Product Guide

Sample Preparation Instruments

Laboratory Equipment

Analytical Instruments

Laboratory Engineering

Consumables

Your Lab, Our Tech

LabTech Group

LabTech (Stock Code: 688056.SH) was established in 2002 as a global technology company, structured around integrated functions including R&D, manufacturing, sales, and customer support. We are committed to the development of innovative scientific instruments and equipment, serving a broad range of fields such as environmental monitoring, food safety, pharmaceuticals, disease control, and materials research. By providing practical, reliable laboratory solutions, LabTech has become a trusted one-stop partner for customers across diverse scientific disciplines and industries.

LabTech currently holds more than 100 patents and software copyrights. We are a certified High-Tech Enterprise and have been consistently recognized as one of the “Most Influential Enterprises” in China’s instrumentation industry. LabTech is a leading global supplier specializing in the integration of multi-type, multi-functional sample preparation technologies and analytical systems into fully automated laboratory platforms.

We own multiple brands including **LabTech**, **CDS Analytical**, and **CDS Empore™**, with R&D and production centers located in both China and the United States. Our sales and service networks span Massachusetts and Pennsylvania in the U.S., Hong Kong, and major cities across China. Our comprehensive product portfolio includes analytical instruments, sample preparation systems, general laboratory equipment, medical devices, consumables, and laboratory engineering services— all designed to support customers with a true one-stop solution. To date, LabTech products have been delivered to over 100 countries and are trusted by nearly 30,000 customers worldwide.

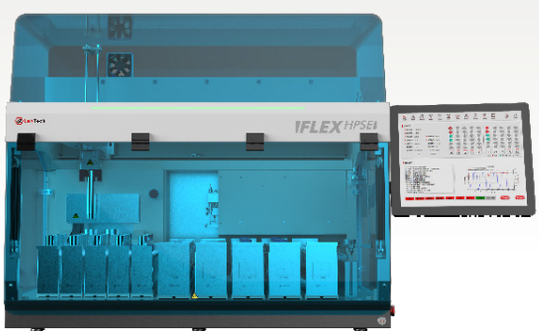
CONTENTS

Sample Preparation- Pressurized Solvent Extraction

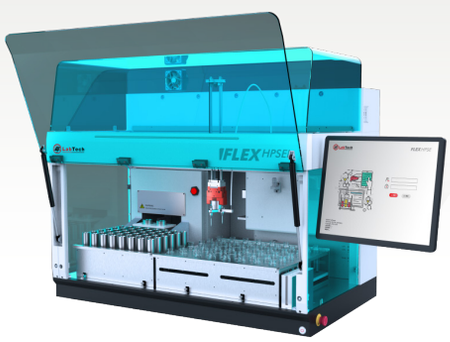
The pressurized solvent extractor is used to extract organic compounds from solid and semi-solid samples under controlled temperature and pressure conditions. It is widely applied in environmental monitoring, food safety, polymer analysis, and other related fields.

The Flex-HPSE Automatic High-Performance Solvent Extractor features an XYZ 3D platform design, enabling automatic and continuous operation. It also allows users to conveniently add or remove samples at any time during the process.

- High throughput: Supports single or dual-channel operation; automatically processes 30–48 samples; enables 24-hour continuous operation.
- Flexible configuration: Compatible with various extraction vessels, collection vials, and concentration cups; samples or vessels can be added or removed during operation.
- User-friendly operation: Equipped with a flexible touchscreen control terminal that accommodates different user preferences.
- Safe and ergonomic: Fully enclosed design with an integrated fume hood; emergency stop button provides immediate shutdown for enhanced safety.
- Traceability: Includes access-level management and automated report generation.
- Anti-clogging design: Innovative flow path design with independent channel valves, enlarged inner diameters, and high-pressure-resistant components ensures smooth operation, even with complex sample matrices.



Flex-HPSE 1H



Flex-HPSE 2H

The HPSE Series High-Performance Solvent Extractor adopts a multi-channel design and innovative anti-clogging technology to address the challenging industrial problems associated with complex samples. It is compatible with a variety of extraction vessels and is widely used in environmental, food, solid waste, petrochemical, and other fields.

- Multi-channel operation: 2 or 6 channels can be used individually or in any combination. The instrument does not require all channels to be filled to operate.
- Versatile compatibility: Compatible with different sizes of extraction vessels to meet diverse application needs in fields such as environmental (soil and air), food, and more.
- Dynamic pressure boost: A powerful pump with a flow rate of 100 ml/min enables dynamic automatic pressure regulation across different ranges according to the size of the extraction vessel.
- Unique sealing technology: Automatically seals the extraction vessel before extraction, eliminating the need for manual sealing and preventing potential leaks.
- Anti-clogging design: Innovative features such as independent channel valves and collection lines, larger inner diameters of valves and lines, and high-pressure resistant valves ensure continuous operation with complex samples.

HPSE-2

HPSE-6

Sample Preparation – Gel Permeation Chromatography Cleanup

GPC Cleanup is based on the principle of gel permeation chromatography (GPC), which separates and collects complex samples according to molecular size. It effectively removes macromolecular matrices and small molecular interfering substances from samples, improving the sensitivity and accuracy of subsequent analyses and extending the service life of analytical instruments. It is widely used in environmental, food, agricultural products, and other testing fields.

GPC1000 Auto GPC Cleanup

- Automatically performs a series of operations including sample injection, separation, purification, and collection of target components.
- Equipped with a standard stainless steel gel cleanup column, effectively saving time and solvents.
- Features a double-plunger precision pump and damper to ensure smooth and accurate infusion.
- Includes a variable wavelength UV detector to monitor gel chromatography effluent status in real time, facilitating method development.
- Full loading mode supports complete injection of samples up to 10 mL.
- Real-time pressure monitoring with overpressure and pressure relief alarms.
- High-precision 3D mechanical platform supports automatic sample loading and collection; septum piercing effectively prevents solvent volatilization.
- Sample loading and collection are independent; both sample and collection needles support cleaning of internal and external walls.
- Compatible with various sample bottles; sample racks and collection racks can be used together with LabTech SPE and concentrators.
- Modular design allows the addition of multiple collectors according to sample quantity.

GPC600 UP Semi-Automatic GPC Cleanup

- The GPC600 UP semi-automatic GPC cleanup system uses manual injection to introduce samples into the sampling valve, followed by automatic purification through a high-efficiency stainless steel cleanup column and automated batch collection.
- Patented stainless steel cleanup column for higher efficiency and reliability.
- High-precision double-plunger infusion pump and variable wavelength UV detector.
- High-precision 3D robotic arm collection platform supports continuous multi-position collection.
- Septum piercing design prevents volatilization of organic solvents.
- Automatic cleaning of both inner and outer walls of the collection needle prevents contamination.
- Sample racks are compatible with LabTech concentrators (M12, M64 and MVP Series), eliminating the need to transfer samples.

GPC600 Mini Semi-Automatic GPC Cleanup

- The GPC600 Mini semi-automatic GPC cleanup system uses manual injection to introduce samples into the sampling valve, followed by automatic purification through a high-efficiency stainless steel cleanup column and automated batch collection.
- Manual injection with automatic purification and collection of target compounds.
- Two collection positions available for alternate use.
- Collection flasks can be used directly with LabTech rotary evaporators and concentrators (M12, M64 and MVP Series).
- Modular design with flexible configuration, allowing quick upgrades to the GPC600 UP or GPC1000 series.

Sample Preparation – Solid Phase Extraction

AutoEmpore Automatic Solid Phase Extractor

AutoEmpore is suitable for the automatic and rapid processing of large-volume water samples, with functions including online filtration and online water removal. It can be used for the determination of volatile organic compounds and is widely applied in fields such as environmental protection, disease control, water supply monitoring, PFAS detection, and so on.

- Ultra-high efficiency: 3 to 9 water samples can be processed simultaneously. Typical processing time for a 1-liter water sample is approximately 30 minutes.
- Online filtration: Surface water, sewage, and other types of water samples can be directly processed and filtered online.
- Precise control: High-precision individual pumps for each station ensure accurate flow rate control at every step, including cartridge conditioning, sampling, and elution.
- High compatibility: Supports 47mm and 90mm CDS Empore™ disks (please refer to the ordering information on Page 23); compatible with various collection vials, including concentration cups.
- Online water removal: Supports various water removal methods, including pre-packed anhydrous sodium sulfate cartridges and hydrophobic disks.

SPE2000 Automatic Solid Phase Extractor

SPE 2000 is a high-throughput, multi-channel system designed for fully automated SPE cartridge processing. It features large sample capacity, strong anti-clogging performance, and user-friendly operation.

