A96

Automated Liquid Handling Workstation

- *96-Channel Efficiency for Throughput Leap*
- *Dual-Arm Synergy for Precise Parallelism*
- *Clean Operation for High-Throughput Safety*

A8 MINI

A96
Efficient Whole-Plate Processing for Scaled Productivity

• 96-Channel Efficiency for Throughput Leap:

Equipped with a high-precision 96-channel pipetting module, it processes entire 96/384-well plates in a single step, significantly increasing efficiency for large-scale sample handling.

• Dual-Arm Synergy for Precise Parallelism:

Supports dual arms, where one arm handles high-speed 96-channel dispensing while the other performs flexible addition or picking, achieving intelligent collaboration for enhanced overall efficiency.

• Clean Operation for High-Throughput Safety:

Optional HEPA filtration and UV sterilization systems provide a clean, reliable high-throughput processing environment for cell-based assays and sensitive samples.

Product Overview

The A96 is an automated liquid handling platform designed for high-throughput applications. It features a high-precision 96-channel pipetting module and supports configurations with either a single arm or dual arms.

In a dual-arm setup, one arm is dedicated to the fixed 96-channel pipetting module, while the other can be equipped with an optional flexible 4-channel or 8-channel pipetting module. This enables collaborative workflows for efficient bulk dispensing and precise reagent addition.

- **Pipetting Modules:** single-channel, dual-channel, flexible 4-channel, flexible 8-channel, and fixed 96-channel.

- **Extended Modules:** Configurable with adaptive force gripper module and tube rotation and gripper module.

- **Multi-Function Arm (MFA):** Support the combined use of one fixed 96-channel pipetting module, flexible-channel pipetting modules, and extended modules.

With a deck capacity of up to 60 SBS-compatible slots, it can integrate various functional modules including temperature control, shaking, detection units, and more, to meet the requirements of larger-scale and longer experimental workflows.

By integrating third-party device, the A96 enables a high-throughput, end-to-end automated solution—from sample to result.

I Intuitive Software

Low-Barrier Interface with No Special Training Needed
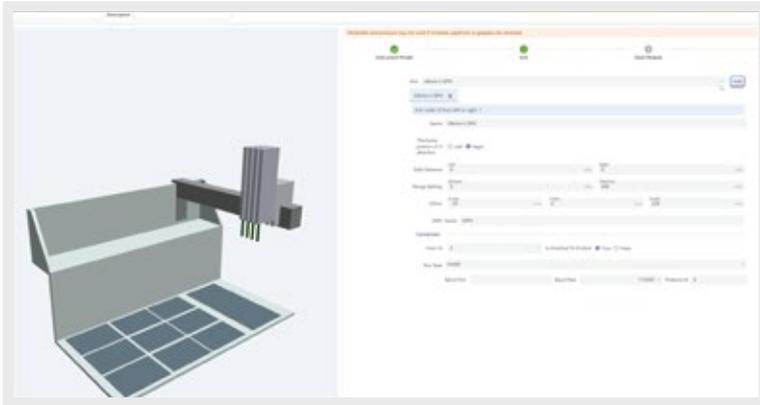
1.Drag-to-Build Experiment & Smart Logical Commands
Users with no programming background can quickly build complex protocols through an intuitive graphical interface by dragging and dropping pre-configured command blocks (e.g., aspirate, dispense, mix, incubate).

Smart logic commands support performing advanced tasks (e.g., parameterized variables), allowing a single protocol template to adapt to daily fluctuations in experimental scale, greatly improving efficiency.
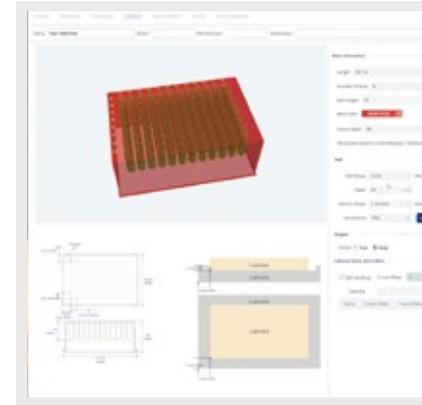
2.Open 3D Labware Library
True-to-Scale Visualization: Include accu labware, supporting 360° rotation and zoom protocols.

