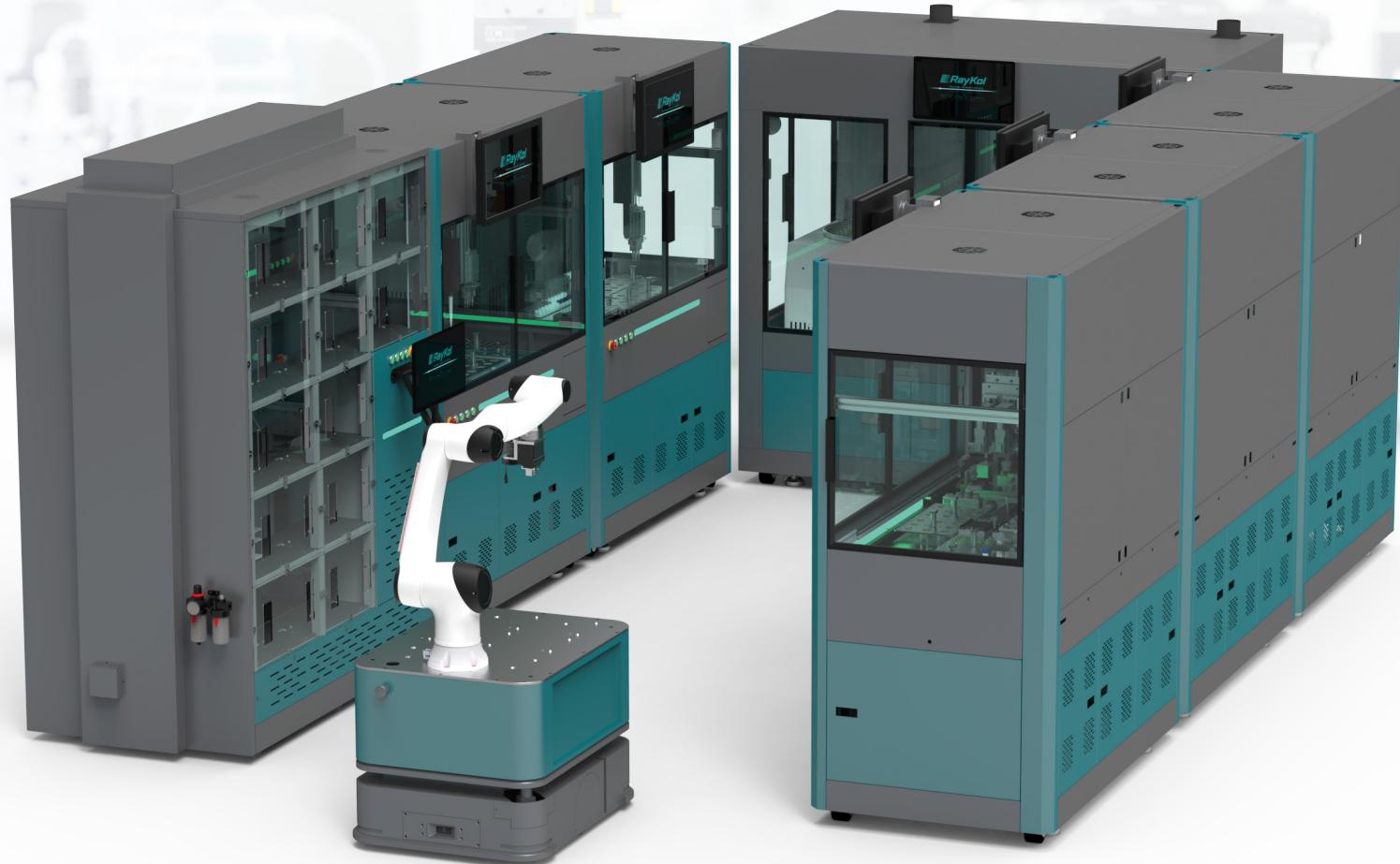


ISP Series

 Raykol

## Multifunctional Sample Preparation Workstation

Total Innovation Creating Infinite Possibilities



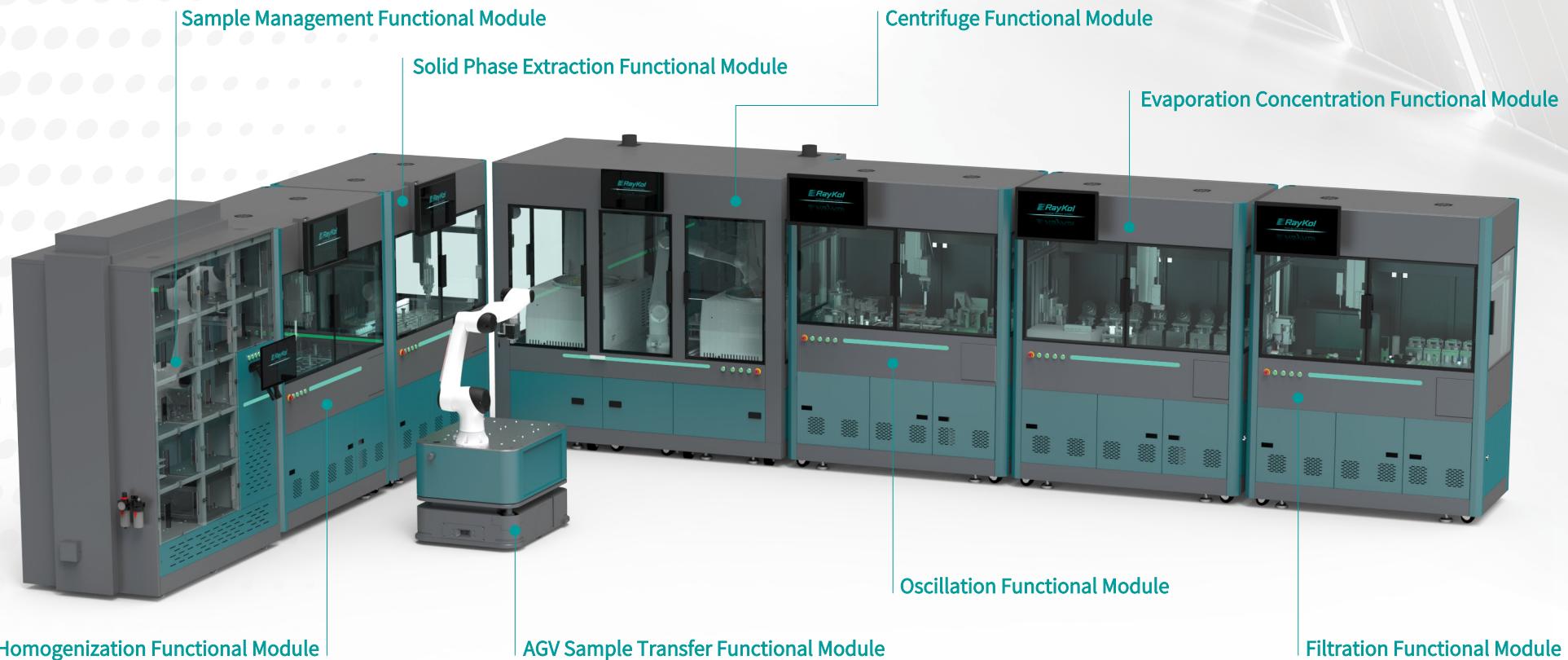
Raykol Group  
Industry-Standard Smart Lab for Physical and Chemical Analysis

# Flexible Configuration

## Easy modification for application changes

Scalability is not only about increasing sample throughput. As samples grow more complex, it may require adding new instruments or incorporating new technologies. Traditional fully-automated sample preparation systems are often custom-built for specific applications, which can lead to equipment obsolescence or idle time when workflows change or methods are updated.

The ISP series features a modular design that readily adapts to application changes. Adaptation can be achieved by simply upgrading specific functional modules, maximizing instrument utilization.