- High Throughput: Supports simultaneous operation of 6 or 8 channels. All SPE steps are fully automated, with batch processing capabilities for continuous 24-hour operation.
- Excellent Anti-Clogging Performance: Equipped with online filtration for small-volume samples and pressure-responsive syringe pumps that increase thrust as needed, enhancing resistance to clogging.
- Wide Compatibility: Universal sealing rod design supports 1 mL, 3 mL, and 6 mL SPE cartridges directly—no need to change sealing components.
- Intelligent Control: Automatically detects the type of sample rack and retrieves the corresponding positional parameters. Nitrogen pressure is adjusted in real-time to achieve optimal drying efficiency.
- User-Friendly Interface: Android-based software interface designed with user habits in mind. Graphical display provides real-time visual feedback and intuitive operation.
- Versatile Applications: Suitable for a wide range of contaminants, including veterinary drug residues, plasticizers, antibiotics, and mycotoxins.

Extrapid Manual Cartridge-Disk SPE

LabTech's manual SPE instrument, Extrapid, integrates both cartridge and disk types in a single unit, allowing treatment of both large and small volume samples with greater application flexibility.

- Supports 1, 3, and 6 mL SPE cartridges, as well as 47 mm and 90 mm disks, enabling a wide range of applications.
- Up to 6 samples can be processed simultaneously, with each channel controlled individually.
- Common sample bottles can be easily loaded upside down for convenient handling.
- Adjustable flow rate control.
- Organic and aqueous waste are collected separately.
- PFAS analysis available; internal contact parts use PEEK material to ensure ultra-low background contamination (PFAS version).

WSPE Manual Vacuum Manifold

Controlling the flow rate during SPE processing is critical to ensure reproducible extractions. Unlike other systems, the WSPE vacuum manifold features a patented valve system that provides precise flow control for each cartridge. The WSPE vacuum manifolds allow processing of up to 12 samples simultaneously (WSPE12) or 24 samples simultaneously (WSPE24).

Sample Preparation – Automatic Parallel Nitrogen Concentration

The M Series Concentrator (also called "THE GAME CHANGER") is the latest multi-channel, multifunctional parallel instrument designed by LabTech. It includes all necessary accessories and functions to ensure the highest standards of efficiency, speed, reliability, throughput, and safety in any concentration process. Samples are concentrated in a water bath with an adjustable nitrogen purge, achieving optimal efficiency.

M64 Automatic High-Throughput Parallel Concentrator

Featuring 8 channels with 8 needles each (for a total of 64 samples of 10 mL), the system can operate channels individually or simultaneously and is compatible with various vial sizes ranging from 2 mL to 200 mL.

- Automatic up/down movement of nitrogen needles based on sample volume reduction ensures high efficiency while minimizing nitrogen gas consumption.
- Nitrogen pressure is automatically regulated and remains stable when the number of active channels changes.
- Automatic control of heating temperature and gas flow rate throughout the process ensures optimized concentration conditions.
- User-friendly design: The top cover automatically locks for safety during concentration. The system auto-stops when the cover is opened and auto-restarts after the cover is closed.
- A transparent front window with internal lighting allows observation of the entire concentration process without opening the cover.

M12 Quantitative Parallel Concentrator

This system can concentrate samples to a fixed end-point volume or dry them completely, saving valuable fume hood space. It is easy to operate and can run unattended, with automatic prompts when the concentration is complete. The system also offers a short evaporation time.

- 12 sample positions can operate simultaneously or individually, supporting both 200 mL and 50 mL concentration cups.
- Vortex nitrogen purge ensures the highest concentration efficiency. The position and direction of the nitrogen purge can be adjusted according to the concentration cup size and sample volume.
- The concentration process is visible through the front and top windows with internal lighting.
- Enclosed system with a built-in, highly efficient vapor exhaust system, helping to save fume hood space.
- Automatic detection of liquid endpoints at 1 mL, 0.5 mL, and near dry (0 mL).

M6 (ET) Nitrogen Evaporator

The M6 Nitrogen Evaporator is a fast and convenient parallel concentrator for sample processing. It uses nitrogen blowing combined with heating for concentration. The metal bath heating eliminates issues caused by water vapor condensation, enabling rapid concentration.

- Supports simultaneous or individual operation of 6 channels.
- Uses nitrogen blowing combined with dry block heating for concentration.
- PID temperature control with digital display.
- Adjustable nitrogen needle position to ensure the most efficient evaporation.
- Dedicated nitrogen flow regulator for each sample channel.
- Unique "open view" design allows monitoring of sample volume levels during evaporation.

Sample Preparation – Automatic Parallel Vacuum Concentration

The MVP Vacuum Concentrator is widely used for the preparation of environmental samples, natural products, food, agricultural products, and heat-sensitive samples. It achieves high-throughput automatic evaporation of liquid samples through vacuum, heating, and rotation. This improves work efficiency and sample recovery, reduces human error, and enhances analytical accuracy. Its specialized solvent recovery design makes the unit environmentally friendly while protecting both the laboratory environment and operator health.

Flex-MVP EVO Automatic Parallel Vacuum Concentrator

The Flex-MVP EVO is a high-throughput, intelligent vacuum concentrator designed for precise, parallel sample evaporation with independent volume and end-point control. Ideal for applications requiring accurate and consistent concentration, it offers flexibility, automation, and ease of use.

- Intelligent End-Point Control: Offers two operational modes – individual end-point concentration for each of the 16 positions, or batch evaporation with anti-dry protection.
- Independent Volume Control: In individual mode, each concentration cup can reach its set volume independently and release vacuum separately—no need to pause or depressurize the entire system.
- Real-Time Monitoring: The software displays the evaporation status of each sample position in real time and provides individual alerts when concentration is complete.
- High Throughput: Simultaneously concentrates up to sixteen 200 mL samples. Compatible with 200 mL and 50 mL concentration cups equipped with a 1 mL tail tube.
- Independent Access: Designed with 16 individually sealed lids, allowing users to remove or place samples independently without affecting others.

Flex-MVP Automatic Parallel Vacuum Concentrator

Featuring super batch processing capability with 16 sample positions, it is compatible with 200 mL, 50 mL, and other sample tube sizes. Integral or independent sealing allows concentration vials to be added or removed at any time without releasing system pressure, maintaining high efficiency.

- Flexible and unrestricted access: Integral and independent sealing 2-in-1 design allows adding or removing individual samples anytime without pausing the instrument or releasing pressure, without affecting other samples' concentration processes.
- Safe and simple operation: Flip-top evaporation covers with a convenient snap-lock safety mechanism, enabling sealing and opening without disassembly.
- Prevents cross-contamination: Each sample vessel is sealed and vented independently via its own pipeline, avoiding liquid transfer caused by boiling and preventing cross-contamination and reflux.
- Fully surrounded heating for high evaporation efficiency: Each sample vial is fully immersed and heated in a water bath, never exposed to air, improving evaporation efficiency.
- High visibility: Transparent concentration chamber allows easy observation of the process.

MVP12 Automatic Parallel Vacuum Concentrator

The MVP 12 is a high-throughput, high-efficiency concentrator designed to support large-volume sample processing, with a maximum capacity of 1000 mL and excellent solvent recovery performance. Under conditions of heating, vacuum, and vortex agitation, multiple samples can be rapidly evaporated to dryness or concentrated to a desired volume. It is an ideal solution for lipid enrichment and concentration, effectively supporting the detection of acid value and peroxide value in food analysis.

- Large Volume, High Throughput: Supports simultaneous concentration of up to 12 samples, each up to 900 mL.
- Efficient Concentration: Surrounding water bath heating ensures high thermal efficiency for rapid concentration.
- High Solvent Recovery: Achieves over 85% recovery rate for 500 mL of petroleum ether.
- User-Friendly Operation: Equipped with a safety-lock design, allowing quick, effortless lid opening and secure closing.
- Prevention of Cross-Contamination: Independent airflow pathways for each sample prevent backflow caused by sample bumping, ensuring reliable results.

MVP48 Automatic Parallel Vacuum Concentrator

The MVP 48 is a high-capacity, high-efficiency concentrator designed for the rapid evaporation or volume reduction of multiple samples under heating, vacuum, and vortex agitation. It supports 60 mL sample bottles and 50 mL centrifuge tubes and is widely used in food, traditional Chinese medicine, environmental, and agricultural product testing.

- High Throughput: Supports simultaneous concentration of up to 48 samples.
- Flexible Compatibility: Accommodates both 60 mL sample bottles and 50 mL centrifuge tubes with elastic sealing lids.
- User-Friendly Operation: Features a safety-lock design for easy and safe one-handed lid operation.
- Prevention of Cross-Contamination: Each channel is independently sealed and controlled, eliminating accidental cross-contamination between samples.

Sample Preparation – Rotary Evaporator Solutions

Rotary Evaporator

LabTech evaporation solutions introduce a new concept in routine distillation and evaporation processes: safety, efficiency, and durability to support laboratory users. Featuring an innovative and ergonomic design, the EV series rotary evaporators include a digital display to monitor and control rotation speed and temperature, a motorized vertical lift, and on-line sample addition via a PTFE tube. They can be equipped with LabTech vacuum pumps and cooling accessories to achieve optimal process efficiency.