Parametric Customization: Users can qu by entering key dimensions (e.g., well heigh non-standard or novel consumables.
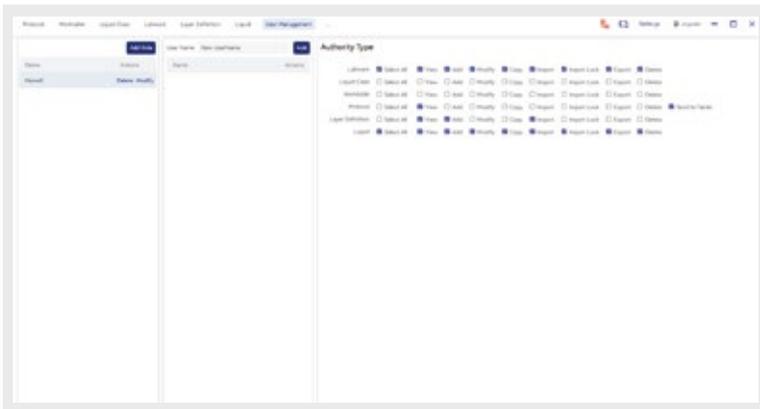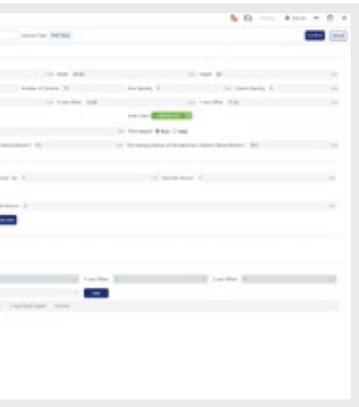

4.Flexible User Rights Management
With user management, you can set up different privileges to accounts and roles to meet all role-based requirements.

5.Powerful Third-Party Device I
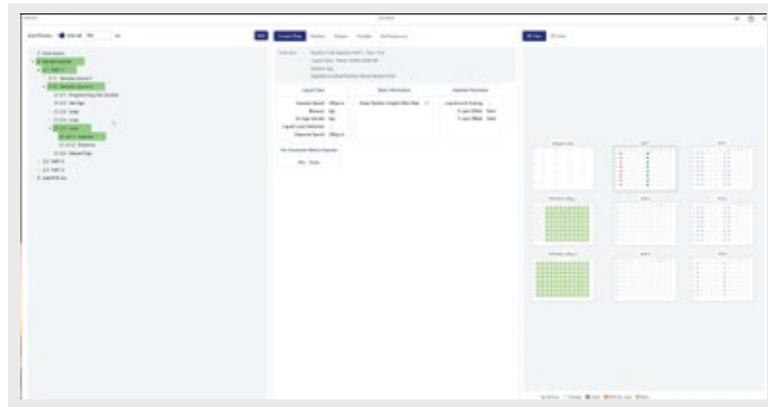Open communication interfaces e with third-party device including m thermal cyclers, creating end-to-e workflows.

rate 3D models of a wide range of
n, to achieve precise virtual layout of

ickly create custom labware models
ht, diameter), easily adapting to

3.Run Simulation & Visualization
Clear 2D and 3D run visualization (with adjustable speed) reduces setup time by
allowing you to optimize assays from your desktop computer before they occupy
the real instrument. This saves you tips, labware, and expensive reagents, and
of course, precious instrument time.

Third-Party Integration

Integration Capabilities
nable seamless integration
microplate readers and
nd unified automated
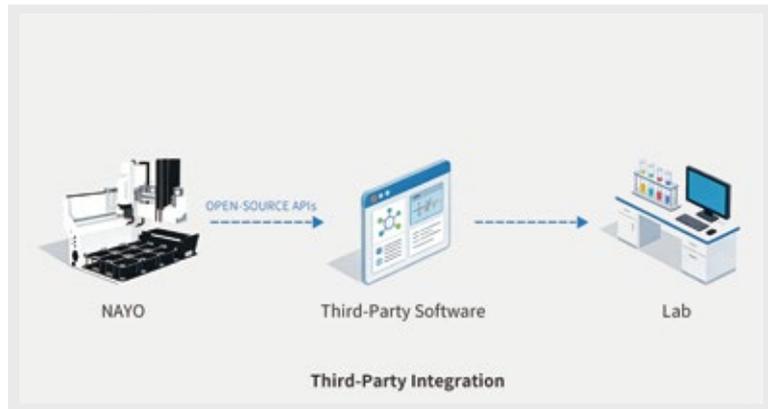
6.Remote Control & Open-Source APIs
Supports remote monitoring and control via network API, and can
be easily integrated with laboratory information management
systems, laying the groundwork for a smart, unattended modern
laboratory.

