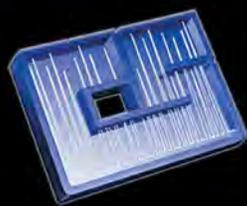


INSTRUMENTATION

for your Chromatography lab



**CHROMATOGRAPHIC
SPECIALTIES INC.**

CHROMATOGRAPHY INSTRUMENTATION

Chromatographic Specialties Inc. has been supplying chromatography products to the Canadian scientific community for nearly 60 years. We started packing GC columns in 1963 and have since evolved into a supplier of a comprehensive line of chromatography consumables and a broad base of instrumentation systems. With each step, we have supported the Canadian scientific community with excellent technical support and a high level of customer service.

In this brochure, we present our instrumentation systems and solutions. They are designed to simplify and automate your analytical lab environment.

Our Instrumentation Team is staffed with experts who are well-versed in chromatographic and sample preparation instrumentation. Not only are they able to recommend, install and service the equipment we offer, but they are also able to provide customization, turnkey solutions, and integration to other manufacturer's new or existing equipment.

If the system you are looking for does not exist, we can custom design and build it for you.

We're just a phone call (1-800-267-8103) or email (instrum@chromspec.com) away, why not contact us today to explore how we can help you solve your analytical challenges?



Left to right: Valérie Blais, Todd Crossman, Yves Bouchard, Brian Knapp

Systems

- GCs (high-end, portable, low-cost options)
- GC Sample Introduction (purge and trap, thermal desorption and more)
- HPLCs (analytical, portable, preparative, GPC, Biochromatography)
- Universal Autosamplers for GC and HPLC
- Sample preparation and automated extractions
- Dilution robots
- Gas generators
- ...and much more

Industries

- Environmental
- Pharmaceutical
- Foods and Flavours
- Petrochemical
- Cannabis
- Chemical
- Agriculture
- Industrial
- Forensic / Toxicological
- Nuclear

Instrumentation Support

Chromatographic Specialties Inc.'s experienced Instrumentation Team can provide:

- Free telephone consultations to help direct you to the solution that best suits your needs
- Quality GC, LC, and sample preparation instrumentation that is competitively priced
- Customized installations for unique requirements that no one else can or is willing to provide
- New system installation
- On-site service and training
- Remote support, troubleshooting and training options are available
- Fast response and service turnaround times, we can provide service at your facility or ours
- Recalibration services
- Cost effective service rates



Service and Repairs

Many of our suppliers have appointed Chromatographic Specialties Inc. as their authorized Canadian service and repair depot.

For most repairs we don't have to ship instruments beyond the Canadian borders, thereby avoiding unnecessary expenses and delays.



Turnkey Solutions

We excel at developing systems that are optimized, validated and ready to use for your specific application. Our specialists will install the instrument at your facility and train you on how to use it to get the results you need. You will be able to start analyzing samples right away, without worrying about complicated method development.

If you have any questions or issues after the installation, our team is always available to work with you.

We're not satisfied until you are!



Why Choose Chromatographic Specialties?

- We're a proud Canadian company!
- Competitive prices on all products; priced in Canadian dollars
- Products are shipped from our facility in Brockville, Ontario; you'll have no customs or border shipment issues
- Bilingual service – our Instrumentation, Technical Support, Sales and Customer Service Teams will be happy to assist you in either French or English



Free support by phone and email

We take pride in helping our customers; we are only a phone call or a click away. Contact us to discuss your customization and automation needs.

CUSTOMIZED SOLUTIONS

We specialize in designing custom analytical systems and providing solutions that are not commercially available in order to meet your specific application and requirements.

Our custom capabilities include:

- Modification of existing GCs and HPLCs
- Retrofit most GCs with new detectors, injectors, or autosamplers
- System and method automation for lab, industrial or field analyses
- Customization of instruments, electronics, software, configurations, or sample introduction
- System miniaturization
- Installation of gas generator systems
- ...and much more, call us!



If required, a non-disclosure agreement can be signed, allowing you to rest assured that your information will be kept confidential.

The following are a few examples of Customized and Turnkey Systems that have been developed and installed:

Gas Generators with Backup and Alarm Systems

We design and install gas generator systems, many with remotely located backup cylinders. Some even include a warning system that can send phone, email or text notifications when the backup has been engaged. (See page 31 for more information)

Process Chromatography Integration

For fully automated analyses, we can integrate chromatography systems to work seamlessly within industrial processes, including connecting it to Distributed Control Systems to allow remote monitoring.



Custom Multivalve GC with PDD and Pyrolysis Injector



Custom Process Analyzer with NEMA Enclosure and Integrated Touch Screen PC



Custom GC for Analysis of Trace Xenon in Atmosphere



Custom Sampling Device Integrated Into Custom GC

HPLC

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Throughout the brochure, look for these symbols. They'll provide information to illustrate how we can help you save time, money and effort...



Great ideas to help you and your lab reduce costs.



Contact our Instrumentation Team for more information.



Save time so you can focus on other tasks or process more samples.



Our professional in-house Instrumentation Specialists offer training, installation, maintenance and repair services.



Think Green! Help the environment by using less solvent or generating less waste.



New and improved technologies for enhanced performance and results.

From R&D to Production...

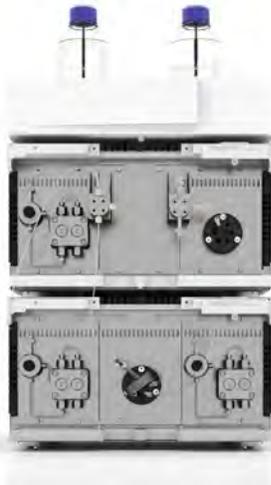
think **LNP** | think **KNAUER**



Lipid nanoparticles (LNPs) have shown to be the preferred delivery media for mRNA-based vaccines against the Corona virus. LNPs encapsulate and protect the delicate active ingredient and allow its transport to the target cells in the human body. Corona vaccines are the first large-scale use of mRNA and lipid nanoparticles in vaccination history.

KNAUER is world-renowned as a manufacturer of high-quality liquid chromatography systems. They have leveraged their expertise in high-pressure dosing, mixing and system engineering into the manufacture of production equipment for lipid nanoparticles.

KNAUER's Impingement Jets Mixing (IJM) technology has demonstrated precise and consistent performance for small and large-scale production of lipid nanoparticles. The encapsulation process of active pharmaceutical agents with lipids is based on impingement jets mixing technology, where two streams collide at high velocity in a jet mixing chamber. One of the streams contains the lipids in organic solvents and the other stream the active pharmaceutical ingredient (API) in water. The mixing at high velocity reduces the solubility of the lipids so that homogenous nanoparticles are formed.



IJM NanoScaler

The IJM NanoScaler contains 5 different impingement jet mixers, allowing researchers to determine the optimum encapsulation conditions before scaling up the process to run on a larger NanoProducer unit.

Each NanoScaler system contains three pumps. API solution is transferred via a loop to be mixed with the organic phase. Finally, the LNP mixture is quenched in a third mixer.

IJM DuoCore NanoProducer

Production systems are designed and optimized to meet customer's specifications and documentation requirements.

They are equipped with built-in software and all necessary interfaces for integration into the customer's own programmable logic controller (PLC) systems.

System installations in Class C clean rooms have been successfully carried out.

Production units are built on a stainless-steel frame with casters and are suitable for CIP cleaning procedures in pharmaceutical environments.



Knauer Azura® HPLC / UHPLC Systems

German engineering and quality at an affordable price...backed by a 2-year warranty.

Knauer has been the leader in the European analytical instrumentation market since 1962. We're excited to offer their products to Canadian scientists.

These modular HPLC / UHPLC systems allow you to configure the instrument you need for your application. Should your requirements change, it can easily be upgraded to provide flexibility and capability at a later date.



- Pumps: Isocratic, low pressure gradient or high pressure gradient - all with Knauer's patented piston backflush technology for extra-long life of moving parts
- Autosampler: 700 bar or 1000 bar, 14 or 104 position, 96- or 384-well plates, cooled or room temperature
- Detector: Options include UV-Vis single wavelength, UV-Vis multi wavelength, UV-Vis photodiode array, fluorescence, refractive index, electrochemical, conductivity, radioactive, optical rotation and mass spectrometer
- Optional modules: Column heater, 6-port valve for column switching, 16-port valve for fraction collection, fraction collector, waste sensor and more.
- Software options:
 1. Knauer mobile control for basic operation or educational needs
 2. Clarity Chrom for full functionality in standalone use
 3. Open Lab for complete 21 CFR part 11 compliance with networkable functionality
- Warranty: Industry-best 2-year parts and labour warranty with 24 hr express service available for critical operations (please inquire)
- Knauer's instruments are renowned for top-end specifications. Each module, including the pump, detector and autosampler, has the same or better specifications than the North American market leaders



Scan the QR Code for more information.



Instrumentation Support

Our professional in-house Instrumentation Specialists provide free expert advice, and affordable service and support.