The standalone heating bath ensures maximum safety during operation and allows for easy maintenance.

- Safe and reliable distillation designed from the user's perspective to make experiments easier.

Rotary Evaporation for Small-Volume Samples

- Sample Volume: 50 mL ~ 3 L
- Basic Model: One-handed lift and single-button speed control. Unique PTFE+KFM seal for excellent corrosion resistance and durability.
- Advanced Model: Large touchscreen with solvent database and one-touch start. Auto distillation detects boiling points and sets parameters. Digital vacuum control ensures consistent results.

Rotary Evaporation for Large-Volume Samples

- Sample Volume: 10 L, 20 L and 50 L.
- Online feeding for large-volume samples.
- Built-in vacuum controller with 100-step program.
- The safe heating bath is equipped with safeguards to prevent dry heating.
- Equipped with multiple safety protection features.

Vacuum Controller

Common solvents have different boiling points and vacuum evaporation requirements. The LabTech vacuum controller allows programmable control of vacuum pressure to improve experimental repeatability. Its built-in anticorrosive vacuum sensor ensures reliable and high-precision performance.

Vacuum Pump

Totally oil-free mechanical vacuum pumps featuring advanced design, low noise levels, high efficiency, and long lifespan. LabTech vacuum pumps are specially designed for laboratory use to meet the highest standards of precision, reliability, and ease of operation. A built-in pressure regulator and pressure indicator are standard, ensuring easy and convenient operation.

Chiller

The SMART water chillers ensure accurate and stable cooling conditions for instruments, even under harsh laboratory environments. Every stage of production is focused on delivering high-quality, customized solutions to meet diverse requirements.

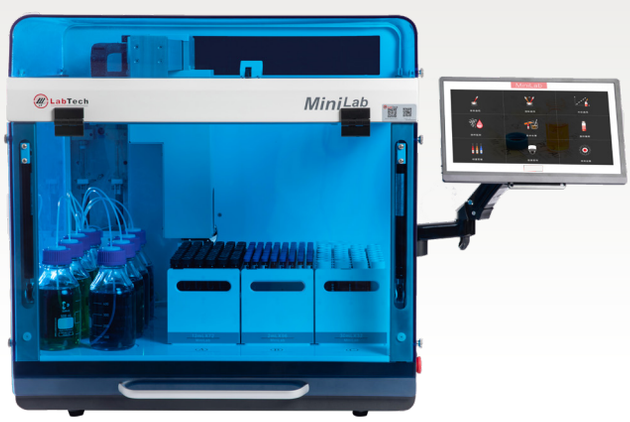
Sample Preparation – Automatic Liquid Handling Platforms

MiniLab Fully Automatic Liquid Handling Platform

MiniLab is an ideal replacement for manual preparation of standard solutions and liquid handling tasks, reducing operational errors and ensuring accuracy and precision with features such as septum piercing and precise pipetting. Its automatic functions include preparation of organic/inorganic solid and liquid samples, liquid sample dilution, standard curve preparation, mixed standards preparation, internal standard curve preparation, quantitative addition of standards and quality control samples, and other liquid handling operations. It provides standardized samples, standard curves, and sample preparation services for subsequent analyses. The platform is widely used in disease control, food safety, agriculture, environmental protection, pharmaceuticals, chemicals, and other fields.

- Dual injection pump design with automatic switching according to application needs to ensure liquid handling accuracy and precision.
- Multiple mixing methods, including suction mixing, bubble mixing, and vortex mixing, to ensure effective results.
- Supports 180- and 288-position 2 mL vial racks, with the capability to complete preparation of 100 types of agricultural residue samples in one step.
- Multi-step needle cleaning of both inner and outer walls, combined with an active discharge pump to prevent cross-contamination.
- Software automatically calculates optimal configurations and displays the method in real time.

MiniLab-O



MiniLab-3000

Smart and Small Devices

IFAD Hydrophobic Membrane Drying Device

The IFAD hydrophobic membrane drying device utilizes the hydrophobic properties of a PTFE membrane. When the sample passes through the separation membrane under vacuum conditions, the organic solvent passes through while the aqueous phase is retained in the filter cup, achieving separation without the need for anhydrous sodium sulfate for drying.

RWAI Liquid Waste Monitor

The RWAI liquid waste monitor uses sensors to detect the liquid level of waste containers and automatically triggers an alarm when the liquid exceeds a preset limit. It is designed for use with various organic waste liquid discharge analysis instruments or pretreatment instruments such as chromatography systems. This effectively addresses the issue of waste liquid overflow caused by the difficulty in monitoring waste drums.

CDS Analytical Pyrolyzer

CDS Analytical, founded in 1969 and headquartered near Philadelphia, Pennsylvania, USA, is an ISO 9001-certified global leader in thermal sample preparation instruments. For over 50 years, we have specialized in designing, manufacturing, and supporting advanced solutions, especially in pyrolysis technology. With strong global presence and continued innovation, CDS drives the future of sample introduction. The latest Pyroprobe, now in its 6th generation, features groundbreaking capabilities that significantly enhance GC-MS/MS performance.

- Pyrolysis Temperature: Room temp to 1300 ° C, 1 ° C increments, ±0.1 ° C accuracy.
- Reproducibility: RSD ≤ 1.5% (polystyrene), ensuring excellent consistency.
- Temperature Control: Platinum resistance heater with real-time monitoring.
- Touchscreen Interface: One-click start and easy monitoring via main unit screen.
- Reusable Tubes: Quartz pyrolysis tubes are reusable, allowing observation of sample position and morphological changes.
- Temp Programming: Up to 10-step multi-phase heating for complex pyrolysis.
- GC connection: High-temp transfer line (up to 350 ° C) connects directly to GC inlet; easy to install/remove without affecting other inlets.
- Gas Switching: Switch gases (e.g., helium/air) to simulate various conditions, such as aerobic combustion.
- Dual Modes: Supports pyrolysis and trap modes; direct or pre-trapped sample introduction.
- One-Click Switching: Easily toggle modes via software.
- Optional features: 48-position autosampler, low-temperature trap, thermal desorption, dynamic headspace, high-pressure module, electronic quality control, and pyrolysis database.

6150

6200

5200 HP-R

CDS Analytical Thermal Desorption

Thermal desorption technology uses adsorbents for large-volume sampling to effectively concentrate low-level volatile organic compounds from air or solids. It releases the sample by heating and directly transfers it to a GC-MS system, enabling fast, solvent-free, and waste-free high-sensitivity analysis. The process is flexible and convenient, suitable for field sampling and high-humidity environments, significantly reducing water interference and enhancing the detection of polar compounds.

- The programmable valve oven heats up to 320° C to better handle the most difficult VOCs, SVOCs, polar and nonpolar compounds, and chemical agents.
- Handheld controller allows for easy control with or without use of the PC-controlling software.
- Flexible options for different tube and trap styles.
- Robust and durable for in-field and mobile lab use.

CDS 9300

- Basic, manual single-tube thermal desorption system; compact and user-friendly.
- Automated cycling for overnight blank runs.
- Scheduled overnight start times to save time during the workday.

CDS 9305

- Upgraded single-tube desorber from the 9300 with a Mass Flow Controller (MFC) for periodic air sampling.
- Automated cycling between tube desorption sample collection steps.
- Optional heated sampling line for air sample collection supports air sampling flow rates from 10 to 1200 mL/min.

CDS 9350

- Dual-tube configuration designed for near real-time air monitoring with automatic sample switching.
- Automated cycling setup where one tube desorbs while the other collects sample.
- Optional heated sampling line for air sample collection supports air sampling flow rates from 10 to 1200 mL/min.

9300

9305

9350

PT3000 Automatic Purge and Trap System

PT3000 is designed for VOCs detection in soil and water. Backed by 50+ years of expertise, it offers first-class trapping and water removal, precise internal standard addition, and strong anti-contamination features. With smart functions like automated standard curve prep and dilution, it's ideal for high-throughput analysis. Stable and durable, it's widely used in environmental, food, and agricultural testing.

- Precision trapping: Direct resistive heating enables faster and more accurate temperature control.
- Efficient water removal: Room temperature spiral centrifugal water removal ensures high efficiency with no sample loss.
- Accurate internal standard addition: Electronic pressure control ensures precise addition within 1 second without any waste.
- Smart automation: Automatically prepares target and surrogate standard curves.
- Contamination control: Separate soil/water paths and blocking design prevent carryover.
- Special sample detection: Automatic physical defoaming prevents foam contamination. The purge tube is heated by infrared radiation, making it suitable for all purgeable VOCs.
- Integrated software: Unified control of main unit and autosampler with user-friendly UI.