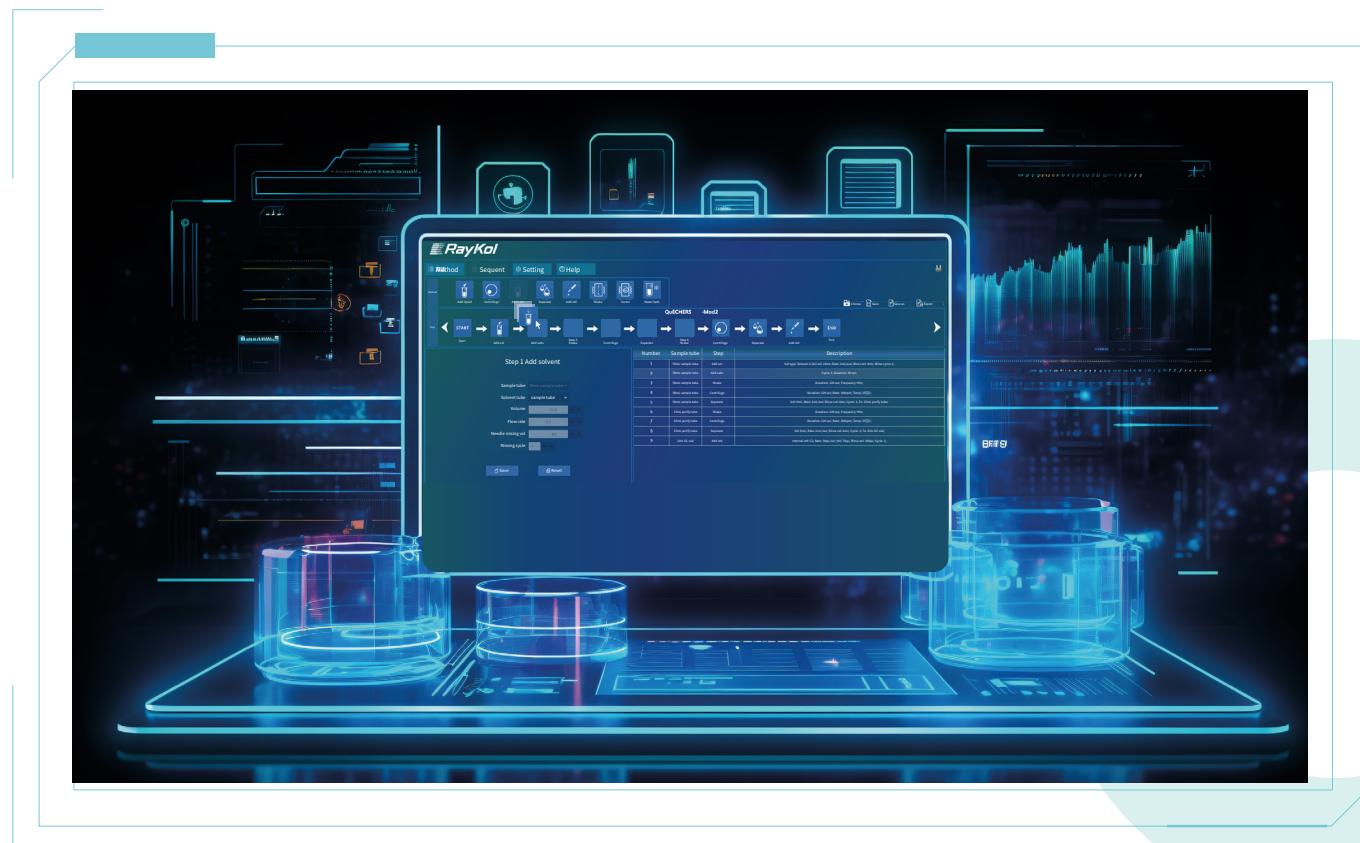


# Streamline Processes

## Liberate resources from low-value tasks

Prolonged exposure to monotonous, tedious, and high-volume sample preparation tasks can subject employees to extensive repetitive labor, compromising both work efficiency and accuracy. Traditional methods rely heavily on individual proficiency, making them susceptible to errors and inconsistency due to staff changes.

The ISP series delivers a novel solution through its robust method library and automated instrumentation. Our iRay Smart Lab Software enables automated scheduling of sample preparation workflows. Technicians only need to prepare samples and consumables, which reduces human error, significantly boosts efficiency, and optimizes the overall work experience.



