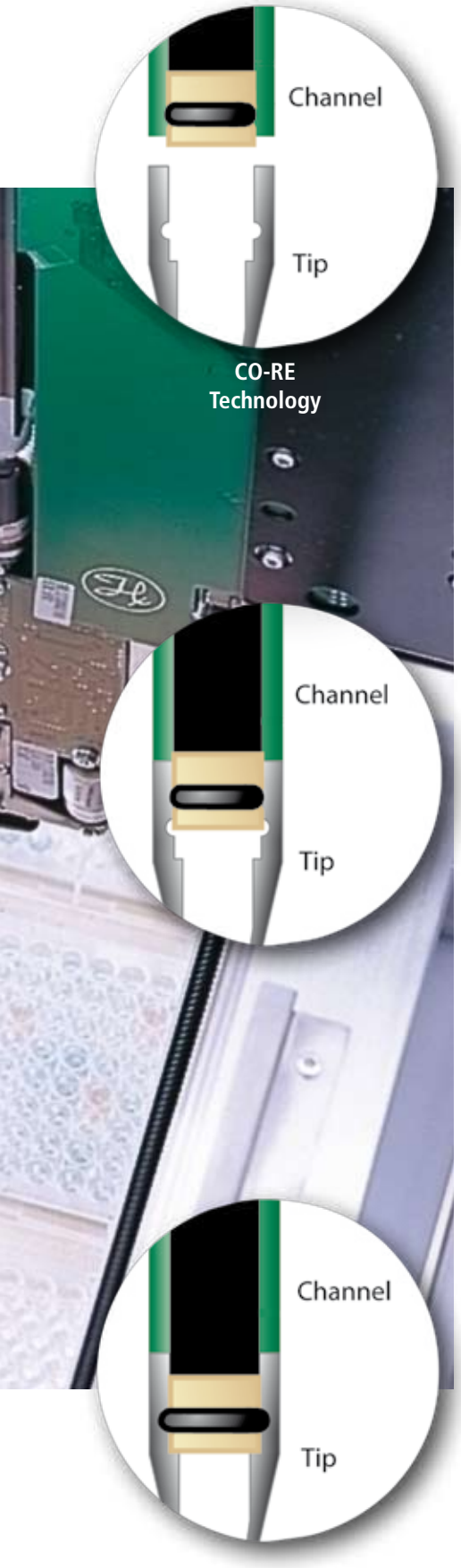
Air Displacement Pipetting

The STAR line uses air-displacement technology, which is analogous to a hand held electronic pipette. The benefits of this technology include the following:

- In combination with disposable tips, the risk of contamination of critical assays is reduced to an absolute minimum.
- High accuracy and precision from sub-microlitre volumes to 1 ml can be reached with the same pipetting channels.
- No system liquid, diluters, valves or complicated tubing is required.
- No dilution effects of samples with system fluid.

MICROLAB® STAR Line

Innovative Technology for Higher Process Reliability



Monitored Air Displacement: MAD and ADC

By monitoring the air-based pipetting action, the instrument detects clots or empty wells during the aspiration step in real time.

It can also be used to pipette highly volatile solvents that prevent automation of assays relying on such solvents on conventional pipetting robots. This Anti-Droplet Control (ADC) compensates for pressure changes in the channels that are caused by the high vapour pressure of volatile solvents in real time.

Monitored Air Displacement eliminates uncertainty in automated assays by providing reliable, consistent walk-away automation.

Total Aspiration and Dispense Monitoring: TADM

During crucial sample transfers, such as in an In Vitro Diagnostic (IVD) laboratory, parameters may be set up by the user to monitor, in real time, both the aspiration and dispensing steps. TADM verifies with a traceable digital audit trail that a sample has been transferred.

Dual Liquid Level Detection: Unrivalled Sensitivity

The independent pipetting channels offer two modes of liquid level detection (LLD): capacitive LLD and HAMILTON's unique pressure-based system. The capacitive LLD system detects nearly all liquids in most labware containers. The pressure-based LLD system detects all liquids — including non-conductive organic solvents — independent of the container type.

The multiprobe heads (96-, 384- and Nano) allow liquid level sensing in reagent troughs eliminating the need to program specific pipetting heights.

Compressed O-Ring Expansion: CO-RE

Many of today's applications require precision in tip attachment and positioning. In order to ensure such precision, HAMILTON uses quality engineered components and the CO-RE tip attachment technology.