Sample Preparation – Automatic lnorganic Sample Digestion

AutoDigiBlock

LabTech AutoDigiBlock, equipped with a built-in 360° robotic arm, is designed to relieve analysts from the drudgery and repetitive nature of routine tasks involved in digesting large numbers of samples and subsequent dilution or acid evaporation. The analyst only needs to weigh and properly add samples to the digestion vessels, set the automated digestion procedure on the workstation, press Start, and the process is done. AutoDigiBlock will automatically and precisely perform all repetitive steps, including reagent addition, thorough shaking, heating, lifting, cooling, and maintaining constant volume. At the end of the run, samples are fully treated and ready for further analysis. The system is highly efficient, safe, stable, and environmentally friendly.

- Fully automatic: The digestion process is automated, standardized, and programmable, embodying the concept of "one-stop" digestion to the fullest.
- Corrosion resistant: Fully anti-corrosion platform with optimized ventilation design protects users from harmful acidic gases and liquids.
- High efficiency: Independent, dual-module design allows simultaneous processing of different or large quantities of samples.
- Remote control: Wireless remote monitoring enables users to check digestion status anytime, enabling truly unattended operation.

REVO Microwave Digestion/Extraction System

- High safety standards guaranteed throughout all aspects of product design, with excellent explosion-proof capability.
- High-throughput rotor accommodating 40 vessels.
- Two contactless IR temperature sensors monitoring all vessels.
- Dual magnetron system with microwave diffuser for homogeneous microwave distribution inside the cavity.
- Contactless pressure monitoring system controlling all vessels simultaneously to prevent leakage or venting.

SD 2000 Sub-Boiling Distillation System

- Enables lower detection limits in trace metal analysis.
- PTFE-PFA sub-boiling distillation system compatible with HF, HNO_3, HCl, and other acids.
- Saves up to 90% of the cost of ultra-pure acids by purifying low-cost reagent-grade acids.
- Productivity up to 70 mL per hour.
- No need for cooling water or external chiller.

Acid6 Automatic Liquid Dispensing

Acid 6 is an intelligent laboratory liquid handling instrument compatible with various tube types. It features precise liquid addition, high sample throughput, full automation with simple operation, and reagent savings. It is designed to relieve analysts from dull, repetitive liquid handling tasks while ensuring a safe and green laboratory environment.

Optimized Fume Hood

- Standard integrated fume hood with high exhaust capacity, reducing dependence on traditional laboratory fume hoods.
- HEPA air filter to prevent potential sample contamination.
- Built-in lighting for better visibility and observation of internal operations

Automatic Liquid Dispensing

- High-precision peristaltic pump enables continuous liquid dispensing.
- Supports up to 6 reagent channels with integrated cleaning function.
- PFA tubing is resistant to corrosive acids, including HF.
- XYZ 3D robotic arm with precision positioning and is compatible with various tube types.

Intelligent Control

- Remote control available via Wi-Fi or Bluetooth.
- Intuitive graphical interface with safety alarms ensures secure and user-friendly operation.

High flexibility

- A wide variety of racks available for different applications.

Water Recirculating Chiller

LabTech develops and manufactures innovative cooling systems designed for applications that require highly precise temperature control and rapid temperature changes. Adhering to "Green Lab Conditions" regulations, eco-friendly materials are used throughout the design. By integrating new technologies and innovations, LabTech ensures top-tier reliability and quality on a global scale.

The LabTech water chiller line is specially designed for analytical, medical, and industrial applications, providing accurate and stable temperature control.

Compact H Series Water Chiller

- Compact Design: Delivers excellent cooling performance in a portable and space-saving unit, allowing flexible placement in any lab environment.
- Eco-Friendly: Utilizes semiconductor refrigeration technology (Peltier cell), offering a lightweight design with a cooling capacity of 240 W at 25 ° C.
- Precise Temperature Control: Advanced fuzzy PID control technology maintains temperatures from 5 ° C to 35 ° C.
- User-Friendly Interface: Bright LCD display is easily visible across the lab. Safety features include high/low temperature and low liquid level alarms.

Medium-sized Smart Water Chiller

- Green Lab Compliance: All LabTech chillers use CFC-free refrigerants that meet international environmental standards.
- Intelligent Control: Intuitive touch-screen controller displays all operational parameters; optional remote on/off control available.
- Precise Temperature Regulation: Advanced PID dynamic temperature control ensures accurate and stable temperature settings.
- High Energy Efficiency: "Hot gas bypass" technology redirects uncondensed refrigerant through a reservoir coil, eliminating ON/OFF compressor cycling and reducing energy waste.
- Premium Components: All parts undergo rigorous quality control testing, ensuring long-term durability even under continuous 24/7 operation.

Large-scale Water Chiller

- Powerful Cooling Performance: Provides a cooling capacity of 5 kW or higher.
- Industrial-grade Reliability: Equipped with a robust compressor system to ensure long service life and dependable operation.
- Integrated System Design: Simplifies installation and maintenance.
- Precision and Efficiency: Advanced PID temperature control combined with Hot Gas Bypass technology delivers accurate cooling with temperature stability of ±0.2 ° C.
- Real-time Monitoring: Displays key operational data including temperature, pressure, alarms, and running time.
- Space-saving Footprint: Compact structure optimized for laboratory environments.

Refrigerated and Heating Circulator

LabTech refrigerated and heating circulators are an ideal solution for temperature control of small instruments. They are suitable for routine laboratory applications involving direct sample immersion or external circulation.

- Dual functionality: integrated cooling and heating.
- Supports both internal and external liquid circulation.
- High performance with quiet and safe operation.
- Large, easy-to-read LCD display for intuitive use.
- Precise PID. temperature control with ±0.05 ° C stability.
- Comprehensive safety features, including over-temperature, under-temperature, and low liquid level protection.

Laboratory Equipment – Anticorrosion and Precision Hotplates and Digestion Blocks

EH Series Hotplate

- Patented heating technology ensures fast and uniform heat distribution.
- Multiple heating surface materials (Stainless-steel, Teflon, Graphite, or Ceramic) meet various application needs.
- Digital display with microprocessor-based control for precise temperature regulation.
- Specialized anti-corrosion heating platform; all electronic components are pretreated for corrosion resistance.
- Durable, stable, and long-lasting performance.
- Compact design with a sleek and modern appearance.

EG Series Hotplate

- Separate control terminal allows placement outside the fume hood for safer operation.
- Extra-large heating surface significantly enhances work efficiency.
- Corrosion-resistant design with fully sealed internal components for extended lifespan.
- Patented heating technology ensures excellent temperature uniformity.
- Digital display with intelligent microprocessor chip for precise temperature control.
- Multiple heating surface materials available (Stainless-steel, Teflon, Graphite, or Ceramic) to meet diverse application needs.

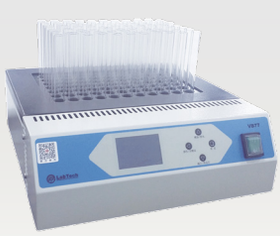
DigiBlock ED/EHD Series Digestion Blocks

- Surround heating mode for higher efficiency.
- Stable and uniform temperature control with ±1 ° C uniformity at 100 ° C.
- Thermal insulation design reduces energy consumption by up to 70% during digestion.
- Intelligent PID program-controlled heating enables unattended operation.
- High throughput: up to 54 samples can be digested simultaneously.
- One-stop operation for digestion, evaporation, and constant-volume adjustment eliminates the risk of sample loss and contamination during transfer.
- Optional external temperature sensor for direct liquid temperature monitoring (iTouch control).
- EHD 20 model is specifically designed for Kjeldahl method applications.

DigiBlock S Series Digestion Blocks

- Stable and uniform temperature control with ±1 ° C uniformity at 150 ° C.
- Advanced insulation materials save up to 80% energy during the digestion process.
- High-purity graphite material ensures uniform and rapid heat transfer.
- Intelligent PID program-controlled heating for unattended digestion.
- One-stop operation for digestion, evaporation, and constant-volume adjustment eliminates the risk of sample loss and contamination during transfer.
- Excellent anti-corrosion performance.
- Hot Surface safety indicator ensures safe operation for users.

VB77 Urine Iodine Digestion Block



- Advanced surround heating ensures more even sample heating.
- Intelligent PID temperature control system guarantees equipment stability.
- Stable and uniform temperature control with ±1 ° C uniformity at 100 ° C.
- Maximum capacity of 77 samples processed simultaneously.
- Intelligent heating control mode with timing function.
- Suitable for COD digestion or other applications using 16 mm tubes.

WD30 Water Bath Digestion Block

- Can process up to 30 samples simultaneously.
- Anticorrosion heating block design made of aluminum alloy with Teflon coating.
- Closed micro-reflux method uses a small amount of reagents, approximately 3 to 5 mL per sample, reducing environmental pollution.
- No reagent or sample spillage, ensuring a safe digestion process.
- Simple operation with built-in digestion methods for COD, TOC, total nitrogen, total phosphorus, and so on; users can run it directly.

Other Small Equipment

Intelligent Anti-corrosion Shaking Water Bath

Overall anti-corrosion operation space

- Teflon-coated stainless steel bath chamber prevents rust and corrosion.
- Operating platform made of plastic for corrosion and abrasion resistance.
- Various models of anti-corrosion racks are easy to replace.
- Chemical-resistant polyethylene cover allows easy operator observation and reduces water consumption.