Intuitive drag-and-drop method building and clear interface allows for a superior user experience and operational efficiency.

Supporting a flexible laboratory layout, this functional module enables unmanned transport through intelligent navigation and task scheduling, and facilitates dynamic system expansion and functional upgrades with its modular design.

## AGV Sample Transfer Functional Module



# Sample Management Functional Module

## Intelligent Rack Management System

- Precise Robotic Arm Transfer
- Intelligent Location Allocation
- Automated Scan and Secondary Verification for In/out
- Ensure Error-Free Operation

## Scalable Expansion System

- Scale Storage Capacity On Demand
- Modular, Ready-to-Use Functional Modules
- Seamless Integration with Existing Systems
- Rapid Deployment & Upgrade

## Large-Capacity Intelligent Storage Module

- 44-Position Standardized Storage Matrix
- Integrated Zoning for Samples & Consumables
- Standard Sample Rack/Tray Design
- Compatible with Multiple Consumable Specifications





## Homogenization Functional Module

This functional module enables fully automated homogenization of veterinary drug residue/mycotoxin samples, supporting high-throughput parallel extraction with rapid homogenization and high adaptability, significantly improving extraction efficiency and consistency. Optional modules for standard addition, aliquoting, and ultrasonic extraction can also be integrated here.

- ▶ Capping/Decapping Module (multiple spec)
- ▶ Independent Salt Addition Module
- ▶ High-Speed Homogenization Module
- ▶ High-Precision Liquid Dispensing Module
- ▶ Multi-Function Compatible Rotary Rack

# Solid Phase Extraction Functional Module

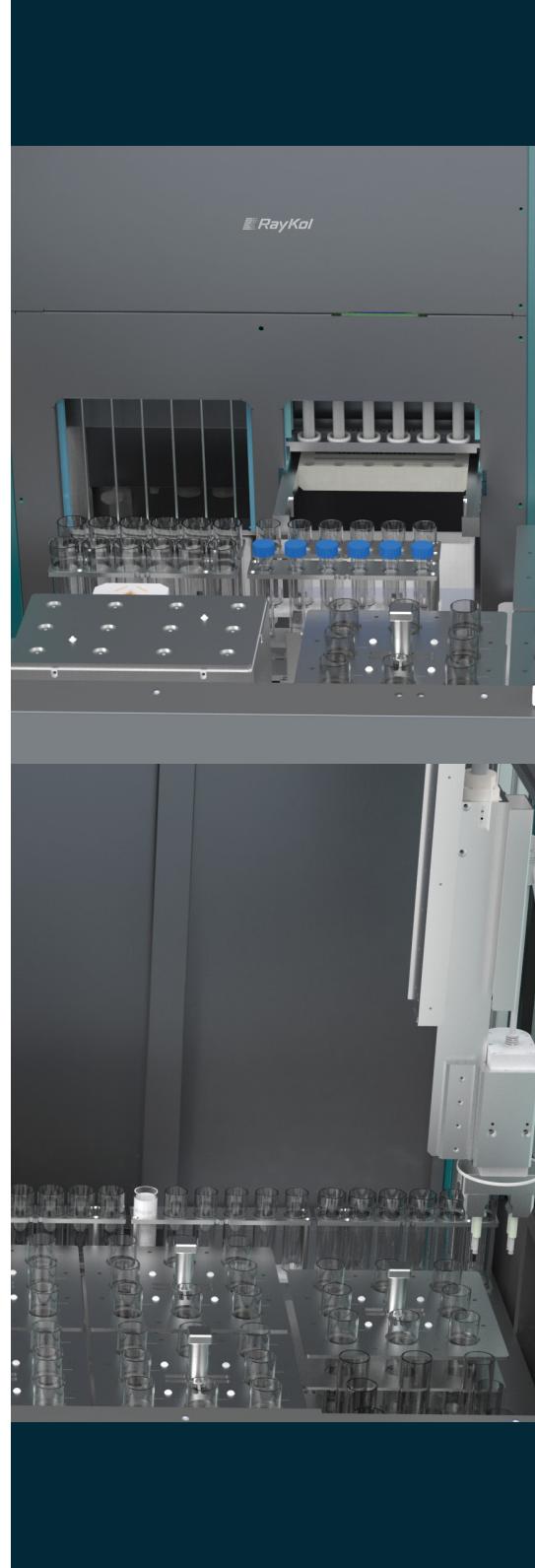
SPE functional module enables automation for entire SPE workflow. It ensures precise control over the activation, loading, and elution steps, guaranteeing purification efficiency and high sample throughput while being compatible with a wide range of sample types.

