

MVX-7100 μL Workstation



Pushing the Boundaries of ICP-MS Applications

The MVX-7100 μL Workstation is pushing the boundaries of ICP-MS applications. The μL Workstation allows for sample volumes as low as 5 μL. Syringe driven rinse allows for stable low flow applications with low detection limits. The flow injection system allows for better washout and sensitivity by eliminating pump tubing and minimizing sample contact.

The μL Workstation uses non-metallic materials for all wetted parts to ensure low detection limits. All this is done without sacrificing data quality of limited volume samples. Limited sample applications have a new solution to ensure that accurate data can be generated with minimal total sample volumes.



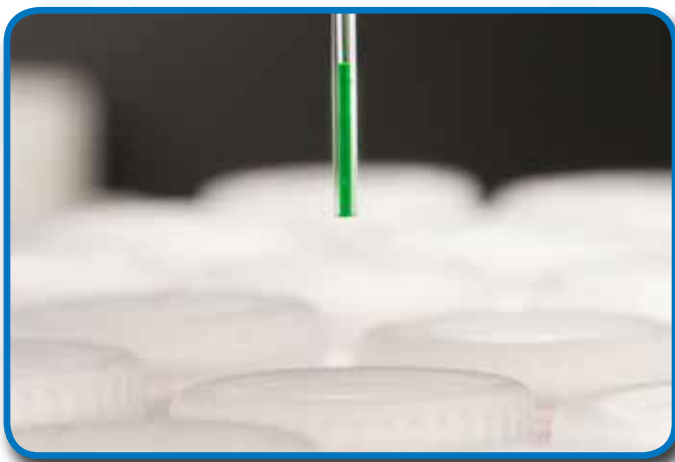
MVX-7100 μ L Workstation

Features

The μ L Workstation features a modular design that allows for optimal placement of components for either right or left handed ICP-MS systems. The modular design allows you to expand your system with additional modules as needed, including additional syringe modules and a temperature controlled rack.

Dual rinse stations are standard to reduce any carryover for difficult elements or matrices.

The syringe driven rinse and sampling syringe opens the door to new sample types.

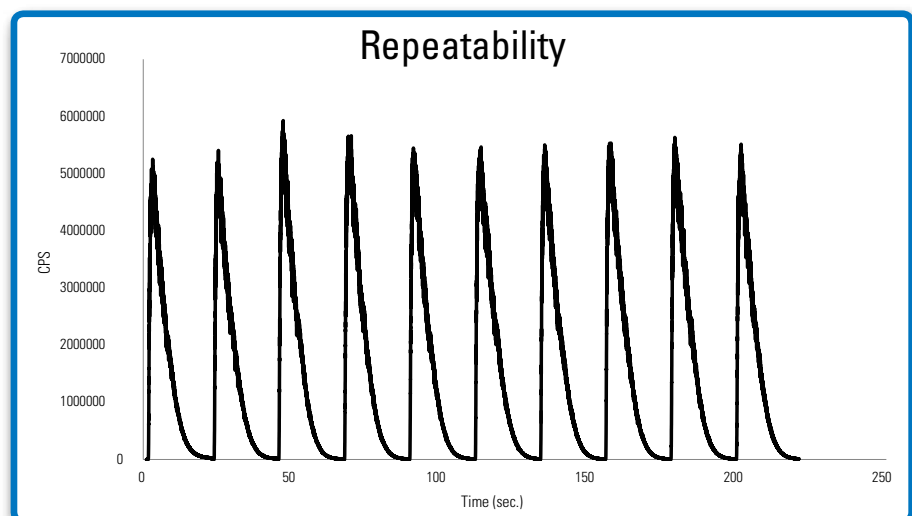


The μ L Workstation uses encoder feedback to ensure accurate and precise location, enabling the use of microtiter plates up to 384 wells.

The septum piercing Z-drive prevents volatile elements from escaping, opening new opportunities for the ICP-MS industry.

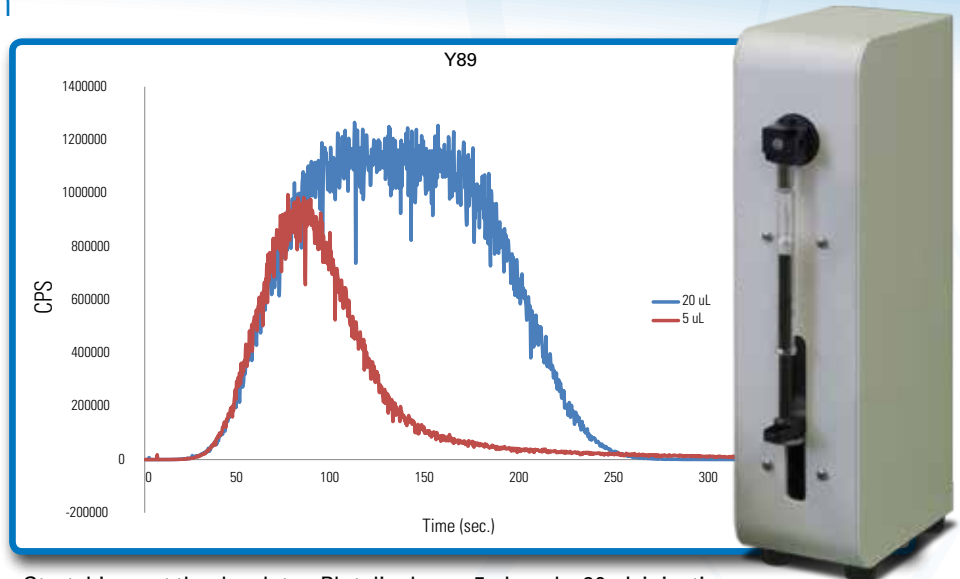
Sample aliquot preparation with air slugs can be used with the six reagent vials to optimize the sample introduction or cleaning.