Intelligent operating system

- Auto-refill function maintains the liquid level in the bath.
- Adjustable refill speed stabilizes temperature during operation.
- Multiple shaking modes and adjustable shaking speeds available.

Acoustic Enclosure

- Multiple layers of wave-shaped sound-damping material effectively reduce noise levels.
- Optimally designed radiator inlet and outlet ensure efficient air circulation inside.
- Real-time temperature control panel with LED digital display.
- Convenient and simple installation.
- Easy mobility with wheels; casters with brakes stabilize the enclosure during use.

Air Compressor

Air compressors are widely used, simple instruments. Despite their humble nature, they play an extremely important role by generating clean air and providing consistent compression.

- Oil-free and low noise operation.
- Built-in humidity removal system.
- Automatic water drainage.
- Intuitive and simple to operate.
- Easy maintenance.

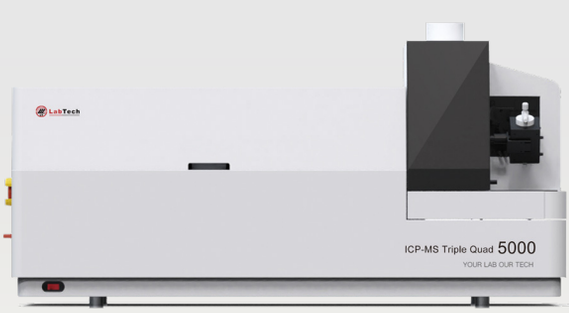
Inductively Coupled Plasma Mass Spectrometer (ICP-MS)

The LabMS 3000 series ICP-MS embodies over thirty years of mass spectrometry research and development experience from Dr. Ke Hu, the founder of LabTech. It is fully self-developed and designed, possessing independent intellectual property rights. The instrument features a stable and durable ion source, a high-sensitivity and wide dynamic range detector, and fourth-generation collision cell technology for controlling multi-atom interferences inside the mass spectrometer. Combining high performance and stability, the LabMS 3000 also offers excellent ease of use. The custom-developed HiMass intelligent workstation includes simple and easy-to-use automatic tuning, method guidance, and data analysis tools, making your work easier than ever before.

- Robust: Integrated high-matrix sample introduction system supports online argon dilution and oxygen addition for organic sample decarbonization, reducing sample pretreatment time and avoiding contamination during the process.
- Precise: Fourth-generation kinetic energy discrimination collision cell technology eliminates troublesome polyatomic and doubly-charged ion interferences, enhancing data quality for lower detection limits and more accurate analysis results.
- Safe: Multiple safety precautions and timed maintenance logs ensure the instrument operates safely and reliably, minimizing unplanned downtime and providing secure protection.
- Intelligent: The HiMass intelligent workstation features a one-click, guided, modular design with a simple and intuitive interface, reducing the learning curve and significantly improving work efficiency.
- Efficient: Seamlessly integrates with LabTech's pretreatment equipment to provide a one-stop elemental analysis solution, making element analysis more accurate, faster, and smarter.

LabMS 5000 (ICP-MS/MS)

The LabMS 5000 ICP-MS/MS is a next-generation triple quadrupole mass spectrometer launched by LabTech. This product continues the high stability, high tolerance, and user-friendliness of the LabMS 3000, while employing MS/MS mode to achieve controlled and reliable interference elimination, thereby expanding application scope and improving detection efficiency. Featuring both single quadrupole and triple quadrupole capabilities, it allows flexible selection based on different application requirements, simplifying your analytical work. Its powerful and versatile detection capabilities make it well-suited for a wide range of applications, including semiconductors, the nuclear industry, environmental monitoring, food safety, life sciences, biopharmaceuticals, geology, and metal analysis.



- Precision: MS/MS mode achieves controlled and reliable interference removal, precisely eliminating mass-interfering ions, resulting in lower detection limits and accurate ultra-trace analysis.
- Stability: Equipped with an industrial-standard 27 MHz solid-state generator, it provides exceptional system stability; its excellent ion transmission system ensures good detection stability even in MS/MS mode.
- Reliability: Certified by SEMI S2 and equipped with up to ten layers of safety protection, it provides comprehensive safeguards to ensure long-term, safe, and reliable instrument operation.
- Robustness: The full-matrix sample introduction system, combined with optimized interface design and enhanced ion transmission, delivers powerful matrix tolerance, effectively reducing signal drift even during direct high-matrix sample introduction.
- Intelligence: The HiMass intelligent workstation features one-click operation, guided workflows, and a modular design with a simple, intuitive interface, reducing learning time and significantly improving work efficiency.

LabICP1000/ LabICP2000 Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES)

LabICP 1000 offers excellent spectral resolution, enabling precise separation of complex spectral lines with minimal spectral interferences making it ideal for analyzing rare earth elements and permanent magnet materials.

- Features a closed-loop RF generator with power control accuracy better than 0.1%.
- High spectral resolution ensures accurate separation of complex rare earth lines, avoiding interference and improving data accuracy across the full wavelength range.
- Single-channel scanning monochromator with reflective optics eliminates chromatic aberration.
- Precise mechanical control and 1-meter focal length design deliver high SNR and minimal matrix effects.
- PID-controlled optical chamber ensures stable temperature.
- Built-in safety protections for water pressure, argon pressure, overcurrent, and arc discharge.

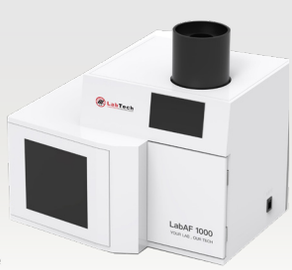
LabICP 2000 is a fully automatic, high-resolution, full-spectrum ICP-OES suitable for qualitative and quantitative analysis of major, minor, and trace elements in various sample types.

- Equipped with a two-dimensional crossed dispersion optical system and a fully solid-state RF generator, it features automatic matching and real-time power control, offering high stability and broad adaptability.
- The instrument includes a dual-view optical path with adjustable radial observation height, significantly improving the signal-to-noise ratio. Its fully enclosed, positive-pressure optical chamber shortens purge times. The back illuminated CCD detector with efficient semiconductor cooling ensures long-term stable operation without degradation from optical coatings.
- The user-friendly software supports qualitative and quantitative analysis, data reprocessing, and full-spectrum snapshot recording for easy data storage and retrieval.

LabAA 2000 Atomic Absorption Spectrometer

- Equipped with both flame and graphite furnace atomizers, featuring automatic switching and a modular design that allows flexible configuration or upgrades as needed.
- Fully automatic 8-lamp-position rotating lamp tower with automatic switching and customizable working/ preheating lamp settings.
- Full-reflection optical system with achromatic performance across the entire wavelength range, enabling automatic wavelength scanning and peak detection.
- Both flame and graphite furnace systems are equipped with a deuterium lamp and self-absorption background correction to meet the detection needs of complex sample matrices.
- All-titanium burner ensures stable combustion and rapid thermal equilibrium.
- Constant power temperature control for the graphite furnace achieves uniform temperature distribution within the graphite tube.
- Reliable multi-layer protection system including real-time flame monitoring, acetylene leak detection and protection, abnormal pressure monitoring, and cooling water monitoring.
- Powerful operating software with a user-friendly interface.
- Compliant with 21 CFR Part 11 regulations, featuring permissions management and audit trails.

LabAF1000 Atomic Fluorescence Spectrometer



- Simultaneous determination of three elements through three channels without mutual interference, significantly improving analysis efficiency.
- Hydrogen generation system with three modes: sequential injection, continuous flow, and intermittent flow, catering to different sample needs and providing greater convenience for users.
- Light source system: High-performance hollow cathode lamp utilizing pulse modulation and constant current drive power supply, enhancing emission intensity and efficiency while extending lamp service life. The instrument can automatically identify the hollow cathode lamp and record its usage time.
- Detection system: Solar-blind photomultiplier tube providing high signal-to-noise ratios with minimal matrix effects.
- Optical path: Shielded short focal-length optical path to reduce energy loss during transmission.
- The shielded double-layer quartz atomizer effectively reduces liquid-phase interference, minimizes the residue of certain elements or compounds in the sample introduction system, plasma torch, nebulizer, or sample cones that could interfere with subsequent samples, and enhances atomization efficiency.
- Applicable to speciation analysis of mercury, arsenic, and other elements.
- Powerful operating software with a user-friendly interface.
- Compliant with 21 CFR Part 11 regulations, featuring permissions management and audit trails.

Analytical Instruments - Inorganic Elemental Analysis

MAX-S Direct Mercury Analyzer

- Analyzes any matrix (solid, liquid, or gas) without any pretreatment or chemical additions.
- Principles: thermal decomposition, amalgamation, and atomic absorption.
- Provides results in just 6 minutes, dramatically improving your laboratory's turnaround time and productivity.
- Widest dynamic range, capable of achieving a detection limit from 0.001 to 30,000 ng of mercury.
- Eliminates memory effects: The instrument effectively prevents residual mercury from remaining inside the instrument after each analysis.