The CO-RE system attaches disposable tips or steel washable needles to the pipetting channels with a stable lock-and-key fit. This enables a precision of ±0.1 mm on all axes. The system requires no vertical force for tip attachment or tip ejection, thus eliminating mechanical stress and improving the overall system reliability along with pipetting speed and dexterity. Furthermore the pipetting channels can:

- make use of disposable tips and washable tips within the same run
- pick up a gripper and other tools
- eliminate aerosol production upon tip ejection

Flexible and Precise Positioning: DPS

The Dynamic Positioning System (DPS) of the STAR line moves each pipetting channel independently on the Y-axis, as well on the Z-axis. Each channel uses its own high-precision motors and electronics to reach any position on the deck without the need for teaching. In applications such as hit-picking, where samples need to be transferred in an irregular pattern, this flexibility improves throughput.

Design Your Own Instrument

The STAR line's modular and flexible design allows easy configuration of your instrument according to your needs: choose from three platforms, modular pipetting units, plate handling tools and a wide range of accessories.

Due to the modular design, changes and upgrades to existing configurations are easy. As your projects change, your STAR line workstation can also evolve to meet new challenges.

Unique Scalability

Do you want to get started in automation with a benchtop workstation, but want the option to expand your system if needed? The STARlet can be converted on site to a STARplus by means of an extension module. Deck capacity is thereby more than doubled.

Thanks to the scalability of the STAR line instruments, the widest possible range of throughputs and budgets can be accommodated: additional pipetting channels, a 96-, 384-probe head or an integrated robotic arm can be fitted to existing configurations.

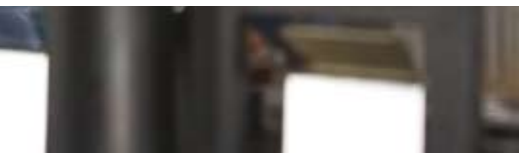
MICROLAB® STAR Line

Flexible System Configuration

STARlet

STAR

STARplus



Platforms

Platform	Deck Size	Plate Columns	Plate Positions
STARlet	1.0 m	5	25
STAR	1.5 m	9	45
STARplus	2.0 m	11	55 plus additional integration area

The instruments allow full access to 5 plate positions per row. Plates may also be stacked up to 8 high, increasing capacity dramatically.

Pipetting Units

For your configuration you can select from:

- up to 16 independent pipetting channels. Since the channels are independent units, instruments can be upgraded when the need arises. With 16 channels two microplates may be processed simultaneously, doubling throughput.
- a multiprobe head (96-, 384- or Nano) that can be fitted on the instrument for increased throughput. If a multiprobe head is not part of your initial configuration, you can still add it at a later stage. This ensures that flexibility to increase throughput is retained whatever your initial budget.

Head	Volume Range	Tip Sizes
Channels	0.5µl-1000µl	10µl, 50µl, 300µl & 1000µl
5ml-Channels	50µl-5000µl	5000µl
96-Probe Head	0.5µl-1000µl	10µl, 50µl, 300µl & 1000µl
384-Probe Head	0.5µl-50µl	30µl & 50µl (using 4to1 Tip-adapters, the CO-RE 384 head can be turned into a CO-RE 96 head with a volume range of 2µl-300µl on the fly)
Nanopipetting Head	20nl-20,000nl	n/a

Plate Handling Tools

Depending on the complexity of the labware handling involved in the application, you can select from

- the small CO-RE Gripper that can be picked up by two channels during a run. With this tool the channels can transfer plates on the deck - without the need for a robotic hand.
- the internal robotic hand iSWAP - when rotation of plates or access to peripherals outside or below the deck is required (incubators, hotels etc.). It can reach positions up to 100mm beyond and below the deck. Both CO-RE gripper and iSWAP do not require teaching of positions.
- the tube-gripper channel offers handling possibilities for reagent tubes (diameter 8mm-20mm).

Automating Life Science Applications

STAR line instruments excel in automating multiple applications for both the biological and analytical sciences. Thousands of STAR line workstations have been installed around the world to automate a wide range of applications. They offer the flexibility and modularity you need to create the perfect automated solution for your laboratory. For specific demands, the HAMILTON application engineering group is available to design everything from custom racks to complex system integrations.