- | | |
|---------------------------|---------------------|
| • Maintenance and repairs | • Replacement parts |
| • Installation | • Training |

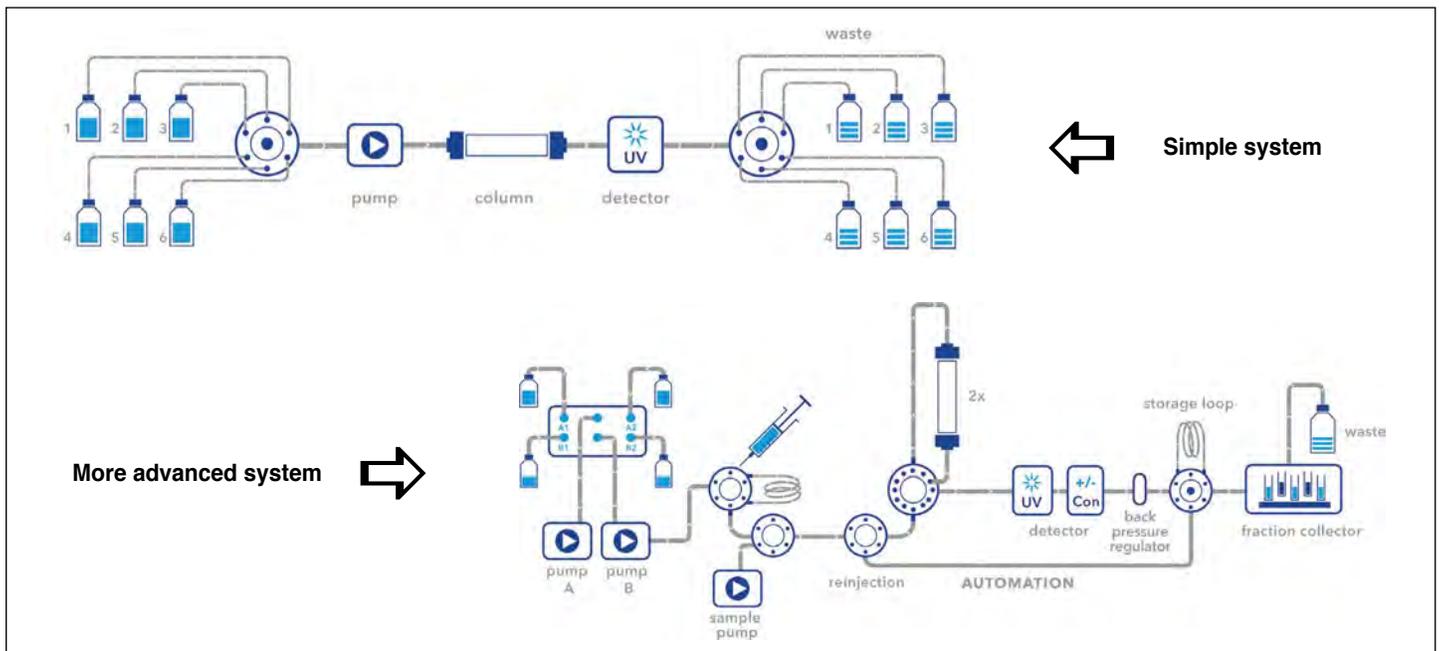


BIO HPLC PURIFICATION SYSTEM

Knauer Azura® FPLC Systems

The flexible protein purification platform.

You choose the method (size exclusion, affinity, ion exchange or hydrophobic interaction) and the purification strategy (capture, intermediate or polishing), this system does the rest.



- Buffer delivery: Pre- or post-pump gradient, from 0.1 to 1000 mL/min.
- Buffer selection: Upgradeable up to 24 buffers
- Sample injection options: Manual injection valve, sample pump to process up to 6 samples, autosampler
- Column selection: Choose either a 2-position valve for switching between 2 columns or a multifunction valve for up to 5 columns and reverse flow
- Detectors: Options include UV-Vis single wavelength, UV-Vis multi wavelength, UV-Vis photodiode array, fluorescence, refractive index, electrochemical, conductivity, radioactive, optical rotation, pH and mass spectrometer
- Fraction collection: Choose a fraction valve if you have large volumes to collect, or a fraction collector for many samples
- Pressure control: The system features automatic determination of pressure differentials with an action manager allowing the run to be stopped or the flow to be decreased as required
- Air sensor: Up to 4 air sensors can be installed per system
- User-friendly software allows the integrity of the system to be monitored; a run can be stopped in case of leakage
- Warranty: Industry-best 2-year parts and labour warranty with 24 hr express service available for critical operations (please inquire)
- Knauer's instruments are manufactured in Germany and renowned for top-end specifications. Each module, including the pump, detector and autosampler, has the same or better specifications than the North American market leaders



Contact our Instrumentation Team to discuss the system that best suits your needs.

Knauer Azura® Preparative HPLC and Simulated Moving Bed (SMB) Systems

German engineered for maximum ruggedness and reliability.

From semi prep to pilot scale, from batch to continuous chromatography, Knauer offers a wide range of preparative HPLC solutions.

These systems can be configured with different injectors, including autosamplers, manual valves or feed pumps.

They can also be configured with different collection options, including fraction collectors and collection valves.



- The pumping system is available with high or low pressure gradients, allowing it to run from 50 to 1000 mL/min.
- All pumps have removable self-contained heads - upgrading or maintenance is as simple as swapping the damaged one out for a new one
- Most detectors are available with preparative flow cells or with optional fiber optic flow cells that can be installed directly after the column
- Specially designed MS unit for mass specific collection and fractionation
- User-friendly software allows the integrity of the system to be monitored; a run can be stopped in case of leakage
- An SMB (simulated moving bed) version of the system is available for ultimate productivity, efficiency and yield
- Warranty: Industry-best 2-year parts and labour warranty with 24 hr express service available for critical operations (please inquire)

POST COLUMN DERIVATIZATION SYSTEMS

Simplify difficult analyses like amino acids, antibiotics, glyphosates, shell fish toxins and more.

Post-column derivatization is used to increase sensitivity and selectivity in HPLC analyses. The technique renders visible certain compounds that are normally invisible, allowing you to increase the sensitivity of detection by several orders of magnitude in favourable cases. Typically, a chemical reaction is used to produce a strong colour or fluorescence. Most reagents are selective for a particular class of substances, so analytes of that class are more easily detected against a complex background.



Pickering Laboratories Vector PCX

- All-in-one application driven solution - each unit is specifically designed for a particular application, resulting in excellent chromatography with minimal dead volume
- Each pump is independently adjustable
- Piston backflush increases seal life
- Heated reactor coil functions from 10°C above ambient to 140°C
- Reagent bottle is maintained under a nitrogen blanket for extended reagent life
- Reagent backflow prevention system is triggered in case of HPLC pressure drops
- A safety system triggers a shutdown of the unit when pressures increase or decrease outside of expected ranges



Pickering Laboratories Onyx PCX

- Turnkey system with guaranteed chromatography
- Best performing system in the industry
- Only post-column system with built-in column oven
- Uses syringe pump technology to eliminate pump pulsation and maximize sensitivity
- No check valve for reduced maintenance
- Quick-change reactor cartridge allows the unit to be used for multiple applications
- All fluidics are located on the front panel for quick access and easy maintenance

Contact our Instrumentation Team to discuss your post-column reaction challenges. We'll work with you to select the system best suited for your particular application.



POINT-OF-NEED MASS SPECTROMETRY FOR HPLC ANALYSIS

Real-time, point-of-need mass spectrometry (MS) enables faster decision-making during your analytical workflow. Providing immediate insights from complex sample and reaction information, Microsaic's MS will enable you to achieve your desired product quality, optimise processes, and ensure faster product and process compliance.

Microsaic are pioneers in miniaturized mass spectrometry, their patented chip-based technology enables analytical detection and characterization for most HPLC analyses.

Easy-to-use and maintain, with no prior knowledge of MS required, their technology gives users and process operators access to continuous MS detection data at any step in their workflow.

The 4500 MiD® combines the mass spec itself, plus the necessary vacuum system, electronics and computer...all inside one compact box:

- Single quadrupole with a mass range of 50 - 1400 m/z
- Integrated software designed for rapid set up and data analysis
- Fully integrated system, with no external vacuum pumps, and no external PC
- Small footprint enables deployment anywhere within laboratory or processing facilities
- Seamless integration with nearly all HPLC systems and 3rd party software platforms
- Easy-to-use with simple 'plug and play' consumables provide an ease of use for maintenance with no alignment
- **Low maintenance costs** with completely tool-less front-end
- Lower operating cost than conventional systems due to reduced power requirements, low solvent consumption and lower N₂ usage

With a mass range to 1400 m/z, the 4500 MiD® can be used for a broad range of pharmaceutical and biopharmaceutical applications, including both analytical and preparative HPLC analyses.