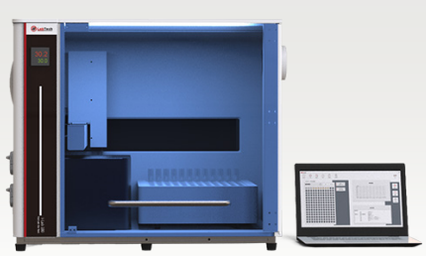
MAX-L Cold Vapor AAS Mercury Analyzer

- Designed to detect mercury in water samples and digested samples, based on the SnCl reduction cold vapor AAS mechanism.
- Wide working range, low detection limit, rapid analysis, user-friendly interface, and high reliability.
- Compatible with international methods such as US EPA methods 245.1, 245.5, 245.7, 7470A (SW-846), and 7471B (SW-846).

Automatic Iodine Analyzer

The I-Lab180 uses the arsenic cerium catalytic spectrophotometric method, suitable for iodine analysis in urine and water samples. Avoid errors caused by manual operation and enhance accuracy and convenience with automated samples processes including liquid addition, digestion, cooling, catalysis, curve fitting, detection, and report generation.

- Up to 180 samples capacity.
- 10 reagent channels, utilizing an XYZ robotic arm for efficient liquid addition.
- Digestion temperature: room temperature to 120℃ ; temperature stability: ±0.1℃ .
- Constant temperature mode between 5℃ and 35℃ ; automatically enters constant temperature mode after digestion, avoiding sample transfer.
- Detector: integrated UV detector, multi-wavelength options at 380 nm, 400 nm, and 420 nm; wavelength accuracy: ±2 nm; supports absorbance prediction.
- Test concentration range: urinary iodine 2–1200 μg/L; water iodine 2–200 μg/L.
- RSD: ≤3% at low concentration, ≤2% at high concentration; linear correlation coefficient R≥0.999.
- Intelligent dual-pump cleaning design with automatic cleaning and waste discharge.



MidiLab9000-E Intelligent Analysis System for Inorganic Elements

Smart Central Control Information System
MiniLab5000-Info

MidiLab9000-E inorganic element analysis system integrates sample library management, packing and weighing, sample digestion, dilution and constant volume, and combines with mass spectrometry and spectral analysis methods, complete the sample transfer by AI robot, to realize the automation of the whole process from sample management to analysis and detection.

- Fully automatic system in a closed loop
- Parallel operation, the efficiency is increased by more than 2 times
- Sample transfer between the preparation room and the analysis room is possible without modifying the existing laboratory
- It is suitable for preparation of complex samples which are high viscosity, volatile and deliquescent

MidiLab9000-Marker-Omics Sample Preparation and Analysis System

- Intelligent management information software system connects with the LIMS information system to get through the data island and achieve data traceability
- High-throughput modular design
- Astation intelligent sample injection unit can realize sample temperature control and hole plate injection, and the intelligent algorithm ensures higher efficiency
- AI robot system uses AGV robot and 6-axis manipulator all-in-one machine, lidar navigation and machine vision accurate positioning
- LC-MS analysis system

The Midilab9000-Marker omics sample preparation and analysis system adopts biological sample membrane filtration drying system, automatic membrane punching, biological sample enzymatic processing system, combined with LC-MS method to realize protein extraction, preparation, and qualitative and quantitative analysis of proteins in biological samples.

Intelligent and Automative Laboratory Solutions

MiniLab5000-L Fully Automatic Liquid Sample Handling System

MiniLab5000-L is designed to automate liquid sample pretreatment steps in analytical workflows, providing intelligent, simplified, accurate, and efficient preparation for subsequent sample analysis.

Versatile Functions

- Automated weighing, solid-liquid dissolution, aliquoting, dilution and standard preparation, extraction and filtration, heating and synthesis, liquid-liquid extraction.

Compatible with High-Viscosity Samples

- Equipped with an industrial-grade weighing module for gravimetric liquid handling with an accuracy of ±0.1 μL.
- Dual mixing modes: vortex and vertical oscillation, compatible with samples up to 200,000 CPS.

Ideal for Volatile and Hygroscopic Samples

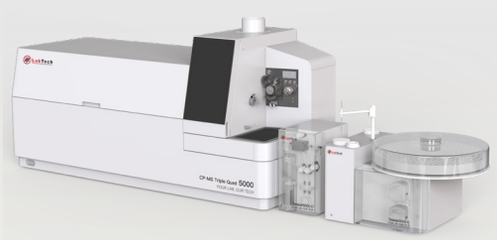
- Automated lid opening and closing to prevent moisture absorption or volatilization.
- Dual-position lid control doubles efficiency; compatible with 2 mL vials, blood collection tubes, headspace vials, and centrifuge tubes.
- Multi-channel reagent addition system supports more than 8 different solvents.

Corrosion-Resistant Design

- Work chamber made of corrosion-resistant polypropylene (PP), suitable for use inside ultra-clean fume hoods.
- Exposed metal components are protected with PTFE or similar anti-corrosion coatings.

TotaLab5000-SD Fully Automatic Intelligent Sample Preparation and Injection System (Semiconductor)

The TotaLab5000-SD is an automatic intelligent system designed for sample preparation and injection, primarily used in the online detection of metal impurities in semiconductor-grade wet chemicals, electronic specialty gases, and wafer surfaces. Featuring a valve-less flow path design, the system achieves an ultra-low background level of less than 1 ppt.



- "More" – Supports online standard curve generation, online sample injection, online quality control, online absorption of specialty gases, and more comprehensive functions.
- "Faster" – Capable of preparing a 5-point standard curve for 30 elements such as K, Ca, and Na in just 25 minutes.
- "Better" – Utilizes a valve-less flow path and PFA++ materials, ensuring background levels <1 ppt and excellent analytical performance.
- "More Economical" – Enables automatic online standard preparation without the need to clean standard containers or consume excess high-purity reagents, significantly reducing costs.

TotaLab5000-D Fully Automatic Online Standard Curve Preparation System

- Ultra-pure PFA flow path with background levels lower than 1 ppt.
- Online standard curve preparation solves the pain point of manual errors in ppt-level calibration.
- No need for standard containers, reducing high-purity reagent consumption to zero.
- 5-point standard curve calibration completed in 25 minutes, eliminating the need for container cleaning and manual sample preparation.
- Modular design allows for standalone connection to ICP-MS or series connection with multiple modules.

TotaLab5000-S Fully Automatic Sample Injection System

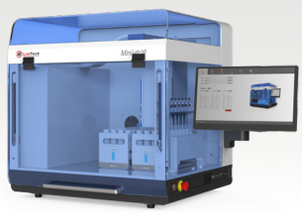
- Multiple high-throughput sample trays available in 89, 96, and 225 positions.
- Dual-channel continuous overflow needle washing station, with two cleaning reagents switchable as needed.

Nuclide Separation, Purification, and Detection Solutions

Isotope-N8 Automatic Nuclide Separation and Purification System

- 8 channels operate simultaneously.
- Corrosion-resistant platform with integrated ventilation system.
- Specially designed injection needle prevents corrosion and deformation.
- No air enters the extraction column during the experiment; the column remains continuously wet.
- Complete sample loading with no loss.
- Multi-step cleaning tank effectively cleans the injection needle to prevent cross-contamination.
- Software-controlled system with built-in programs for one-click operation.

The Isotope-N8 delivers target reagents to the extraction column via a high-precision injection pump and valve assembly. The automated platform performs column conditioning, sample loading, sample bottle cleaning, rinsing, and elution. Integrated with online control software, the system enables rapid and efficient separation and purification of radionuclides.



Isotope-50C1 Nuclide Co-precipitation Separation System

- Ultra-large sample processing capacity — handles up to 50 L in a single run with a specially designed mixing paddle to ensure thorough reaction.
- Combines injection and peristaltic pumps for precise reagent dosing.
- Fully corrosion-resistant system design ensures long service life.
- Specialized cellulose filter cartridge with high pressure resistance to prevent sediment loss.
- Precipitate is separated via vacuum filtration without delay.
- Internal spray cleaning technology eliminates the need for disassembly.
- Compact design with a small footprint for easy transport and deployment.
- Fully automated operation with one-click starts.

The Isotope-50C1 is an integrated, automated device for radionuclide concentration, enrichment, and separation. It combines sample delivery, impurity removal, water acidification, carrier and precipitant dosing, and precipitation collection—all in one system. It enables rapid enrichment of radionuclides from large volumes of water samples, achieving the minimum detectable activity required by modern radiation measurement instruments.