## 6-Channel Fully Automatic SPE Module

This module enables parallel processing and automatic column replacing, with a high-precision syringe pump ensuring controlled flow and elution volumes. Its built-in immunoaffinity mode enables highly sensitive detection for applications like mycotoxin analysis.

## Capping/Decapping Module

This module automatically handles capping and decapping of 15 mL and 50 mL centrifuge tubes. With 12 tube cap cache positions, it supports high-throughput operations. The closed-loop management ensures sample integrity and continuity of SPE workflow.



## Oscillation Functional Module

This functional module automates QuEChERS workflows, handling reagent addition, oscillatory extraction, and vortex mixing while enabling partial aliquoting. It is also expandable with optional modules for standard addition, aliquoting, and ultrasonic extraction.

- High-Efficiency Vertical Oscillation Module
- High-Precision Liquid Dispensing Module
- Multi-Function Compatible Rotary Rack
- Independent Salt Addition Module
- High-Speed Vortex Module
- Capping/Decapping Module (multiple spec)



# Centrifuge Functional Module

This functional module streamlines the essential centrifugation step with two high-speed refrigerated centrifuges and four rotor types, delivering an efficient and flexible solution for automated centrifugation.

Rotor Type	Positions	Max Speed rpm
15ml tube rotor	8	15000
50ml tube rotor	6	13000
100ml tube rotor	6	10000
250ml tube rotor	4	4000





# Evaporation Concentration Functional Module

Effective filtration prior to chromatographic analysis is essential for system stability. The Evaporation Concentration Functional Module automates this critical final step by removing particulate matter to protect both injection and separation components.

## **Fully Automated Aliquoting**

This system intelligently aliquots samples into 50 mL/15 mL tubes and 2 mL vials, integrating capping, pipetting, and filter loading for one-click aliquoting and filtration.

## **Vortex Mixing Module**

This module integrates with nitrogen evaporation and standard addition functions to automatically perform vortex mixing after volume adjustment, requiring no manual intervention throughout the process.

## **Standard Addition Module**

4-channel adequate addition of 20-200  $\mu$ L standard solution for GC-MS/MS internal standard method, synchronized with nitrogen evaporation/vortex mixing to minimize error through automation.

# Applications



| Food



| Drug



## Examples of Applicable Standards

GB 23200.121-2021 National Food Safety Standard — Determination of 331 Pesticides and Their Metabolite Residues in Foods of Plant Origin by LC-MS

GB 23200.8-2016 Determination of 500 Pesticide and Related Chemical Residues in Fruits and Vegetables by GC-MS

GB 23200.11-2016 Determination of 413 Pesticide and Related Chemical Residues in Mulberry Twig, Honeysuckle, Wolfberry, and Lotus Leaf by LC-MS

GB 23200.13-2016 Determination of 448 Pesticide and Related Chemical Residues in Tea by LC-MS

GB 23200.24-2016 Determination of 11 Herbicide Residues in Cereals and Soybeans by GC-MS

GB 23200.92-2016 Determination of Pentachlorophenol Residue in Foods of Animal Origin by LC-MS

GB 23200.85-2016 Determination of Multiple Pyrethroid Pesticide Residues in Milk and Dairy Products by LC-MS

The Chinese Pharmacopoeia (2020 Edition, Volume IV) General Rule 2341, Method 5: Determination of Multiple Prohibited Pesticide Residues in Herbal Medicines and Decoction Pieces (of Plant Origin)

The Chinese Pharmacopoeia (2020 Edition, Volume IV) General Rule 2351: Determination of Mycotoxins

# Comprehensive Smart Lab Business Group



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