When combined with the Microsaic MiDas™ compact interface sampling module (designed for both flow and direct injection monitoring at the point of reaction or processing), it can be easily deployed in a variety of online, at-line and off-line applications. MiDas™ provides:

- Direct injection analysis via an optional motorised 2-position 6-port valve
- Make-up pump and active splitter dilutes the sample from the reaction flow for analysis in the detector
- Automated sample sequences include flushing to eliminate carry-over



Miniaturized mass spectrometry enabled by patented chip-based technology



CHROMATOGRAPHY DATA SOFTWARE



Affordable and flexible data acquisition and universal instrument control!

DataApex Clarity™ Station

Economical, Universal, Easy-to-Use with all the features you expect!



Economical:

- Clarity™ is approximately 1/3 the cost of the major instrument manufacturer's offerings
- Clarity™ upgrades are free of charge (no additional costs when you upgrade your computer systems)
- Up to 4 independent chromatography systems can be simultaneously controlled on the same computer
- An inexpensive offline processing license allows you to review data at your desk (free for educational institutions)

Scan the QR code for a free demo download.



Scan for free demo download

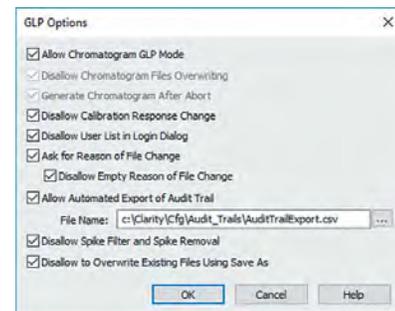
Universal instrument control:

- Clarity™ provides integrated control for most brand name GCs and HPLCs (over 600 different instruments); imagine controlling all of your instruments with just one software
- Extension modules for PDA, GPC, Mass Spectrometry as well as GLP system suitability are available
- Clarity2Go™ module for iPhone or Android mobile devices allows for remote monitoring from multiple installations of Clarity™



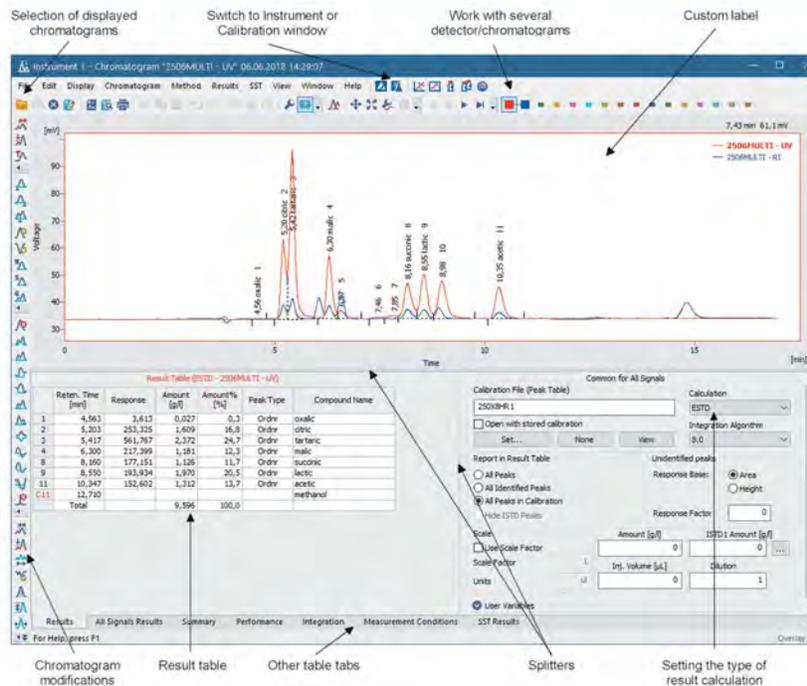
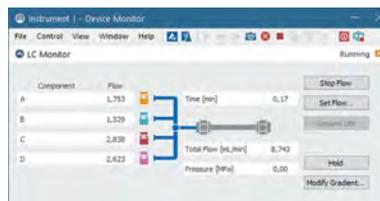
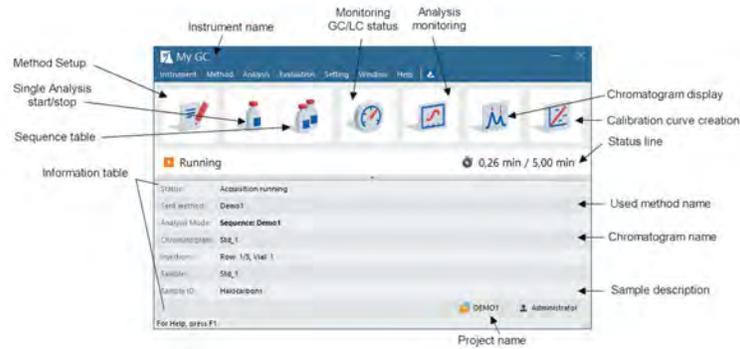
GLP Compliance:

Clarity™, Clarity™ EA and Clarity™ Offline software includes tools supporting GLP / GMP practices. These tools enable configuration of the chromatography station to comply with the requirements of the 21 CFR Part 11 directive.



Features:

Each intuitive pictogram controls one main function of the chromatography station.



Are you thinking of upgrading or replacing your current Chromatography Software?

Contact us for a quote, demo or evaluation version of Clarity™ or Clarity™ Lite; our Instrumentation Specialists can also provide on-site demonstrations tailored to your specific needs.

PORTABLE HPLC SYSTEMS

The Axcend Focus LC® is a revolutionary, shoebox-sized HPLC. Don't let its small size fool you; with a pressure range of up to 10,000 psi, nano-flow capillary columns, and single or dual UV-detectors for on-column detection, Axcend's sleek and miniaturized system delivers results on par with today's leading HPLC platforms.



The Axcend Focus LC® features:

Lightweight and portable: At under 18 pounds, this instrument is literally hand-portable and can be used anywhere. Small solvent and waste vials are enclosed inside the unit, so you don't have to worry about transporting separate solvent or waste bottles.

A unique cartridge system: Easy-to-use cartridges that contain UV-detectors and capillary columns supporting flow rates as low as 800 nL/minute. A cartridge (and consequently the column) slides easily into the Axcend Focus LC® and is then hand-tightened into place.

Dramatic Reduction in Solvent Use and Costs: By using small-diameter capillary columns with on-column UV Absorption detection at extremely low flow rates, you will see a dramatic reduction in solvent use of up to 90% or more. This translates into huge savings in solvent costs.

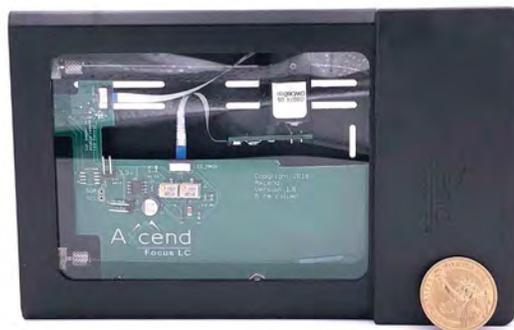
Lower Purchase Cost: The Axcend Focus LC features an extremely affordable price point vs. traditional HPLCs, delivering even more value to you.

A Truly Green HPLC: Such a huge reduction in solvent usage and waste production means that the Axcend Focus LC® is environmentally unmatched — a truly “green” HPLC that is “friendly” to the planet, you and your team.

The system can also be coupled with a small single quad MS to keep the footprint as small as possible while delivering the data that your laboratory requires. Contact us for information on MS systems that pair nicely with the Axcend HPLC.



Axcend® Focus LC Cartridge



For additional information, view the Axcend Focus LC® Brochure at www.chromspec.com/pdf/e/ax01.pdf



Our roots date back to 1963 when we began manufacturing GC columns and supplying chromatographic product to Canadian laboratories. Nearly 60 years later we are a well-known and trusted source of product and support for separation scientists. Think of us as your full-service chromatography partner!

In addition to providing the quality HPLC instrumentation services and product that is detailed in the preceding pages, we have access to many world-class suppliers of consumables products, including:

- Columns
- Filters
- Lamps
- Safety Caps
- Instrument Parts and Accessories
- Autosampler Vials and Sample Handling Glassware
- Syringes and Accessories
- Valves, Tubing and Fittings
- Chemical Reference Standards and Reagents
- Tools
- And much more...



OPTIMIZE
TECHNOLOGIES



CHROMSPEC™

Need Expert Advice?

Our friendly and knowledgeable Technical Support and Instrumentation Teams consist of experienced chromatographers who understand the challenges facing separation scientists. They are available to assist you with everything from method reviews and application support to instrumentation needs and troubleshooting. This is a free service for our customers, we will not charge for helping to resolve a chromatography problem.

Technical Support

Phone: 1-800-267-8103
Email: tech@chromspec.com

Instrumentation Team

Phone: 1-800-267-8103
Email: instrum@chromspec.com



You know
Chromatographic
Specialties
as a source of...

- Quality Instrumentation
- Great Advice
- Exceptional Customer Service

But did you know –
That we also have an
extensive offering of...

- GC
- HPLC
- and Sample Preparation Consumables Products?

Liquid Chromatography

Introducing the newest GC and GC/MS Instrumentation with specifications that meet or exceed the industry leaders, at considerable savings!