Isotope-N1 Automatic Nuclide Separation and Purification System – Integrated Sample Preparation and Activity Measurement Device

- The system adopts an integrated design that combines nuclide separation and purification, sample preparation, and activity measurement. Modular construction allows flexible assembly and easy expansion.
- The automatic nuclide separation and purification platform supports 1–4 channels running in parallel, offering a simplified and efficient layout.
- Built with a chemically resistant platform for enhanced durability.
- Waste liquid is managed through a closed-loop peristaltic pump system, preventing leaks and ensuring user safety.
- Use of precision pipette needles during operation minimizes the generation of experimental waste.
- Can be customized with a liquid scintillation counter and other analytical instruments.

The Isotope-N1 integrates an automatic nuclide separation and purification system, low-background alpha/beta counter, and control software—providing a "one-stop" solution for nuclear separation, purification, sample preparation, and activity measurement.

Clean and Environmental-friendly Laboratory Solutions

Ultra-Clean Laboratories

Ultra-clean laboratories play a crucial role in the field of mass spectrometry, whether for HR-ICP-MS, HR-MC-ICP-MS, TIMS, GD-MS, ICP-MS, or gas isotope mass spectrometry instruments such as the MAT 253, Delta XP, and Delta AD. These laboratories are essential not only for meeting the operational requirements of the instruments but also for ensuring the accuracy and precision of experimental results.

As research demands continue to grow, the adoption of high-precision instruments is on the rise. However, when acquiring such advanced equipment in large quantities, the specific environmental requirements of the laboratory are often overlooked. It is critical to consider not only the instruments themselves and their auxiliary rooms, but also the sample pretreatment stages—such as reagent preparation, ultrapure water production, precise weighing, and sample processing. Key environmental considerations include:

- Temperature and humidity control.
- Cleanliness levels and pressure differentials.
- Purification and air conditioning systems.
- Interior materials (low-background, anti-static, and corrosion-resistant).
- Electrical infrastructure (independent grounding, UPS systems, and so on).
- Gas supply quality (safety, continuity, and purity assurance).

Clean and Environmentally-friendly Laboratory Solutions

Overall Laboratory Planning

Laboratory design and planning is a complex systems engineering task that involves multiple disciplines and requires a solid understanding of both laboratory operations and architectural principles. Whether for new construction, expansion, or renovation projects, it's not just about choosing the right instruments and lab furniture. Comprehensive laboratory planning includes rational layout and floor design, as well as infrastructure elements such as electrical systems (both high and low voltage), water supply and drainage, gas distribution, ventilation, air conditioning, air purification, safety systems, and environmental protection measures.

Reagent Cabinets

Reagent cabinets, primarily used to store commonly used chemicals, are available in polypropylene (PP), steel, and wood, each of which are selected based on the functional needs of the laboratory. Ventilation options are customizable based on specific customer requirements.

Laboratory Benches

Laboratory benches are essential workstations commonly used in laboratories. They are generally classified as central benches or side benches based on their positioning, and by material into fully wooden, steel-wood, all-steel, and PP types. Serving as platforms for instruments and experimental activities, they are widely used for solution preparation, container cleaning, and various other laboratory tasks.

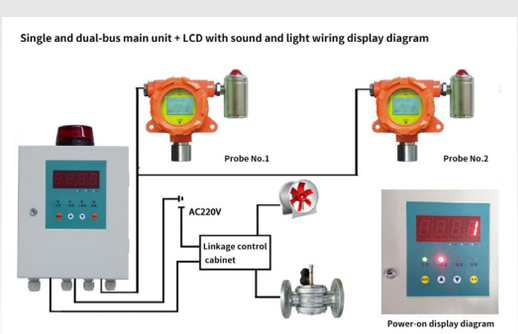
Fume Hood (PP/Steel)

Fume hoods are an essential piece of analytical laboratory equipment used for sample pretreatment and play a critical role in ensuring a safe and contamination-free working environment for personnel. Depending on the application and environmental conditions, fume hoods can be categorized into PP (polypropylene) fume hoods, all-steel fume hoods, and stainless-steel fume hoods.

Chemical Safety Cabinet

Chemical safety cabinets, also referred to as a Class 100 clean cabinet, are primarily used during the pretreatment stage of trace and ultra-trace analysis to ensure a contamination-free environment. It provides a reliable, contamination-free, and low-background local working environment, effectively preventing environmental contamination of samples and ensuring the accuracy of analytical results.

Laboratory Gas Supply System



Laboratory gas sources are centralized and managed independently, with clear separation between hazardous, flammable, explosive, and inert gases. The gas supply room is equipped with continuous 24-hour intermittent ventilation and emergency ventilation systems to ensure safety and compliance.

Consumables

CDS Empore™ Disk Solid Phase Extraction Products

CDS Empore™ disk SPE products are chromatographic disks created by embedding sorbent particles within an inert polytetrafluoroethylene (PTFE) matrix. Visually similar to filtration disks, Empore™ SPE disks are specifically designed for the extraction, separation, purification, and concentration of target analytes from samples.

- Sample loading speeds up to 700 mL/min.
- Elution volumes reduced to 1/3 of those in traditional SPE.
- Reproducibility improved by 10–15% compared to conventional SPE.
- Sorbent loss reduced to 1/10 that of traditional SPE cartridges and 96-well plates.

Built on Empore™ disk technology, the Empore™ product line includes a wide variety of formats -SPE Disks, SPE Disk Cartridges, 96-Well Plates, SPE Stage Tips, SPE Filters, and Spin Columns – designed to meet the needs of diverse application areas.

Organic Sample Preparation Consumables

Organic sample preparation consumables include EZsep™ solid-phase extraction, QuEChERS, SPME, and µSPE products. Additionally, parts, accessories, and consumables are available for Thermal Desorption, HPSE, and evaporators.

Inorganic Sample Preparation Consumables

Inorganic sample preparation consumables include those for microwave digestion, electrothermal digestion, high-temperature ashing, and high-pressure digestion vessels. Accessories for various microwave digestion and electrothermal digestion instruments are also available.

Air Monitoring Consumables

Air monitoring consumables include Thermal Desorption tubes, solvent desorption tubes, aldehyde/ketone collection tubes, thiol-impregnated cotton straps, activated carbon mercury traps, gold-coated mercury traps, PUF plugs, and a variety of sampling disks.

Consumables for Organic Elemental Analyzers

Consumables for organic elemental analyzers include a wide range of high-quality accessories such as sample containers (tin cups, silver cups), reaction reagents (oxidants, reductants, drying agents, and so on), reaction vessels (oxidation tubes, reduction tubes, absorption tubes, and so on), and certified reference materials.

Consumables for Inorganic Elemental Analyzers

Accessories for inorganic elemental analyzers include sample injection needles, pump tubing, nebulizers, spray chambers, torches, RF coils, cones, skimmers, temperature-controlled chambers, sample introduction systems, argon humidifiers, nebulizer cleaning tools, and other support equipment for ICP-MS and ICP-OES instruments.

CDS Empore™ Disk Solid Phase Extraction Products

CDS Empore™ disk solid phase extraction (SPE) products are chromatographic disks created by embedding sorbent particles within an inert polytetrafluoroethylene (PTFE) matrix. Visually similar to filtration disks, Empore™ SPE disks are specifically designed for the extraction, separation, purification, and concentration of target analytes from samples.

By minimizing the spacing between sorbent particles, these disks offer enhanced adsorption efficiency, allowing effective extraction with less sorbent material. Additionally, the innovative design of Empore™ disks eliminates problems such as channeling and voids, and ensures no shedding of sorbent particles during use.

Empore™ solid phase extraction (SPE) disk cartridges and well plates combine multi-layer filtration with Empore™ disk SPE technology to maximize sample loading speed and minimize elution volume.

- Sample loading speeds up to 700 mL/min.
- Elution volumes reduced to 1/3 of those in traditional SPE.
- Reproducibility improved by 10–15% compared to conventional SPE.
- Sorbent loss reduced to 1/10 that of traditional SPE cartridges and 96-well plates.