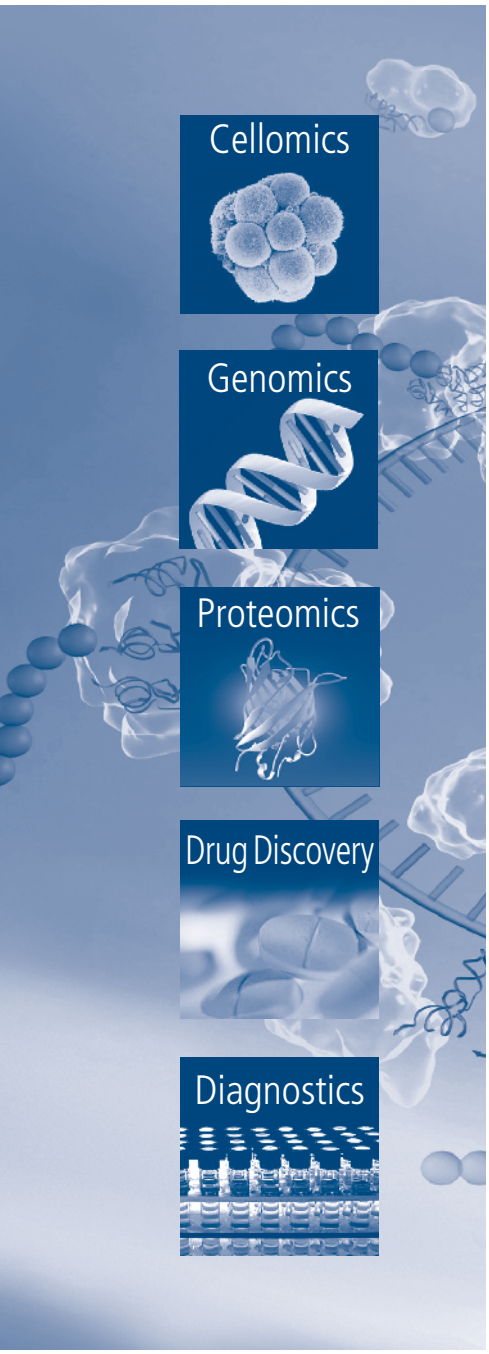
APPLICATIONS

- Nucleic acid purification
- PCR setup and purification
- Sequencing
- Sample normalization
- Microarray sample prep
- Cloning
- Protein crystallization
- In-gel digestion
- MALDI TOF spotting
- Protein precipitation
- Protein purification
- Colony picking
- ADMET
- Solubility assays
- Compound handling
- Hit picking
- Plate replication
- Solid phase extraction
- Liquid-liquid extraction
- Cell culture maintenance
- ELISA processing
- Blood grouping
- Pooling
- Combinatorial Chemistry

Selecting the Right Automation Solution

With the modularity and flexibility of the STAR line instruments, almost any configuration is possible. Selecting from a wide variety of platforms, modules and accessories you can create the perfect configuration for your specific application based on:

- desired degree of automation
- throughput, number of samples, walk-away time and precision
- requirements regarding data handling, sample tracking or integration into LIMS systems



Genomics Benchtop Workstation

- Nucleic acid purification
- Vacuum or magnetic bead technology
- PCR setup and purification
- Clog check for monitoring of vacuum steps
- RNA isolation from cells and tissue

Drug Discovery Platform

- Compound screening
- SPE
- ADME assays
- Two-arm configuration for parallel processing of two tasks
- Integration of readers, centrifuges, FACS, sealers etc.

Cell Culture System

- Cell culture media exchange
- Cell harvesting (post trypsin)
- Cell plating to create new cultures
- Addition of pharmacologically active substances to cell cultures
- Handling of fragile cell types such as embryonic stem cells
- Integration of incubators

Compound Synthesis System

- Optimized Synthesis process by use of VENUS Dynamic Scheduler
- CO-RE technology-driven lids for standard Schott bottles to prevent evaporation
- Anti-Droplet Control (ADC) for pipetting volatile solvents
- Highly sophisticated error handling to continue an interrupted run after failure recovery

MICROLAB® VENUS Software

Flexible software allows you to efficiently define your applications and readily change them, according to your needs. MICROLAB® VENUS software offers the tools to allow simple to complex programming, without limiting your imagination or compromising your requirements.

Intuitive Method Creation

MICROLAB® VENUS's intuitive editors give you control over every aspect of your method. It comes with standard definitions for simple method creation and is open to custom definitions for ultimate flexibility. Flexible methods can be created to handle daily changes in workloads and protocols by using wizards and preconfigured method blocks.