Chromatographic Specialties is pleased to introduce YOUNG IN's newest lines of GC and GC/MS instrumentation to the Canadian scientific community.

With over 30 years of chromatographic manufacturing experience, YOUNG IN Chromass CO., Ltd. has continuously evolved their line of GC and GC/MS instrumentation. Their goal is to provide scientists with feature-rich, reliable analytical instrumentation at reasonable prices. **Their accumulated experience in gas chromatography combined with Chromatographic Specialties' devotion to customer satisfaction creates a one-stop solution for your gas chromatographic instrumentation needs.**

Their newest offering, the ChroZen GC and GC/MS systems feature substantially enhanced sensitivity and reproducibility, enabling more reliable and accurate data.



The new ChroZen GC System

Features

- Extended range of available detectors, including: FID, TCD, μ TCD, NPD, PDD, μ ECD, FPD, PFPD, PID, VUV, MS and TQ MS
- Enhanced Intuitive 10.1" touchpad / LCD display with at-a-glance status of all components and parameters, including real time chromatogram display
- New UPC (Ultimate Pneumatic Control) to optimize flow control provides exceptional accuracy and precision (RT Repeatability SD < 0.0008 min.)
- Increased sensitivity through improved EMI shielding and advanced electronics design
- SmartFlow Kit for backflush, 2D GC or heart-cut applications
- Built-in H₂ detector allows for safe use of hydrogen as a carrier gas resulting in superior productivity and sensitivity

YL-Clarity Software

YL-Clarity is a flexible, powerful and intuitive Chromatography Data Station providing easy control of the ChroZen GC and GC/MS. **Options for control and acquisition from other manufacturers GCs, HPLCs, autosamplers and accessories are available.**

- 21 CFR Part 11 Compliant with manager configured user accounts, audit trails and digital signatures
- Data Acquisition for up to four independent chromatographs and up to twelve channels
- Allows overlay of a virtually unlimited number of chromatograms including subtraction/addition
- Full management of integration, calibration, post-run functions and custom user calculations
- Fully compatible with Wiley and NIST MS libraries to automatically identify compounds
- Allows the ChroZen GC/MS to run scan mode and SIM mode simultaneously in a single chromatographic analysis

The new ChroZen GC/MS is an innovative single quadrupole mass spectrometer designed to carry out qualitative and quantitative trace level analyses for unknown or complex samples. With its standout ultra-inert ion source, it minimizes contamination to ensure optimal repeatability and sensitivity

Features

- UEIS (Ultra Efficiency Ion Source) with enhanced lens and pre-filters to maximize efficiency of ionization
- Six spiral multipliers increase the linear output current to enhance sensitivity (SNR 2500:1, IDL <10fg)
- Wide mass range: 1.4 ~ 1,200 amu
- Rapid scan speed: ~ 20,000 amu/sec
- Scan, SIM and simultaneous Scan/SIM mode
- High-capacity turbo pump: 240 L/sec standard vacuum system for fast stabilization
- Double filament provides uninterrupted and stable analyses and minimizes instrument downtime



The ChroZen TQ GC/MS is the right solution to achieve greater insight into samples with extremely selective and sensitive data for quantitative and qualitative information. Its structural characteristics such as 180° curved collision cell and lens-free optics eliminate the interferences of co-eluting compounds and neutrons, minimizing maintenance and simplifying method setup to maximize ease of use.

Features

- 180° curved collision cell
- Active focusing ion guide
- Axial ion source
- EDR (Extended Dynamic Range) detection system
- Lens-free optics
- High Capacity Turbo dual stage pump (310 L/sec)
- Multi-axis (360°) noise cancelling ion path



Powerful GC/MS Libraries

Various GC/MS libraries are available depending on your specific applications. Libraries include information on each compound's spectra, chemical structure and retention index to produce the accurate and reliable data you expect.

GC/MS Data

Library	Wiley Registry 12 th Edition	NIST/EPA/NIH 2020	Wiley Registry 12 th / NIST 2020 GC/MS Total*
Spectra	817,000	350,000	1,008,000
Chemical Structures	785,000	350,000	1,056,000
Unique Compounds	668,000	306,000	843,000
Product Number	W9781119171027	W9781119750291	W9781119750338



WILEY

* Total GC/MS counts for WR12/N20 found from total WR12 plus N20 minus overlap.

Innovative trace gas analysis solutions!

LDetek MultiDetek 2

Flexible, turnkey, compact gas chromatographs for laboratory or industrial applications!

- Multi-column, multi-channel configurations available for fast parallel analyses
- Tunable plasma emission detector to optimize response and selectivity
- Optional TCD and FID detectors
- High performance diaphragm valves
- Multiple isothermal and programmable ovens
- From ppt to % sensitivity
- Built-in Windows 7 embedded PC with 8.4" touchscreen with user-friendly interface
- Wide range of communication protocols for remote control or connection to DCS



Available Options:

- Compact carrier gas purifier option to allow running low cost Argon or Nitrogen
- Optional stream selector with remote control
- Integrated dilution system (see page 17)
- Purge zones and monitoring systems for hazardous gases
- Explosion proof MultiDetek 2 EX chassis for hazardous environments
- Optional control with DataApex Clarity™ software (see page 10)

Choose from dozens of standard turnkey solutions or contact our Instrumentation Team to discuss custom applications and configurations.





LDetek Gas Dilution System

**Buying costly gas calibration standards?
Save money and downtime by mixing and diluting your own!**

A user-friendly gas dilution system that offers the flexibility to generate desired gas mixtures. It reduces the cost of having specific standards for each required blend.

- Automatic calculation of dilution concentrations
- Manual or automatic pressure controller
- Broad range of dilution ratios (up to 1000:1)
- Generate standards with concentrations down to ppb/ppt level
- Ideal for generating multi-point calibrations from a single standard
- Windows user interface through serial communication
- Multiple gas standard libraries available
- Optional integrated heated gas purifier generates ultra-high purity zero gas references



Restek ProFLOW 6000 Flowmeter

Measure flammable gases with a versatile ProFLOW 6000 electronic flowmeter.

The ProFLOW 6000 flowmeter is the only flowmeter you need for any type of chromatography gas measurement. This versatile device measures volumetric flow, so real-time measurements can be made for various types of flow paths and gases, including continually changing gas types. This portable unit is designed for easy handheld use, and the stand adds benchtop convenience. With its Ex rating, the ProFLOW 6000 flowmeter is designed specifically with explosive and flammable gases in mind, making it perfect for labs using hydrogen gas with their GCs.



Restek Electronic Leak Detector

Protect your wallet and GC with an electronic leak detector.

Liquid leak detectors can damage and contaminate your GC. The safest, most effective, and cleanest way to detect leaks in a gas chromatography system is to use a Restek electronic leak detector. Air leaks can cause expensive, irreversible damage to GC columns, and leaks within the gas management system and critical seals can cause expensive losses of high-purity gases. Be kind to both your pocketbook and GC — use a Restek electronic leak detector as part of daily routine maintenance.



The Restek Dynamic Duo Combo Pack includes the leak detector and the ProFLOW 6000 flowmeter.

GAS CHROMATOGRAPHS

Great performing GCs at a fraction of other manufacturer's prices.

Why choose SRI?



SRI GCs are typically half the cost of comparable systems on the market!

- Large selection of pre-configured systems for most conventional applications
- We specialize in building custom SRI GC configurations for unique or difficult analyses
- Rugged, portable systems for laboratory, field or industrial applications
- Choose from 16 different detectors with up to 6 mounted on a single GC
- Choice of 17 injector types with up to 5 on one GC
- 6 different chassis options
- Can be automated using HTA autosamplers for liquid, headspace and SPME (see pages 27-28)
- Every GC includes PeakSimple Chromatography Data System with free upgrades (Standalone PeakSimple Data Systems are also available)
- Each SRI GC comes with a 2-year parts and labour warranty and free technical support

SRI Instruments



SRI Model 8610

- Oven: Ambient to 400°C multi ramp programmable
- Dual oven: Model 8610D has dual ovens to accommodate a 4" column cage
- Vertical injector: Model 8610V can accommodate HTA autosamplers
- Columns: 7" cage for capillary columns or 1/4" and 1/8" packed columns
- Detectors: Can accommodate up to 6 detectors per GC
- Injection: On column injection included, 17 injection options available
- Software: PeakSimple for Windows XP, Win7, Win8 and Windows 10
- Dimensions: 18.5" W x 14.5" D x 13" H
- Oven size: 7.5" W x 7.6" D x 3" H
- Weight: 45 - 80 lbs. (20.5 - 36.4 kg)
- Warranty: 2-years parts and labour



More options, less money...

See how many options you can put under the RED lid. We can help you choose a configuration that will allow you to perform almost any GC analysis.

Have a unique application? No problem, we can custom build a GC to suit your requirements.