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SPE Disk	SPE Well Plate	SPE Disk Cartridge
		
SPE Stage Tip	**SPE Filter**	**SPE Spin Columns**
		

CDS Empore™ SPE Sorbent Types

Empore™ extraction disks are available with a variety of sorbent types, covering a wide range of solid phase extraction applications. The specific types and application guidelines are shown in the table below:

Category	Mechanism	Target Compounds	Matrix System	Sorbent Type
Reversed Phase	Non-polar Interactions / Van der Waals Forces / π–π Interactions / Secondary Interactions	Hydrophobic or Polar Compounds	Aqueous or Organic Solutions	C8, C18, UR, SDB-XC, Activated Carbon, Oil & Gr EAse
Mixed Mode	Ionic Bonding / Non-polar Interactions / Polar Interactions	Charged, Hydrophobic or Polar Compounds	Aqueous or Organic Solutions	MPC, UR, SDB-RPS
Ion Exchange	Ionic Bonding	Charged Compounds	Aqueous or Non-polar Organic Matrices	Cation, Anion, Chelating, SDB-RPS

Ordering Information - SPE Disk

Sorbent	Suggested Application	EPA Method	Disk Size (mm)	Quantity	Product Number	Catalog Number
C8 HD	Moderately nonpolar	549.1, 549.2	47 90	20 / 60 10 / 30	98-0604-0214-0 98-0604-0215-7	2214 2314
C18 HD	Highly nonpolar	506, 507, 508.1, 525.5, 532, 550.1, 553, 608, 1613B	47 90	20 / 60 10 / 30	98-0604-0217-3 98-0604-0218-1	2215 2315
C18 SD Fast Flow	Highly nonpolar	--	47 90	20 / 60 10 / 30	98-0604-0220-7 98-0604-0221-5	2215FF 2315FF
SDB-XC	Water-soluble, moderately polar analytes	515.2, 525.3, 526, 527 553, 3535	47 90	20 / 60 10 / 30	98-0604-0223-1 98-0604-0224-9	2240 2340
SDB-RPS	Moderately nonpolar and cation exchange	529, 8095 8141, 8330	47 90	20 / 60 10 / 30	98-0604-0226-4 98-0604-0227-2	2241 2341
SDB-XD	Non-ionic surfactants	--	47	20 / 60	98-0604-0240-5	2242
Cation-SR Excahnge	Metals, amines	--	47	20 / 60	98-0604-0232-2	2251
Anion-SR Exchange	Chromium, Arsenic, Selenium, Carboxylic Acids, etc.	548.1, 552.1	47 90	20 / 60 10 / 30	98-0604-0229-8 98-0604-0230-6	2252 2352
Oil & Grease	Nonpolar, dirty samples	1664	47 90	20 / 60 10 / 30	98-0405-0062-5 98-0405-0063-3	2270 2370
Chelating	Divalent metals and other cations	--	47	20 / 60	98-0604-0238-9	2271
Activated Carbon	N-nitrosodimethylamine (NDMA), water-soluble and volatile organic compounds	--	47 90	20 / 60 10 / 30	98-0604-0235-5 98-0604-0236-3	2272 2372
Strontium	Strontium isotope 90	DOE Method RP515	47	20 / 60	98-0405-0064-1	3290
Radium	Radium isotopes 226 and 228	903.1, 904.0 RA-195, Ra-295, Ra-395	47 90	20 / 60 10 / 30	98-0405-0065-8 98-0405-0068-2	3291 3391
Technetium	Technetium Isotop 99	DOE Method RS551, TC-196	47	20 / 60	98-0405-0066-6	3292
Cesium	Cesium Isotop 137	--	47	20 / 60	98-0405-0067-4	3293
MPC-SD	Moderately nonpolar and ionized analytes	--	47 90	20 / 60 10 / 30	98-0604-0270-1 98-0604-0271-3	2230 2330
8270 sorbent	--	--	47	20 / 60	98-0604-0246-0	2273
Graphite Carbon	--	--	47	20 / 60	98-0604-0248-2	2274
HLB-SD	Moderately nonpolar to moderately polar analytes	--	47 90	20 / 60 10 / 30	98-0604-0250-1 98-0604-0251-3	2280 2380
MCX-SD	Mix-mode cation	--	47 90	20 / 60 10 / 30	98-0604-0253-5 98-0604-0254-7	2281 2381
MAX-SD	Mix-mode anion	--	47 90	20 / 60 10 / 30	98-0604-0256-2 98-0604-0257-4	2282 2382
WCX-SD	Mix-mode weak cation	--	47 90	20 / 60 10 / 30	98-0604-0259-6 98-0604-0260-8	2283 2383
WAX-SD	Mix-mode weak anion	--	47 90	20 / 60 10 / 30	98-0604-0262-9 98-0604-0263-0	2284 2384
RP-01	Non-ionic surfactants	--	47	20 / 60	98-0604-0276-0	2265

HD = High Density

SD = Standard Density

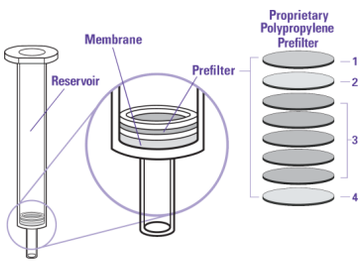
SDB = Styrenedivinylbenzene

RPS = Reverse Phase Sulfonated

HLB = Hydrophilic Lipophilic Balance

CDS Empore ™ Solid Phase Extraction Disk Cartridge

The CDS Empore™ SPE disk is secured at the bottom of a medical-grade polypropylene cartridge tube using a compression ring. Integrated above the disk is an 8-layer filtration system composed of polypropylene microfiber filter layers with three different pore sizes (labeled 1–3). The topmost layer (1) has the largest pore size, followed by an intermediate layer (2), and five layers with the smallest pore size (3) forming a composite filtration layer at the bottom. Beneath all filtration layers, a porous polypropylene support disk (4) provides structural reinforcement.



Selection of CDS Empore™ Solid Phase Extraction Disk Cartridge:

Extraction Disk Cartridge Type	General Cartridge Selection Guide	
	Suitable Sample Types	Operating Conditions
4mm/1mL	• Miniaturizes SPE. • Ideal for 0.05 to 0.5 mL sample volumes. • Fast throughput using automation.	• Elution volumes are small and range from 100-200 uL.* • Small disk surface area results in slow flow characteristics if using vacuum. • Centrifugation recommended as processing method.
7mm/3mL	• Most commonly used and versatile in size. • Typically used for 0.5 to 2 mL sample volumes. • Fast throughput using automation.	• Elution volumes range from 200-400 uL.* • Interchangeable with 100mg/1mL packed SPE cartridges.
10mm/6mL	• Used for larger sample volumes of several milliliters. • Higher capacity.	• Elution volumes range from 600-1000 µL.* • Faster flow characteristics due to larger disk surface area.
*The elution volume depends on the affinity of the analyte for the chosen sorbent and the strength of the elution solvent.		

Ordering Information - Silica-Based Sorbents

Sorbent	Suggested Application	Size	Quantity	Product Number	Catalog Number
C8-SD	Moderately nonpolar analytes	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0191-0 98-0604-0192-8 98-0604-0193-6 98-0604-0194-4 98-0604-0195-2	4114SD 4214SD 4214SD2 4314SD 4314SD2
C8-HD	Moderately nonpolar analytes	1 mL	100 / 300	98-0604-0188-6	4114HD
C18-SD	Strongly nonpolar analytes	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0197-7 98-0604-0198-5 98-0604-0196-9 98-0604-0199-3 98-0604-0200-1	4115SD 4215SD 4215SD2 4315SD 4315SD2
Mixed Phase Cation (MPC)	Moderately nonpolar to moderately polar analytes	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0180-9 98-0604-0181-7 98-0604-0182-5 98-0604-0183-3 98-0604-0184-1	4130SD 4230SD 4230SD2 4330SD 4330SD2

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Ordering Information - Polymer-Based Sorbents

Sorbent	Suggested Application	Size	Quantity	Product Number	Catalog Number
SDB-XC	Moderately nonpolar analytes plus pi-pi interactions	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0201-7 98-0604-0202-5 98-0604-0209-8 98-0604-0203-3 98-0604-0204-1	4140HD 4240HD 4240HD2 4340HD 4340HD2
SDB-RPS	Moderately nonpolar and cation exchange	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0205-6 98-0604-0206-4 98-0604-0210-1 98-0604-0207-2 98-0604-0208-0	4141HD 4241HD 4241HD2 4341HD 4341HD2
HLB	Moderately nonpolar to moderately polar analytes	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0851-9 98-0604-0852-5 98-0604-0853-3 98-0604-0854-1 98-0604-0855-7	4180HD 4280HD 4280HD2 4380HD 4380HD2
Anion-SR (SAX)	Chromium, Arsenic, Selenium, Carboxylic acids, etc.	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0501-0 98-0604-0502-8 98-0604-0211-3 98-0604-0503-6 98-0604-0504-4	4152HD 4252HD 4252HD2 4352HD 4352HD2
Cation-SR (SCX)	Metals, amines	1 mL 3 mL 3 mL (2-layer) 6 mL 6 mL (2-layer)	100 / 300 50 / 150 50 / 150 30 / 90 30 / 90	98-0604-0505-7 98-0604-0506-5 98-0604-0212-3 98-0604-0507-3 98-0604-0508-1	4151HD 4251HD 4251HD2 4351HD 4351HD2
Universal Resin (UR)	A range of basic, neutral, and acid compounds	3 mL	50 / 150	98-0503-0153-4	4245SD
Chelating	Divalent metals and other divalent cations	6 mL	30 / 90	98-0604-0701-6	4371HD
NH_2 (2-layer)	Fatty acids, phospholipids glycerides	6 mL	30 / 90	98-0604-0108-2	4302SD2
Primary Secondary Amine (PSA; 2-layer)	Sugars, fatty acids, and other polar analytes	6 mL	30 / 90	98-0604-0116-2	4304SD2

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