Powerful Software for a Powerful Workstation

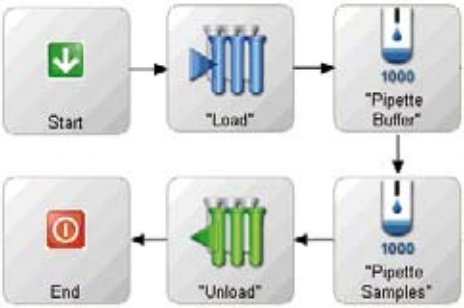
Focusing on the everyday requirements of users in today's busy labs and including valuable feedback from existing customers, HAMILTON has designed new, innovative software to control the STAR Line instruments: MICROLAB® VENUS.

The intuitive user interface reduces programming time and lets you achieve results faster with less training.

The modular concept of the MICROLAB® VENUS software covers the full range of your daily lab work: For instance you can set up a standard task like a plate copying routine in less than a minute. Yet where required you have access to the full flexibility of the software, MICROLAB® VENUS gives you all the tools needed for: Worklist handling, LIMS adaption, database- and server controls, scheduling or third party component control.

Action Editor

The Action Editor offers you a very intuitive user interface that holds all possible actions (pipetting, transport, incubation) in a toolbox for simple drag&drop programming. With the Action Editor you can quickly carry out throughput calculations and easily customize the actions by inserting action details like pipetting volume, pipetting source and target.



SuperSimpleMethods

This innovative module allows you to execute the most common lab routines (copy plates, add buffer, serial dilution, etc) with the least possible user interaction: A wizard guides you through a few dialogs (e.g. to enter number of plates, Volume or liquid type) and shows you how to load the deck. You no longer have to care about labware names or deck-layout creation - all that is done automatically.

Step Templates

With step templates you can focus on the critical parts of your assay. Step templates offer a "skeleton" of commonly used assay steps such as serial dilution, vacuum steps, stacked tip handling etc. Simply drag the template into your method and adapt it to your needs: Change the pipetting volume, specify source and target plates on the 3D deck and run the method.

21 CFR Part 11 Regulatory Tools

MICROLAB® VENUS contains the software tools for compliant use of STAR line instruments. The tools provide audit trails, secure software functionality based on user access and file fidelity with the checksum system.

Integrating Hardware

Todays automation solutions often require demanding integration of third party equipment. Automation is sometimes not possible if an assay requires integration of special, existing third party equipment. HAMILTON has responded to these needs with world class engineering, making VENUS software and the STAR line instruments integration friendly and flexible.

Operate everything from one control center

Incubators, centrifuges, thermocyclers, plate sealers, sample dryers or sample readers: thanks to the open design, VENUS software can control most third party hardware. This concept ensures all components are used as they are needed and the complete solution works at full speed. This intelligent setup guarantees worryfree operation where all resources work seamlessly in one, integrated system.

Automating Your Assay

From Start to Finish

System planning

Thanks to the unparalleled modularity of the STAR line you can choose from nearly 10,000 possible configurations that can be built from the standard components: HAMILTON's application specialists will select from three different deck-sizes, one or two arms, up to 16 individual channels and of course your choice of a 96-probe, a 384-probe or a nanopipetting head to match your STAR to your requirements.

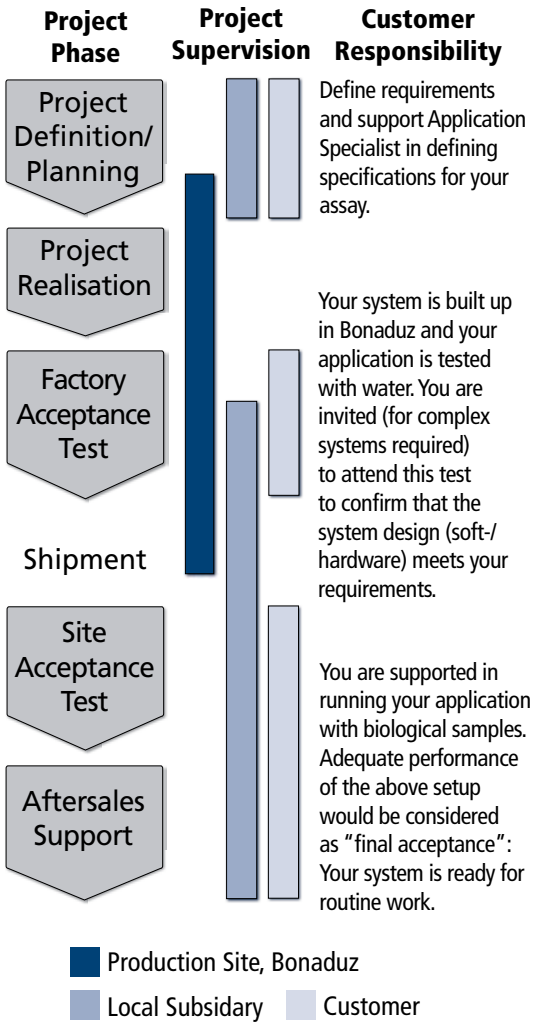
The latest technology is used to configure and visualize your system, making sure you get the exact system you need. Already at this stage, hardware and software concepts for your application are created. Typically, a draft specification is also prepared for the system. For larger systems, this is done with assistance from the HAMILTON Application Engineering (APE) group.

