

Agilent Bravo Automated Liquid Handling Platform

COMPACT MICROPLATE LIQUID HANDLING MADE EASY





Agilent Technologies

BOOST PRODUCTIVITY AND INCREASE DATA REPRODUCIBILITY

The Agilent Bravo Platform is a reliable, compact, and versatile liquid handling system with a unique open deck design that facilitates workflow automation and integration. It aspirates and dispenses liquids with high accuracy and precision over a wide volume range from various single-well to full-microplate configurations. With an expanding range of on-deck accessories, the Bravo Platform is also adaptable, increasing throughput and walkaway time for the full spectrum of laboratory applications.

COMPLETE APPLICATION VERSATILITY

The Agilent Bravo Platform is a flexible liquid handling solution for the full range of life science applications. It easily automates new or existing workflows to increase throughput, walkaway time and data reproducibility.

Precise Pipetting

Achieve greater accuracy and reproducibility

- Single-well to full-plate transfers support automated single-well, row or column-wise pipetting for serial dilutions, and more
- Expanded volume range simplifies automation across applications
- Swappable liquid handling heads specific for disposable tips, fixed tips, pin tool, or AssayMAP technology deliver flexibility
- Optional plate gripper moves labware for increased efficiency

Innovative Design

Adaptable to all your applications

- 9 on-deck positions for plates, tips, accessories, and more
- Open design facilitates deck access, and integration with plate handlers and robots
- Hood-friendly size, with additional compact SRT-version for very restricted locations
- Labware standards compliant (meets the standards ANSI/SBS 1-2004 through ANSI/SBS 4-2004

Robust, Feature-rich Software

Supports new and advanced users

- Drag and drop tasks for simplified protocol startup
- Form overlay enables the creation of an easy-to-use graphical interface for novice users
- Built-in 21 CFR Part 11 compliance features for traceability



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Bravo with Gripper: G5523A#003



A VARIETY OF LIQUID HANDLING TECHNOLOGIES TO MEET YOUR APPLICATION NEEDS

The Bravo Platform allows you to achieve high performance liquid handling precision with 7 easy-to-exchange liquid handling heads using 3 different liquid handling technologies.

Air Displacement		Hanging Drop	Positive Displacement
Disposable-Tip Pipette Heads	Fixed-Tip Pipette Heads	Pin Tools	AssayMAP Head
 Two, 96-well models cover a range from 300 nL to 250 µL 96LT 96-Well (250uL) G5498B#042 96ST 96-Well (70uL) G5498B#041 384-well model dispenses from 300 nL-70 µL 384ST 384-Well (70uL) 498B#043 Uses disposable tips to prevent carry over and contamination Aspirates and dispenses to wells, rows, columns, arrays, and full plates 	 96 and 384-well models for transfer to 96, 384, and 1536- well plates 96F50 96-Barrel (50uL) G5498B#044 384F50 384-Well (50uL)G5498B#045 Volume range of 20 nL to 50 µL Washable fixed stainless steel needles 	 Custom-designed to your specifications Custom Hardware G5420A Choose 24, 48, 96, 384, and 1536-pin models Deliver 3 nL to 5000 nL to all wells simutaneously 	 96-well format with volume range of 2-250 µL 96AM G5498B#046 Uses AssayMAP micro- chromatography cartridges for automated sample preparation of biologics for antibody purification, N-glycan sample prep and peptide sample prep for mass spec analysis. More information on Agilent AssayMAP technology at: www. agilent.com/lifesciences/assaymap



Precision and Accuracy

When used with Agilent-certified pipette tips, performance for the disposable tip head, over a volume range of 0.3-250 μ L using multiple heads, is typically 5 % CV and 10 % relative inaccuracy, using DMSO-based solutions. For more information about Agilent Certified Pipette Tips please visit: www.agilent.com/lifesciences/pipettetips.



Microplate-centric Liquid Handling

Used with any of the disposable tip pipetting heads, the Set Head Mode feature of the VWorks Automation Control Software allows you to aspirate or dispense into one sample well, rows, columns, an array of wells or the full plate.

MORE THAN 60 ACCESSORIES ENABLE APPLICATIONS

The Bravo Platform features 9 on-deck plate positions that accommodate over 60 accessories. Details on all Bravo accessories, and where they may be located on the Bravo Platform deck, can be found in the Bravo Accessories Catalog, Agilent publication number 5991-0369EN.



Peltier Thermal Station with Custom Plate Nest (used with optional Bravo risers)

> Position 7 Magnetic Bead Accessory



Bravo Light Curtain

Designed for Safety and Compliance

The Bravo Platform Light Curtain assures compliance with regional safety requirements. If an object disrupts the light beams across the front of the device, the safety interlock circuit disables the pipette head motors.

Position 2 Manual Fill Reservoir Position 3 Weight Station plus Tip Wash Station

Position 5 Orbital Shaking Station

Position 8 Empty platepad Position 6 Through hole for tip trash and through-deck accessories

Position 9 Thermal Station (used with recirculating chiller not shown)

AN INTEGRATION-FRIENDLY DESIGN

The Bravo Platform's small footprint and open access deck enables flexible options for automating all your applications. Agilent offers scalable solutions from the standalone Bravo Platform to integrated workstations, and sophisticated containment-based systems that can be customized to your specifications.

Standalone

Increase the automation of your existing application workflows by adding a standalone Bravo Platform for automated liquid handling.

SCALABLE

Workstations

Agilent offers standard applicationspecific solutions as well as custom solutions. Both integrate liquid handling, robotics, and plate management instruments.



Agilent Bravo Automated Liquid Handling Platform (G5523A)



Agilent NGS Option B Workstation (G5522A) automates sample preparation for next-gen sequencing.



Agilent Encore Multispan WorkStation



Agilent BioCel Containment-based Systems



ENTERPRISE-LEVEL SOFTWARE

VWorks Automation Control Software integrates diverse devices (140+ driver library) into a cohesive, integrated system that ensures maximum throughput and optimal resource utilization.

Main Brotocol (x)	
Destination (384 Greiner 781101 PS cir fit btm) Destination Destination Downstack (384 Greiner 781101 PS cir fit btm) Bravo 1 using Bravo - 1 Upstack to Bravo - 1.7 Set head Tips On in 1 barrels Aspirate 10 from Tips from Tips	Benefits of Agilent VWorks Software An Intuitive Graphical User Interface— enables the novice user to operate it with ease.
Source 1 (384 Greiner 781101 PS clr fit btm)	
Source 2 (384 Greiner 781101 PS clr fit btm) Tips (384 V11 Tip Box ST70 19133.002)	Drag and Drop Tasks—graphical icons are selected and grouped to represent the sequence of tasks in your experiment.
Writes applications can be simplified with a user-friendly interface which ease. Custom forms simplify the execution of complex protocols and are ideal for multi-user environments.	 Event Driven Automation Control— can run multiple experiments in parallel for maximum resource utilization and throughput. Scatable—single application drives all levels of automation (standalone instruments, systems, 3rd party devices) with a consistent user interface that reduces training costs.



Systems

The BioCel is a custom-designed, integrated system in a containment cabinet that incorporates the Bravo Platform or multi-instrument workstations to automate complex workflows.

"We have found the Bravo very effective in automating magnetic bead-based affinity capture of peptides for mass spectrometry as well as a range of associated precision liquid handling tasks. The new AssayMAP

LEIGH ANDERSON, SISCAPA ASSAY TECHNOLOGIES, INC., WASHINGTON, D.C. USA

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