Combined with the workstation software the μ L Workstation will help drive innovation in the spectroscopy marketplace while maintaining data integrity.



Syringe Driven System

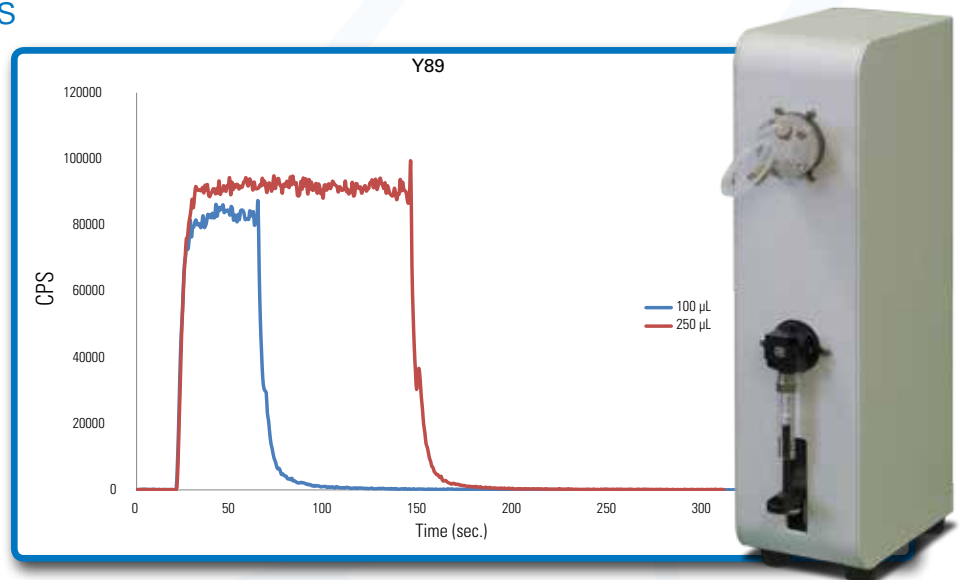
The syringe driven system creates stable flow down to $< 1 \mu\text{L}/\text{min}$ up to more traditional working flow rates of $> 1 \text{ mL}/\text{min}$. The μL Workstation uses a precision syringe drive to allow for stable baselines at low flow rates. The μL Workstation syringe also prevents the sample from ever touching the peristaltic pump tubing, thereby allowing for a much faster washout.



Stretching out the droplet — Plot displays a 5 μL and a 20 μL injection using the DS-5 direct injection nebulizer at a 10 $\mu\text{L}/\text{min}$. flow rate.

Flow Injection Analysis

Flow injection analysis allows the isolation of sample injecting and loading, thereby maximizing efficiency by cleaning the loading side while the sample is injecting. Syringe driven sampling allows for precise volumes down to 5 μL . The reagent bottles and software allow you to sandwich sample with reagent and air to create sharp stabilization curves and utilize every drop effectively. The syringe and valve utilize non-metallic wetted parts to ensure data integrity.



Plot displays a 100 μL and 250 μL injection using a standard spray chamber at a flow rate of 200 $\mu\text{L}/\text{min}$.

By using the μL workstation we are able to maintain expected detection limits, while consuming at least one order of magnitude less sample.

Temperature Stabilization

The μL Workstation has an option for Peltier temperature control to allow for long term stability of small volume samples. The temperature controlled rack can help stabilize volatile elements. Temperature control can be used to keep metal tagged proteins in their native state and metal species in their natural form.

Technical Specifications

Reproducibility

< 1% RSD

Minimum Injection Volume

5 μL

Minimum Flow Rate

1 μL / min.

Probe Positioning Resolution

384-well microtiter plate capability

Encoder Feedback

Yes

System Space Requirements

(includes VSM, SPM, and rinse bottle)

Height: 45.7 cm (18")

Width: 66.1 cm (26")

Depth: 50.8 cm (20")

Working Area

X-Axis: 25.4 cm (10")

Y-Axis: 15.3 cm (6")

Weight

29.5 kg (65 lbs)

Communications Interface

2 Serial Ports

USB (Virtual COM Port)

4 Auxiliary Inputs / 4 Auxiliary Outputs

Power Requirements

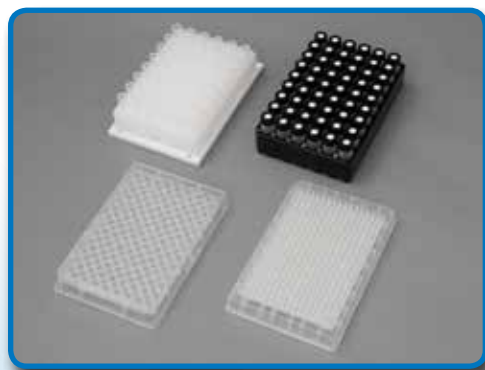
100-240 VAC, 50-60 Hz, 3.6 A

Rack Options

VT-54

Microtiter plates up to 384-wells

CETAC ASX-110 racks



Optional Accessories

Peltier rack module

Cooling/heating option allows computer controlled temperature control of samples from 5°C to 40°C.



SPM-700+ Syringe pump module

Precise control of sample volume and flow rate with programmable uptake and dispense rates. Supplied with a 2.5 mL syringe.



DS-5 microflow concentric nebulizer

Specialized for very low-flow applications (3 to 10 $\mu\text{L}/\text{min}$).

Includes a dedicated low-volume spray chamber with glass socket to connect directly to the ICP-MS torch.



C-flow concentric nebulizer

A molded, fixed-capillary style PFA (perfluoroalkoxy) concentric nebulizer for the introduction of low-volume (<2 mL) samples.