System Setup

Once your system is finally specified and defined, the project enters the realisation and implementation phase at our headquarters in Bonaduz/Switzerland. At this stage, a Project Manager from the Headquarter's APE group takes the lead to realise your project. This realisation phase ends with the Factory Acceptance Test (FAT) which is conducted to validate the design of the system, including 3rd party component integration. Once the system passes this test, it is shipped to the customer site, where the local team takes over the responsibility and supports you to get your system up and running by providing training and support.

An Integrated Approach

This tightly connected process management between the production site in Bonaduz and your local applications specialist/sales team ensures that you have a competent contact person at all times that can help you with all questions that may arise during and after the realisation phase of your project.



Flexible Automation Accessories

You can create a custom workstation by selecting from the multiple standard accessories and labware carriers for the STAR line - such as shakers, temperature control for plates and reagents, plate handling tools and much more.

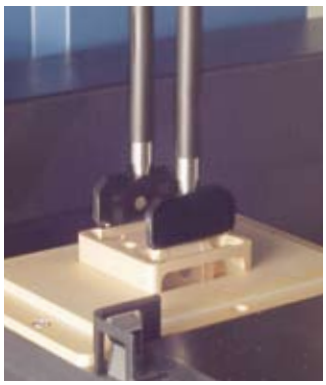
In addition, all STAR line workstations can be equipped with a camera on one channel to offer economical colony picking. Equipped with a nanodispensing module, the system offers nano- and microliter pipetting on one and the same system.

CO-RE Lid Tool

The CO-RE technology allows channels to be used for tasks like lid removal. By aspiration it is possible to pick up labware with glossy surfaces - like Petridish lids.

EasyPick

For economical colony picking, a camera is mounted on one channel and is used to image bacterial colonies. These are then picked with sterile tips and can be further processed on the very same platform.



CO-RE Gripper

By using two channels in parallel, the MICROLAB STAR can transport plates or tips on deck without the need for dedicated transport solutions.

Barcode Scanning

The Autoload option reads barcodes from sample tubes, microplates and carriers. It verifies correct labware positions for greater method security.

CO-RE Accessories

The CO-RE technology allows the flexible use of pipetting channels. Here, air sensitive compounds are protected in Schott bottles with metal cones. Channels are used to open them.

Needle Washing

The independent, chemically resistant needle wash station for 4 to 16 channel instruments is designed for parallel washing. Wash stations for the multiprobe heads are also available.

Tools for the Regulated Environment

The STAR line accessories provide tools, documentation and error handling necessary for regulated laboratories, such as clinical and GMP labs. Many of the automation accessories offer self-monitoring capabilities to ensure and more importantly document that the instrument has completed all aspects of the run successfully. In addition, the STAR line's in-field gravimetric volume verification kit allows you to verify the accurate operation of the instrument in your laboratory.

Flexibility^2: The Multiflex concept

The STAR line's unique "even height" carrier concept offers process safety by detecting carriers in place and speed advantages, since the system can access all loaded labware without having to adjust the height. If not all positions of one carrier are needed for the same labware, a Multiflex carrier can be used to build a custom carrier. From shakers to heating or cooling modules, tube or plate modules, a carrier can be designed to exactly fit the application.

iSWAP Robotic Hand

This Gripper tool can access items on or off the deck. It is highly flexible with its vertical and rotary capabilities. The iSWAP may be used to integrate peripheral systems for plate storage, incubation, reading, washing, etc.