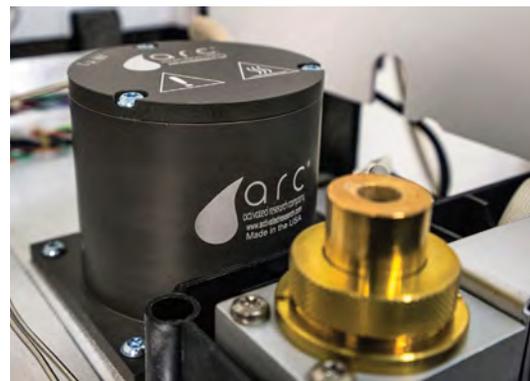
Polyarc® Reactors for GC-FID

Why use a methanizer when you can do so much more with Polyarc?



The Polyarc® is a breakthrough innovation that combines catalysis with 3D-printing to revolutionize GC-FID analyses. The Polyarc adds on to new or existing GC-FID systems and installs post-column and pre-detector to convert all organic molecules (including CO and CO₂) to methane for a truly uniform FID response. Since the detector is calibrated based on methane, costly standards and extended calibration times are eliminated.

Spend your time getting meaningful results rather than running calibration curves.



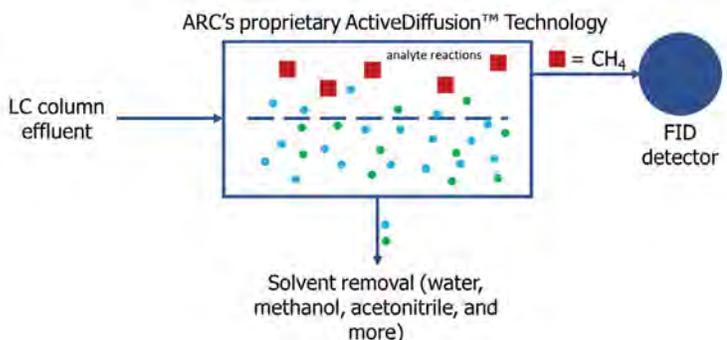
The Polyarc will:

- Provide a uniform carbon response with a 7-order of magnitude linear range from <100 ppb to 100% for nearly all organic compounds
- Speed up analyses and increase throughput by reducing calibration - the Polyarc allows for better data quality by eliminating common error introducing steps
- Increase sensitivity for compounds such as CO, CO₂, formic acid, formaldehyde, and compounds containing heteroatoms that traditionally dampen FID signals
- Unlike methanizers, the proprietary catalyst has an increased tolerance to sulfur-containing compounds
- Seamlessly integrates onto any GC with an FID detector and requires no additional software

Solvere™ Carbon Selective Detector for LC

A revolution in LC analysis.

- From ppm to % range
- Insensitive to gradient
- Buffer compatible
- Easy to use



Contact our Instrumentation Team for more information on how Activated Research Company's detector solutions and enhancements achieve better results in less time.

VACUUM ULTRAVIOLET (VUV) GC DETECTORS

VUV Analytics VGA-101 Vacuum Ultraviolet Absorption Detector

Reduces GC analysis times and improves identification of difficult analytes.

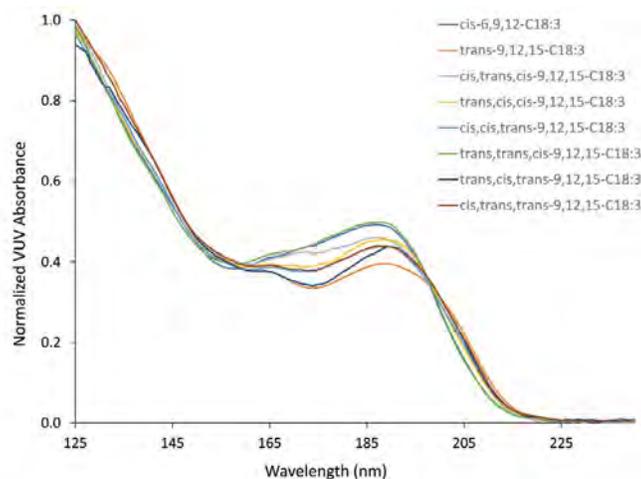


- Universal and selective detector with sensitive linear response for accurate quantitation
- Add on to an existing GC
- Unambiguous compound identification and quantitation, **including isomers**
- Powerful selectivity using spectral filters and deconvolution software
- Non-destructive analysis: no ionization means minimal sample degradation
- Predictable linear response using the absorption cross-section of analytes reduces calibration issues
- A spectral library that is constantly expanding, to which end users can add their own compounds
- Reliable and easy to use
- Applications are available for many of the toughest analyses in the fields of pharmaceuticals, foods and flavours, forensics, petrochemicals, agrochemicals and more



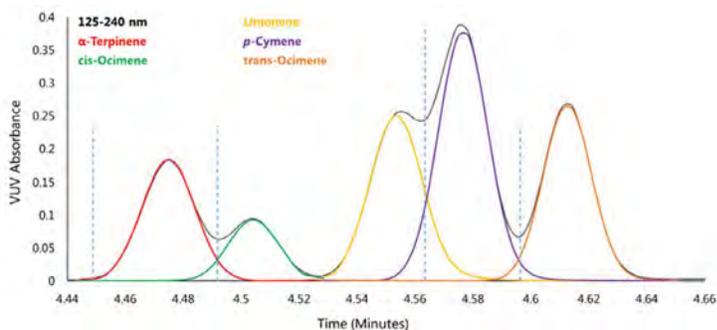
Difficult separations and coelutions are a thing of the past!

- Unique VUV spectra allow for differentiation of isomers and similar class compounds undifferentiated by Mass Spectroscopy
- Spectral filters in the powerful deconvolution software allow identification and quantitation of multiple components in coelutions
- Absorbance cross section allows for quantitation without external or internal standards



Isomers in Fatty Acid Methyl Esters (FAMEs) Analysis

Unique spectra of cis / trans isomers allow for unambiguous identification.



Deconvolution of Co-eluting Terpene Isomers

The chromatogram shows co-eluting terpene isomers "pulled apart" by the powerful VUV Vision software.

VUV Analytics PIONA+ Analyzer

Faster PIONA analysis by ASTM D8071 with the VUV PIONA+ Analyzer!

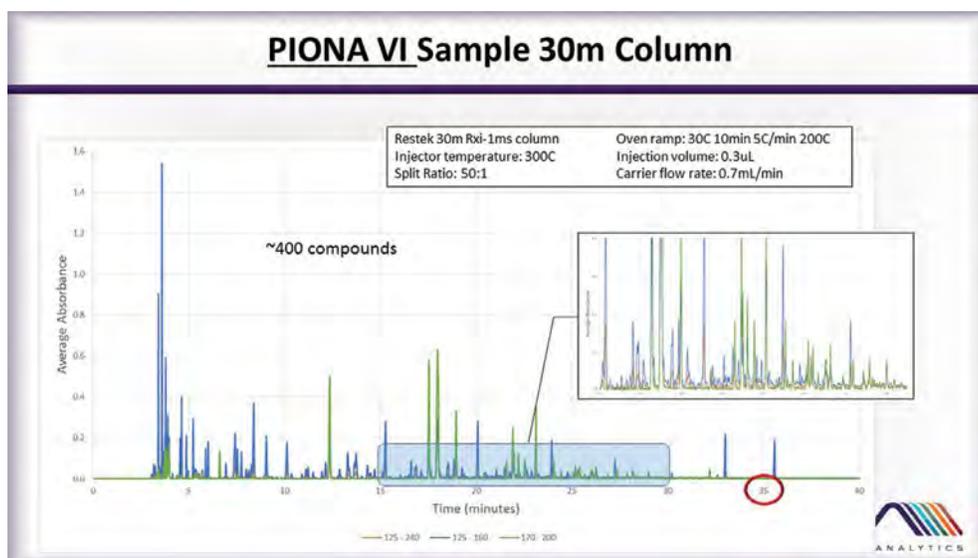
ASTM Method D8071 for the analysis of finished gasoline is a "Standard Test Method for the Determination of Hydrocarbon Group Types and Select Hydrocarbon and Oxygenate Compounds in Automotive Spark-Ignition Engine Fuel using Gas Chromatography with Vacuum Ultraviolet Absorption Spectroscopy Detection (GC-VUV)." The method provides complete PIONA compound class characterization in a single 35 minute analysis replacing the use of multiple legacy methods for this analysis.



Method D8071, available commercially as VUV PIONA+, uses straightforward instrumentation: a gas chromatograph, a standard 30m nonpolar column, and a VGA detector.

VUV PIONA+ Analyzer, a push button solution that features:

- Single injection PIONA compound class analysis
- Single 30m Rxi-1ms column
- No traps, pre-column tuning, or calibration requirements
- **35 minute total analysis time**
- No special setup
- ASTM method D8071 compliance
- Customizable individual compound speciation including BTEX aromatics



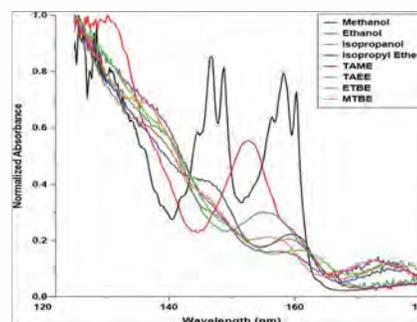
The chromatogram above shows a **35 minute** PIONA analysis of ~400 compounds. The software can pull out and quantitate compounds, individually or by class.