Core Technology

A96 integrates core technologies engineered for high-throughput, large-scale experimentation, delivering precision, stability, and maximized throughput in whole-plate processing and continuous operation.

1.High-Precision Pipetting & Liquid Level Detection

• **Precision Pipetting Ensures Reliable Results:**
Utilizes high-precision servo motors and air displacement technology, with a pipetting range of 1–1000 µL.

• **Pressure Liquid Level Detection (pLLD) Prevents Dry-Aspiration:**
Flexible pipettes use internal pressure sensors to detect liquid in labware. Sensors in the pipettes detect pressure changes relative to ambient pressure. This method is suitable for both polar and non-polar (organic) liquids, effectively preventing dry-aspiration or over-insertion of the tip.

Pressure Liquid Level Detection

A/D Value

0

Time(t)
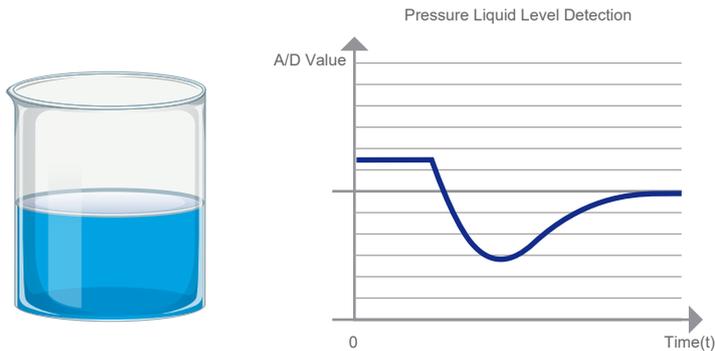
3.Flexible Pipetting Capabilities

• **Asymmetric, Variable Span Aspiration Technology:**
During sample transfers, parameters may be set up for real-time monitoring of each independent pipetting channel during the aspiration and dispensing steps.

Aspiration

Dispense

Pressure

Ambient-Pressure

Time

1 Blocked Tip, Blood Clot
2 Short / No Sample
3 Incorrect Volume
4 Short Sample

6 Dispense Speed Incorrect / Blocked Tip
7 Leaky System / Lost Sample
8 Incorrect Volume
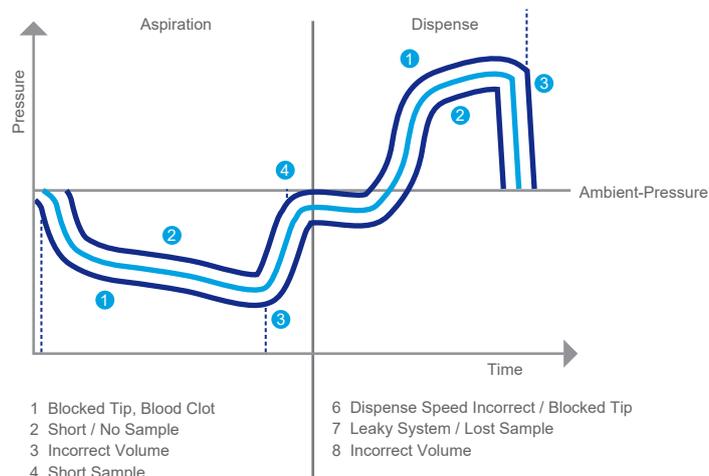
2.Active Safety Controls

• **Droplet Prevention Control (DPC) Reduce Cross-Risk:**
DPC detects and compensates for pressure changes in real time for each pipetting channel that are caused by the high vapor pressure of volatile organics.

DPC compensates for pressure changes to ensure that volatile liquids do not produce dripping.