Temperature Control

The 4-position Temperature-Controlled Carrier provides consistent, monitored temperature regulation for microplates. The carrier temperature can be set to a maximum of 60°C and a minimum of 22°C below ambient temperature.

Vacuum System

HAMILTON offers fully software-integrated vacuum systems with pressure control. They allow automation of vacuum based kits for SPE, LC-MS, genomics, and proteomics. Using the STAR line's cLLD, it is possible to check filter plates for clogged wells.

One carrier - multiple destinations

The Multiflex concept offers complete freedom and flexibility by maintaining the security concept: Carriers can be moved off deck to place labware eliminating the need to reach into the system, minimizing the risk of contamination.
Available modules include:


Microtiterplate


Deepwell


96well PCR


384well PCR


Plate Stacker


Tip Stacker


Tube Holder


Refillable Reagent Trough


Tilt Module

MICROLAB® STAR Line

Technical Specifications

	MICROLAB STARlet	MICROLAB STAR	MICROLAB STARplus
Instrument Dimensions	width: 1124mm, height: 903mm, depth: 795mm (autoload: 1006mm)	width: 1664mm (1990mm with multiprobe head), height: 903mm, depth: 795mm (autoload: 1006mm)	width: 2160mm, height: 903mm, depth: 795mm (autoload: 1006mm)
Work Area Dimensions	width: 675mm, height: 195mm, depth: 465mm	width: 1215mm, height: 195mm, depth: 465mm	width: 1705mm, height: 195mm, depth: 465mm
Weight	135 kg (8 channels), 150 kg (96-probe head and 8 individual channels)	145 kg (8 channels), 160 kg (96-probe head and 8 individual channels)	205 kg (8 channels), 220 kg (96-probe head and 8 individual channels)
Deck Capacity	30 tracks (T) allow combinations of: maximum of 30 tube carriers (1 T) holding 24 or 32 tubes per carrier maximum of 5 carriers (6 T) holding 5 tip racks or 5 plate positions per carrier	54 tracks (T) allow combinations of: maximum of 9 carriers (6 T) holding 5 plates or tip racks or per carrier. Multiprobe head can reach up to 7 carriers on the deck and 65mm beyond the deck (on the left side)	82 tracks (T) allow combinations of: maximum of 11 carriers (6 T) holding 5 plates or tip racks per carrier plus 16 T for the waste container and on-deck components
Positional Accuracy	X-Y-Z positional accuracy of 0.1mm		
Tip Sizes	low volume: 10µl, standard volume: 300µl, 50µl tips, high volume: 1000µl. Only for 5ml channel: 5ml tips. Only for 384-probe head: 30µl, 50µl and 4to1 tip adapters.		
Needle Sizes	low volume: 10µl, standard volume: 300µl, high volume:1000µl, needles available only for individual channels		

Pipetting Specifications for Disposable Tips*

individual channels				96-probe Head				384-probe Head		
tip size	volume	precision	trueness	tip size	volume	precision	trueness	tip size	volume	precision
10µl	0.5µl	6.0%	10.0%	10µl	1µl	5.0%	5.0%	50µl	0.5µl	6.0%
10µl	10µl	1.0%	1.5%	10µl	5µl	2.0%	2.5%	50µl	1µl	3.5%
50µl	1µl	4.0%	5.0%	50µl	5µL	2.0%	2.5%	50µl	50µl	2.0%
50µl	50µl	0.75%	2.0%	50µl	50µl	1.0%	1.5%	The CO-RE 384-probe head uses special 50µl-384 tips, and can be used as a 96-probe head with the 4to1 tip adapters.		
300µl	200µl	0.75%	1.0%	300µl	50µL	1.0%	1.5%			
1000µl	1000µl	0.75%	1.0%	1000µl	1000µl	1.0%	1.0%			
5000µl	5000µl	0.5%	1.0%							

Typical Pipetting Data for Needles* (Needles cannot be used on the CO-RE 96 and 384 heads)

*Test criteria available upon request

individual channels				Nanopipetting Head	
needle size	volume	precision	trueness	volume	precision
10µl	1µl	8.0%	5.0%	100nl (HV)	8.0%
10µl	5µl	2.0%	2.5%	25nl (LV)	8.0%
300µl	50µl	2.0%	2.0%	Two Modules: Pipetting range 20nl-3000nl and viscosity up to 4CP (LV) and 100nl-3000nl with viscosity up to 38CP (HV)	
300µl	200µl	1.0%	1.0%		
1000µl	1000µl	1.0%	2.0%		