Oxygenates Spectra from VUV PIONA+ Analysis

ASTM method D8071 is now approved for PIONA analysis of finished gasoline. Previous methods required over 90 minutes and multiple analyses. Bulk concentrations of the hydrocarbon classes of paraffins, isoparaffins, olefins, naphthenes, and aromatics (PIONA) are determined.

Along with the PIONA classes, the analysis also yields qualitative/quantitative data from oxygenates. The overlay on the right shows the unique spectral patterns generated for the oxygenates in the PIONA sample. These spectra allow for a more precise match than those achieved using MS spectra.

Oxygenates



PETROCHEMICAL SAMPLE INTRODUCTION

The only GC sample introduction system that allows the analysis of both light and heavy hydrocarbons in live crude oil in a single run.

This Heated and Pressurized Liquid Injection System HPLIS® is particularly useful in petrochemical applications for the analysis of light and heavy hydrocarbons ranging from C2 to C40+. In fact, HPLIS® was specifically designed to resolve issues encountered in the ASTM D7900 / ASTM D7169 methods.



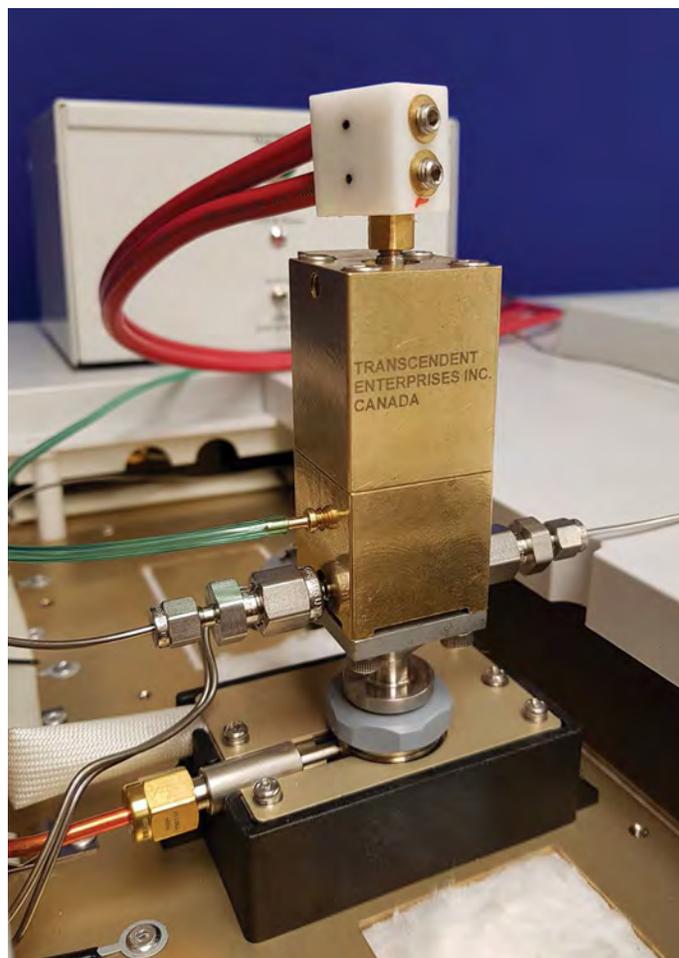
The patent pending system is approved under ASTM D8003, essentially replacing 2 analyses (D7900 / D7169) into one single injection / analysis.

HPLIS® overcomes the limitations of conventional liquid injection systems when analyzing pressurized samples and/or those with wide boiling point ranges.

Those limitations include:

- Fractionation
- Loss of light ends
- Peak broadening
- Injection speed effects
- Temperature effects
- Pressure restrictions

The HPLIS® is unique in that the sample components are maintained at a temperature and pressure level that allows them to remain intact until analysis, at which time they are flash vaporized and introduced directly to the head of the GC column.

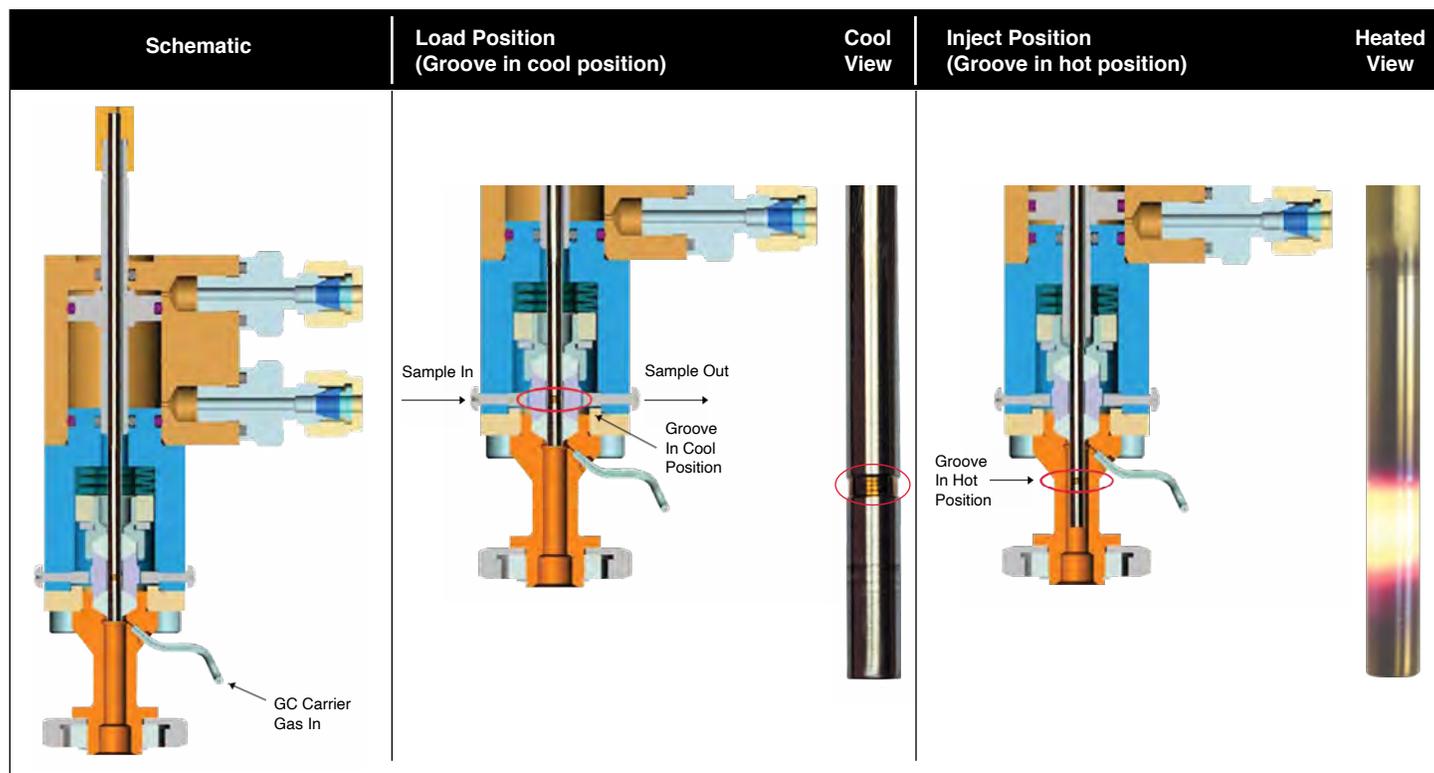


Chromatographic Specialties is pleased to announce that we have purchased the manufacturing and distribution rights to Transcendent Enterprise Inc.'s novel and patent-pending HPLIS® GC injection system.

PETROCHEMICAL SAMPLE INTRODUCTION

Here's how the HPLIS® works:

The sample is loaded into a groove machined into the HPLIS® stem, in this 'load' position the groove is maintained at an ambient temperature. At the time of injection, the stem is moved into position at the head of the GC column and flash vaporized; allowing the entire sample to enter the GC in a tight, single plug.



The HPLIS® is unique in that the sample components are maintained at a temperature and pressure level that allows them to remain intact until analysis, at which time they are flash vaporized and introduced directly to the head of the GC column.

The HPLIS® ...

- Introduces pressurized liquid samples with very broad boiling range components; C2 to C40+
- Is pressure rated to handle the most demanding pressurized liquid sample - ethane (C2)
- Has a variety of stem options (groove volumes) that can quickly and easily be changed to match the application requirements
- Features a fast sample groove temperature rise time (ambient to > 500° in less than a second) to facilitate flash vaporization
- Can be custom calibrated for a specific sample injection temperature
- Is closely positioned to the GC inlet, eliminating cold spots in the transfer lines and related chromatographic complications
- Is reproducible independent of injection speed
- Features "no flow interruption" during injection, maintaining a consistent flow of carrier gas through the GC at all times
- Is compact and simplistic in design and operation, including an integrated pneumatic actuator
- Is compatible with virtually any GC on the market equipped with a split/splitless capillary inlet or direct-to-column injector
- Can be quickly and easily removed for conversion of the GC to a standard syringe injection (i.e. the GC is not married to the HPLIS® device, so the GC retains versatility)

Contact our Instrumentation Team to discuss your application and learn how the HPLIS® can simplify and improve your chromatography for difficult sample components.