A

Plunger

Pressure Sensor

Volatile Liquid

B

Pressure

Time

C

Pressure
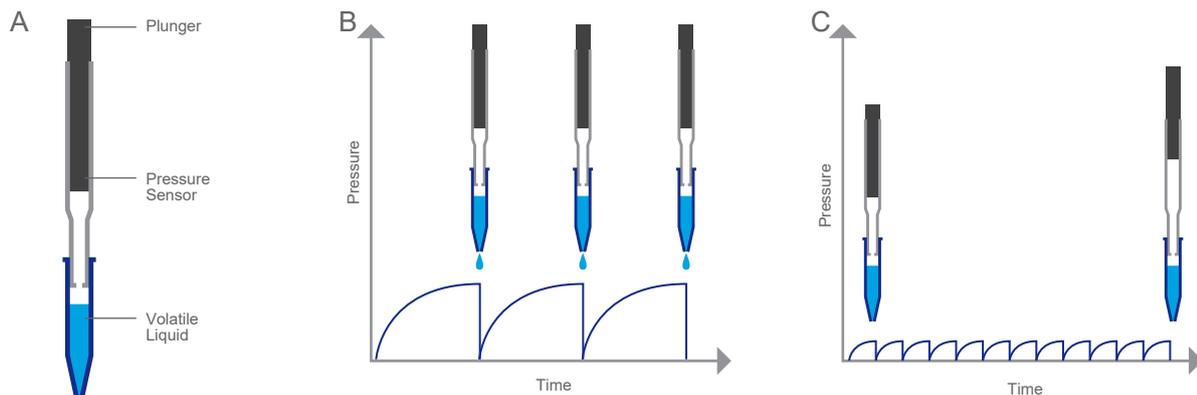
Time

• **Force Feedback Technology Provides Real-Time Alerts:**
Smart obstacle detection during liquid handling triggers real-time alerts, ensuring seamless experimental workflows with enhanced reliability.

Normal

Empty

Clogged
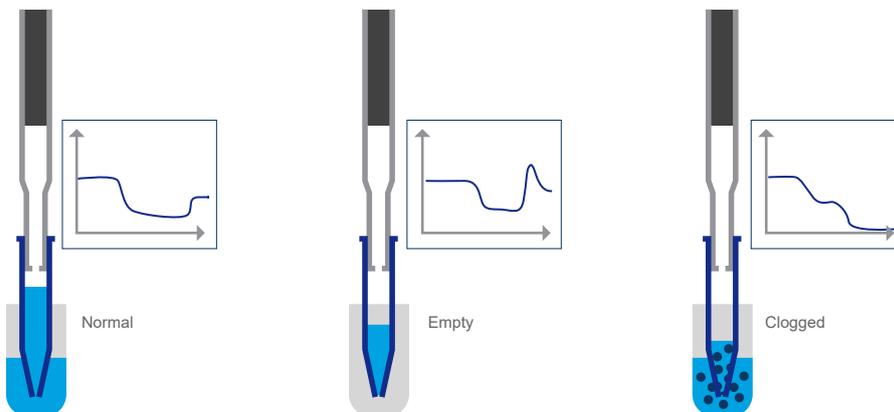
Hardware

The A96 is centered on a high-precision 96-channel pipetting head and supports configuration with either a single arm or dual arms.

In a single arm setup, the 96-channel head independently handles high-throughput pipetting tasks.

In a dual-arm setup, additional modules including flexible-channel pipetting modules, an adaptive force gripper, or tube rotation and gripping module—can be selected to work in coordination with the 96-channel pipetting head. This enables end-to-end optimization from bulk dispensing to fine-grained operations, meeting the demands of large-scale, high-efficiency automation.

1. Pipetting Modules

Fixed-Channel & Flexible-Channel Pipetting Heads

•**Pipetting range:**1-1000 μL
•Innovative improvements in the sealing design giving the cartridge head all for over 300,000 uses before needing replacement.

Single-channel   *Fixed 96-channel*

- -

2. Adaptive Force Gripper

Accurate force-controlled gripper:
Gripper force ranging from 1 to 16N supports the transfer of various consumables.

Configurable finger directions:
Capable of accessing peripheral devices to enable a huge array of process automation possibilities.

Gripper Module

- -

3. Tube Rotation and Gripping Module

Flexible Compatibility:
Adaptable to a full range of consumables including blood collection tubes and centrifuge tubes, covering various labware needs in your laboratory.

Intelligent Collaboration:
Seamlessly integrated with pipetting modules, delivering high-speed performance in any workflows; equipped with a built-in torque sensor that provides gentle, controlled force to ensure safe and secure handling.
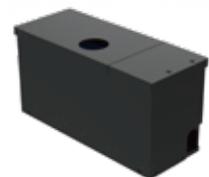
Layer Eye

Scalable Deck Layout: Supports up to 60 deck slots and can accommodate 6 different functional modules concurrently to meet the requirements of long automated workflows.