	For pipetting of less than 10µl HAMILTON recommends low volume disposable tips to achieve highest pipetting precision.
Liquid Level Detection	Individual Channels: Capacitive liquid level detection (cLLD) and pressure (pLLD) on aspiration, cLLD on dispense, minimum volume 10µl, depending on container type 96- and 384-Probe Head: Capacitive liquid level detection (cLLD)
Throughput	8 Channels: To fill one 96-well microtiter plate with 100µl samples (new tips for each sample): 320s Aliquot reagent to a 96-well microtiter plate (<90µl per well): 60s 96-Probe Head: Replication of one 96-well plate, 100µl, with cLLD on aspiration: 35s (incl. new tips) Reformatting of four 96-well plates to one 384-well plate, 50µl, new tips, with cLLD on aspiration: 140s
Labware	all SBS standard plate types up to 1536 wells and most commercially available tube types
Carriers	for all standard labware formats and according to customer requirements
Accessories	CO-RE Gripper for economical on-deck transports, iSWAP Robotic Hand for transports below or off-deck, Barcode Reader, Temperature Controlled Carriers, Needle Wash Station with parallel Needle Washing, Vacuum System, CO-RE Lid Suck Tool for Petridish Lid handling, EasyPick Camera and Accessories for economical Colony picking, Tube Gripper, Tip-Feeder.

Operating Data		
	maximum power consumption	600 VA or 1000 VA (depending on configuration)
	voltage	115 V~/230V~
	frequency	50 / 60 Hz ± 5%
	delayed action fuse	115 V~: 6.3 A, 230 V~: 3.15 A
	operating temperature range	15°C - 35°C (relative humidity 30% - 85% with no condensation)
Recommended PC	Pentium IV, ≥ 512 MB RAM, 40 GB hard drive, CD-ROM drive, Windows® XP Professional (not included in shipment)	
Communication	USB, RS232	

Scientists Talking to Scientists

HAMILTON's team of highly qualified scientists and engineers is in constant contact with laboratory scientists who work at the forefront of research. This intensive exchange of knowledge allows HAMILTON to translate the latest scientific trends into automation solutions - thus providing scientists with the technology to accelerate their research.

What Our Partners Say

"It was our aim to develop a system for embryonic stem cells that provides high-quality cells in large numbers. From a technical point of view this constituted a considerable change. With Hamilton we found a partner who showed a high commitment to our project right from the start. Working with Hamilton´s staff feels like being in one team speaking the same language and having the same goals.
Another deciding factor for Hamilton was their innovative technology. One of the critical factors in automation of cell cultures is contamination often caused by system liquids. The liquid free pipetting principle of the STAR convinced us and it has proven its usefulness and reliability in our lab."
Prof. O. Brüstle, Life&Brain GmbH and University of Bonn

"Our RoBioMol recombinant protein expression service is based around a HAMILTON MICROLAB® STAR workstation. The flexibility and reliability of the STAR allows us to run automated gene cloning and protein fractionation procedures. We are now aiming at increasing the throughput of the platform to deal with the demands of both our academic and industrial partners. With HAMILTON we found a partner who showed a high commitment to our project right from the start."
Dr. Thierry Vernet, Group Head, Institut de Biologie Structurale Jean-Pierre Ebel (CEA/CNRS/UJF)

"We are using HAMILTON instruments in various laboratories for applications such as protein crystallization, liquid-liquid extraction or ADME. HAMILTON is one of our preferred suppliers, because the HAMILTON team gives us individual and competent support before, during and after project implementation. They are very responsive to our support requests.
Working on a daily base with the HAMILTON solutions, we have found them to be well designed, solidly built and reliable."
Gerhard Bosch, Boehringer Ingelheim

Automation Requires Reliability

When you invest in a high-performance liquid handling workstation, you can expect the high quality, precision and reliability that HAMILTON is famous for. In-house manufacturing of all important components combined with a remarkable depth of production at our facilities in Switzerland means that only top-quality system components are used in our workstations.

For a manufacturer that also builds life-support instruments, compliance with ISO 9001, GMP and FDA regulations goes without saying.
In order to minimize costly down time for our customers, HAMILTON's service teams ensure a rapid response when maintenance or service work is required.

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