THERMAL DESORPTION SAMPLE INTRODUCTION

The most flexible and reliable thermal desorption platform in the industry!

CDS Dynatherm 9300 Series Thermal Desorbers

CDS' line of thermal desorbers covers a wide range of sample introduction instruments, including a single tube desorber (9300), a near real-time sampling system (9305), a continuous sampler (9350), and an optional autosampler.

- Compatible with all GC systems
- 9300 series can accept TD tubes from all manufacturers
- Focus trap allows 100% of the sample to be desorbed to column; no splitting required
- Higher temperature ranges allow for analysis of VOC's and SVOC's



Cryogen-free design reduces cost and increases reliability by reducing moving parts and eliminating the need for liquid N₂ or CO₂ tanks.



CDS 7550 Thermal Desorption Autosampler

Increase TD sample throughput with the addition of the CDS 7550 Thermal Desorption Autosampler:

- 72 position sample rack
- Different tube size options
- Built-in leak checking
- Optional gas internal standard addition
- Optional sample saver function
- Can interface with existing concentrators from CDS and other manufacturers

For even greater flexibility, the 7550 autosampler unit is a modular platform compatible with CDS's 7350 and 7450 series Purge and Trap Autosamplers, allowing users to switch between sampling methods in minutes while reducing costs.



CDS 7550S Standalone Thermal Desorption Autosampler

Only need to analyze thermal desorption tubes?

The CDS 7550S is a standalone Thermal Desorption Autosampler that can connect directly to your GC or GC-MS without a concentrator. The 7550S incorporates many of the same features as the 7550.



Lowest cost of ownership in the industry!



Other GC and HPLC autosamplers are available. (See pages 27-29)

CDS 7000E Purge and Trap Concentrator

Proven, reliable performance at a competitive price!



The CDS-7000 has been acknowledged as a workhorse in the industry for decades as the most cost-effective Purge and Trap concentrator. The newer 7000E has expanded on the capabilities of the 7000.

- Sample path made of SilcoNert 2000 coated stainless steel, which is the most chemically inert material commercially available
- The up to 350°C valve oven allows the widest range of analytes from VOCs to semi volatiles
- A Hydroguard-coated wet trap conforms to EPA methods and eliminates over 96% of moisture
- Patented foam sensor prevents contamination and crossover
- Quick access panel makes maintenance simple
- Front panel shows the instrument's status at a glance
- Powerful Windows-based user interface makes it compatible with leading GC systems



CDS 8500 Series Purge and Trap Autosampler

The 8500A autosampler is a 110 position autosampler with dynamic headspace sampling function for EPA methods 524, 624 and 8260 (both water and soil), and built on CDS's 3rd generation autosampler with a faster and smarter sample loading.

- Choose from Water/Soil/dynamic headspace modes
- Internal Standard addition from up to 4 channels at 1, 2, 5, 10, 20 or 25 μ L volumes
- Inert pathways
- Software selection between modes
- Precise sample volume selection between 0.1 mL to 25 mL
- High precision robotics with easy software alignment
- Sample heating and stirring in soil/dynamic headspace mode

THERMAL GC INJECTION SYSTEMS FOR PYROLYSIS

CDS 6000 Series Pyroprobe

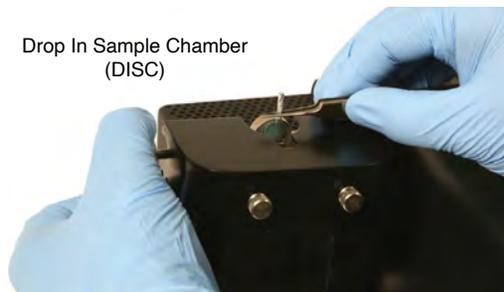
CDS Pyrolyzers have been sold worldwide for over 50 years and they are now better than ever!

CDS Pyrolyzers are much more than a polymer introduction system. With new technology and advancements, we now consider them thermal injection systems that can tackle the most difficult chromatography sample matrices, whether solid, liquid or gas. These pyrolyzers are fully programmable with the widest temperature settings and ramp rates in the industry.

- Best guaranteed system accuracy < 2% RSD
- Upgradable firmware
- New automated leak check capability
- Programmable purge-to-vent to eliminate unwanted solvents or volatiles before analyzing the sample
- Extensive diagnostic abilities aid in troubleshooting down to the component level
- Monitor your system remotely with WiFi capabilities
- Includes a pyrolysis and thermal desorption library of 50 preprogrammed methods
- The Autosampler Module and DISC options allow for up to 47 samples to run unattended
- Green technology: No sample preparation required
- Optional features include: autosamplers (both trapping and non-trapping), libraries, mass flow control, interface to an FTIR, etc.



Drop In Sample Chamber (DISC)



Probes for Every Application

- Drop In Sample Chamber (DISC) probe – Novel design for routine and quick analysis of any sample matrix
- Coil Element – Best for samples held in reusable quartz tubes or boats
- Ribbon Element – Ideal for film and solvent deposited solids
- 1/2" probe for heating oversized samples up to 350mg



Coil Element Probe

Ribbon Element Probe

1/2" Probe

Applications Include:

Automotive: plastics, rubbers, exhaust/filters, panels, tires, paint

Consumer Products: film, shaving products, waxes, adhesives, glues, textiles, packaging

Energy: oil characterization, coal, biomass, algae, source rock

Forensic: auto paint, tires, random polymer analysis, arson

Paints & Coatings: polymer and additive analysis / quantitation

Paper: specialty inks and coatings, sizing agents, toners

Pharmaceuticals: trace polymers, pill coatings, additives, medical devices

... and more!



Scan QR Code
Video – Features and Benefits



All HTA autosamplers feature low cost of ownership, excellent versatility and superior performance.

HT2800T Series All-In-One Autosamplers

Liquid Injection
Static Headspace
SPME } all-in-one unit!

No need to dedicate a GC or GC-MS to one sample type or application anymore!

- Combines all the features of the HT2000 and HT3000 series plus Solid Phase Micro-Extraction (SPME)
- 5 minutes to switch between modes allows for switching applications on one GC workstation
- Smart Technologies include Syringe ID, Bar Code reader, sample integrity and vial leakage check
- SPME superior thermal stability with closed oven extraction
- SPME mode supports derivatization (either pre- or post-extraction) for specific SPME methods
- Fine control of heating and shaking for samples in Static Headspace and SPME modes



Switching between modes is easy!

- Change the syringe
- Change the tray
- Select the mode and method
- Run your samples!



Contact our Instrumentation Team to discuss the autosampler that best suits your needs.

CDS Autosamplers for Thermal Desorption and Purge and Trap

⇒ With modular towers, it is like having 3 systems in 1!

- CDS 7350 Purge and Trap Autosampler ⇒ **Water only**
- CDS 7450 Purge and Trap Autosampler ⇒ **Water / Soil / Dynamic Headspace**
- CDS 7550 Thermal Desorption Autosampler ⇒ **Sorbent Tubes for Air Sampling**

With this modular platform, you can easily upgrade from the 7350 water-only autosampler to the 7450 or 7550 with a simple swap of towers. Changing from one mode to another can be accomplished in a matter of minutes!

Contact our Instrumentation Team for further information.





Are you spending more time fixing and maintaining your old autosampler than running samples? Buying a NEW HTA autosampler can cost less than repairing your old unit!

For more than 25 years, HTA has been a leading European manufacturer of GC and HPLC autosamplers. Their systems are sold worldwide, under both the HTA brand and as the original manufacturer of some major GC and LC brands.



HTA HT3000 Series Automatic Liquid Samplers

HTA takes advantage of today's latest technology to deliver reliability, performance and flexibility.

- Easy to use via the large full-colour touch screen interface
- Flexible installation platform for all GC makes and dual injector configurations
- Fast injection technology ensures best possible peak shape while maximizing accuracy
- High capacity - 121 vials on the standard HT3000A; 209 vials on the HT3200A
- Optional control with HTA Manager software or integrated drivers for your acquisition software
- Barcode reader and Syringe ID options



HTA HT2000H Series Static Headspace Autosamplers



The HTA2000H features the lowest cost of operation in the market.