3. On-Deck Modules

TCM

Temperature Control Module (TCM)

Temperature Control Module **(TCM)** incorporates advanced heating and cooling technology to deliver a wide working range from 0°C to 120°C, ensuring precise and controllable temperatures for your experimental processes. It supports SBS-size microplates (1–384 wells), 1.5/2 mL centrifuge tubes, reservoir plates, and other common consumables. With a small footprint optimized for high-density deck layouts, the module maximizes workspace efficiency without compromising performance. The compact design features internal **PCBA** integration, eliminating the need for additional control units, and ensures stable operation.

ASM

Shaker Module Series

HSM

The series includes three specialized modules:
Automated Shaker Module **(ASM),**
Heater Shaker Module**(HSM),**
Temperature-controlled Shaker Module **(TCS)**

All modules support SBS-size microplates (1–384 wells), 1.5/2 mL centrifuge tubes, reservoir plates, and other common consumables.

The compact design features internal **PCBA** integration, eliminating the need for additional control units. Precise automatic in-situ positioning (± 0.1 mm) and clamping ensure stable, reproducible results.

TCS

Designed for Seamless Integration, Ease of Use and High Precision.

● **Stable and Wide Speed Range:** Covering from 0 to 5000 rpm, it effortlessly handles diverse workflows, from gentle homogenization to vigorous shaking, suitable for a wide variety of liquids.

● **Accurate Temperature Control:** The innovative temperature control system enables precise heating and cooling, which is crucial for temperature-sensitive experimental steps.

● **Low-Profile Modular Design:** It features a small footprint and a compact form factor, effectively saving valuable laboratory bench space.

● **Easy to Use and Install:** With quick plug-and-play operation, it offers the flexibility to switch rapidly between different workflows, significantly improving experimental efficiency and reliability.

4. Accessories and Consumables

A96 Offers standardized carriers and adapters for microplates, deep-well plates, PCR plates, and tubes of various sizes, with compatibility for special application accessories such as magnetic rack.

Temperature Control Adapter: For different kinds of plates.

Magnetic Rack：Used for nucleic acid separation and purification by magnetic bead method, and experimental processes such as nucleic acid sample separation and purification, fragment sorting, etc. during library construction.

Disposable Tips：50 μL, 250 μL, 1000 μL; available sterilized/non-sterilized, with/without filters.

Application Scenario

The A96 is suitable for large-scale experiments requiring high-throughput, standardized liquid handling, including:

• **Drug Screening:** High-throughput compound screening, cytotoxicity testing, dose-response curve generation.
• **Clinical Testing:** Large-scale nucleic acid extraction, PCR/qPCR setup, ELISA/chemiluminescence assays.
• **Genomics:** NGS library preparation, library normalization & pooling, targeted sequencing sample prep.
• **Bioprocessing & Quality Control:** Strain screening, titer determination, media optimization, QC sample preparation.

Multi-Function Arm Configuration

The A96 meets personalized needs through various combinations of arm configurations.

Order No.	Description
A96S - 03N	Fixed 96-channel pipetting module
A96S - 03G	Fixed 96-channel pipetting module & Gripper
A96D - 04003G	Fixed 96-channel & Flexible 4-channel pipetting module & Gripper
A96D - 08003G	Fixed 96-channel & Flexible 8-channel pipetting module & Gripper

Service Commitment
Rapid Response Within 24 Hours

NAYO established a global network of professional services dedicated to providing you with high-quality, standardized technical support and customer service. Our field service engineers are trained by either NAYO service headquarters or by one of our distribution partners.

1) High-Quality Customer Service and Quality Assurance

- **Comprehensive Quality Control:** Through in-house R&D and production, advanced quality control systems, and final factory inspection, we ensure every product meets the highest standards of quality, reliability, and precision.

- **Standardized Installation and Documentation:** All NAYO instruments are installed and validated according to strict operating procedures and **ISO 9001** standards, accompanied by detailed operational documentation to ensure normative deployment and full traceability.

- **Flexible Service Contracts:** We offer tiered service and support contract options, including regular system inspections and preventive maintenance, designed to ensure the long-term stable operation and optimal performance of your automated system.

2) Efficient Technical Support and Training System

We are committed to minimizing system downtime through rapid response and professional guidance, ensuring your productivity.

- **Rapid-Response Network:** Leveraging a global field service and remote support system—including technical support hotlines, remote guidance, and on-site local engineers—we guarantee a swift response to your service requests.

- **Customized Training Programs:** We provide standard training courses and can also customize content based on your specific application needs, available at NAYO training centers or your laboratory premises.

3) In-House Production and Quality Control System

NAYO have a transparent end to end digitalized and traceable process that begins with raw materials, in-process testing, and final product inspections. Core components are manufactured in our own factories, undergoing high-standard parts testing and finished product validation processes.

This vertically integrated model not only guarantees high-quality product delivery but also enables us to respond quickly to market changes and continuously improve quality and reliability through ongoing product iteration.

Specifications

1168 mm

790/1240 mm
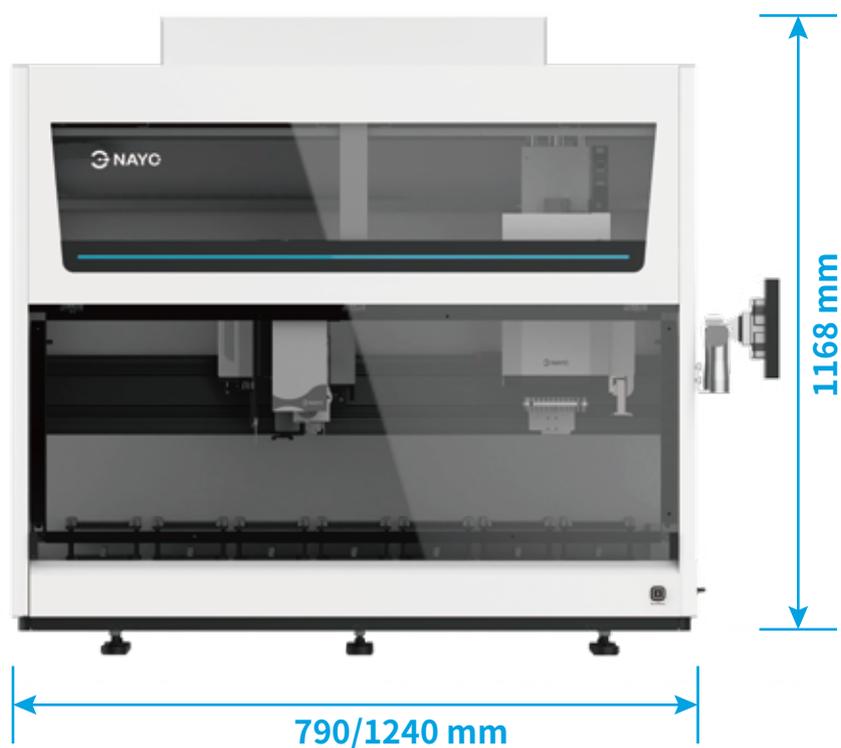
740 mm

General Specifications

Dimension (L x W x H)	790 mm x 740 mm x 1168 mm	1240 mm × 740 mm × 1168 mm
Weight	215 kg	240 kg
Deck Capacity	20 SBS/SLAS-compatible slots	35 SBS/SLAS-compatible slots
Network Conditions	C/S, not less than 10 Mbit/s	C/S, not less than 10 Mbit/s

Environmental Conditions

Working Temperature	19℃ - 25 ℃
Relative Humidity	20% - 80%, without condensation
Atmospheric Pressure	80 kPa – 106 kPa

Storage

Storage Temperature	-20℃ - 50℃
Storage Humidity	20% - 80%, without condensation

Power

Voltage	~100-240 VAC
Frequency	50/60Hz

Pipette Specifications

Range 1~1000µL

Tip Capacity	Tested Volume	Accuracy %D	Precision %CV
50 µL	1 µL	10	8
50 µL	2 µL	8	4
50 µL	5 µL	4	4
50 µL	50 µL	1	1
250 µL	50 µL	1	1
250 µL	250 µL	1	1
1000 µL	100 µL	1	1
1000 µL	500 µL	0.5	0.5
1000 µL	1000 µL	0.5	0.5

Range 0.7~300µL

Tip Capacity	Tested Volume	Accuracy %D	Precision %CV
50 µL	0.7 µL	12	10
50 µL	1 µL	8	8
50 µL	10 µL	3	3
50 µL	50 µL	1	1
250 µL	50 µL	1	1
250 µL	100 µL	0.5	0.5
250 µL	250 µL	0.5	0.5
1000 µL	100 µL	1	1
1000 µL	300 µL	1	1

Next Generation Sequencing

Synthetic Biology

Proteomics

Molecular Biology

Drug Discovery

Clinical Diagnostics

Biobanking

Cell Biology

Toxicology

YouTube

Linkedin

Website

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