- Heated gastight syringe means no seals or o-rings to replace
- No magnetic or special caps due to the positive and reliable vial transport system
- No carrier gas required, only purge gas
- High sample throughput with 6 position oven and 42 vial capacity with vial sizes of 6, 10, or 20 mL
- Optional control with HTA Manager software or integrated drivers for your acquisition software
- Vial leak check and system integrity test
- High temperature option for applications up to 300°C

HTA HT4000 and HT1500 Series HPLC Autosamplers

HTA offers full featured economical solutions for Liquid Chromatography (HPLC, UHPLC, NanoLC, Preparative LC and LC-MS)

- Three models to choose from: HT4000L, HT4000E and the economical HT1500L
- High capacity with up to 176 x 2 mL vials and a wide array of vessel options from 96 well plates to vacutainers and more
- Automation ready for dilution, derivatization, pH spiking, internal standard addition and SPE extraction
- Modular, scalable design with many innovative features and options



HTA HT1000I AA and ICP Spectroscopy Autosampler



Economical autosampler solutions for ICP-OES, ICP-MS, Atomic Absorption and Flame Photometry



- Compatible with a wide range of spectroscopy applications
- The HT1000I has been engineered to offer a better user experience through straightforward operations
- The latest generation electronics and a rich user interface
- The optimized layout allows for installation in tight spaces
- Enjoy the benefits of a short, inert flow path, internal and external probe cleaning to eliminate cross contamination



**Spending too much time and money on your current autosampler?
Buying a new HTA can cost you less than repairing your old autosampler!**

Contact our Instrumentation Team to discuss your needs.

GAS GENERATORS

Parker Balston Gas Generators

Eliminate the need for costly, dangerous and inconvenient compressed gas cylinders!



Short payback period with the benefits of no downtime, line contamination, or the hassle of running out of gas.

We offer free consultations and installation... the complete solution for your lab gas needs.



Hydrogen:

- Available in different purity levels, from 99.99 to 99.9995% pure for FID or carrier gas
- Flow rates from 100 mL/min. up to 1300 mL/min.
- Automatic water refill capability
- Easy and inexpensive maintenance
- Exceeds OSHA and NFPA safety guidelines



Zero Air:

- Produce UHP air from in-house compressed air
- Flow rates from 1 to 30 litres per minute
- Smart display provides operational status at a glance
- Easy and inexpensive maintenance

FID Gas Station:

- Combine a hydrogen generator and a zero air generator in one enclosure for maximum space savings

High purity Nitrogen for GC ECD:

- Purity of up to 99.9999%
- Flow rates up to 2 litres per minute
- Suitable for carrier gas or ECD make-up gas





High Flow Nitrogen (for LC-MS):

- Recommended and used by all major LC-MS manufacturers
- Flows up to 135 litres per minute at a purity of up to 99.5%
- Requires no electricity
- Compact design frees up valuable floor space
- Phthalate-free design
- Membrane technology will not suppress corona needle discharge



Other Generators:

Many other models are available in combination or fully self-contained with air compressors. Contact us for a free consultation regarding your gas line needs!

Visit www.chromspec.com/gasgenerators for more information.

Gas Generator Installation Services

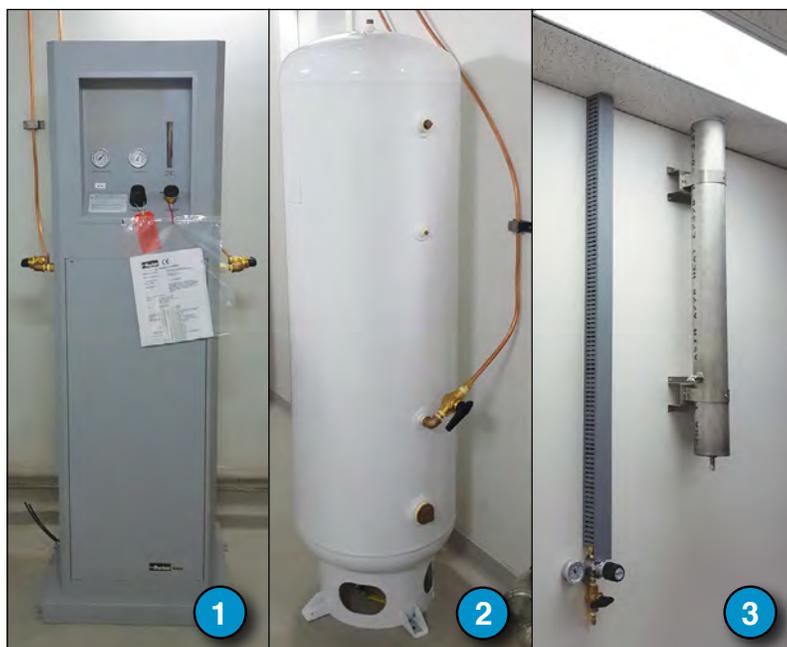
Chromatographic Specialties is the only Canadian supplier that offers complete installation, maintenance and qualification services for all Parker Balston generators.



Let an instrumentation professional who understands the specific needs of your analytical instrumentation complete your set-up.

All gas generator installations should be done with hardware and tubing that is as clean as possible to avoid contamination and noise issues; just one dirty fitting can cause serious problems for instrumentation connected to that line.

- Each installation is customized to the specific needs of the customer
- No installation is too big or too small
- Complete backup systems are available, automated or manual
- Alarm / notification in case of backup being activated, locally with audible signal or by e-mail / text or both



Complete installation of a high flow nitrogen generator (image 1) with a backup tank (image 2) and outlets located in a separate part of the building to feed multiple LC-MS systems (image 3).

GAS GENERATORS

Eliminate the need for costly, dangerous, and inconvenient compressed gas cylinders!

VICI DBS is a leading innovator and manufacturer of high purity gas systems for analytical laboratories. Generators are specifically designed to meet the stringent gas requirements for all the leading GC and LC/MS instruments.

Gas generators offer a safe, convenient and cost-effective alternative to gas cylinders and dewars. A VICI DBS generator provides you with a dependable, easy to use, and on-demand supply of ultra-high purity gas resulting in the added benefits of no more instrument downtime, line contamination, and hassle associated with changing cylinders.

Over 10,000 VICI DBS gas generators utilizing their patented proprietary technologies are installed worldwide. These gas generators offer unique performance at very competitive pricing.



Hydrogen

- Available in different purity levels, from 99.9996% to +99.99996%
- Cascading option available
- Flow rates from 100 to 1350 mL/min.



Zero Air

- Flow rates from 1.5 to 30 L/min.
- Zero air purity <0.1 ppm THC
- Ultra zero air purity, free from THC, CO, CO₂, O₃, NO_x and SO_x

FID Gas Station

- Combine a hydrogen generator and a zero air generator in one enclosure
- Stackable underneath GC saving valuable lab space



High Purity Nitrogen

- GC Carrier Gas and Makeup Gas with +99.999% purity
 - Flow rates from 500 to 4000 mL/min. for carrier/makeup gas GC applications
- LC/MS application 99.5% purity
 - Flow rates from 10 to 40 L/min. for LC/MS
 - Built-in compressor for LC/MS usage

Our roots date back to 1963 when we began manufacturing GC columns and supplying chromatographic product to Canadian laboratories. Nearly 60 years later we are a well-known and trusted source of product and support for separation scientists. Think of us as your full-service chromatography partner!

In addition to providing the quality GC instrumentation services and product that is detailed in the preceding pages, we have access to many world-class suppliers of consumables products, including:

- Packed and Capillary Columns
- Autosampler Vials and Sample Handling Glassware
- Gas Purifiers
- Syringes and Accessories
- Regulators and Gas Handling Equipment
- Valves, Tubing and Fittings
- Septa
- Chemical Reference Standards and Reagents
- Injection Port Sleeves and Liners
- Tools
- Instrument Parts and Accessories
- And much more..



Need Expert Advice?

Our friendly and knowledgeable Technical Support and Instrumentation Teams consist of experienced chromatographers who understand the challenges facing separation scientists. They are available to assist you with everything from method reviews and application support to instrumentation needs and troubleshooting. This is a free service for our customers, we will not charge for helping to resolve a chromatography problem.

Technical Support

Phone: 1-800-267-8103

Email: tech@chromspec.com

Instrumentation Team

Phone: 1-800-267-8103

Email: instrum@chromspec.com



You know Chromatographic Specialties as a source of...

- Quality Instrumentation
- Great Advice
- Exceptional Customer Service

But did you know –
That we also have an
extensive offering of...

- GC
- HPLC
- and Sample Preparation Consumables Products?

Gas Chromatography

AUTOMATED SAMPLE PREPARATION

LCTech FREESTYLE™

FREESTYLE™ is a fully upgradable modular sample prep workstation with 7 different module options.



Any or all modules can be installed and used individually or in combination.

For example, running the GPC-EVA-SPE-EVA-DI modules would allow the system to take a sample, run a GPC separation, send the fraction to the evaporation chamber, take the extract and do an SPE extraction, evaporate the final fraction once more and then inject it onto the HPLC.

The entire run is done automatically without user intervention. The system allows automated methods to be developed and stored using the various modules; simply load a method from those that your team has developed to automatically run the analysis you have on hand.

The systems also feature a needle rinsing station to minimize sample carryover.

Samples can be processed from virtually any type of glassware - from standard 2 mL vials to 1 L round bottom flasks.



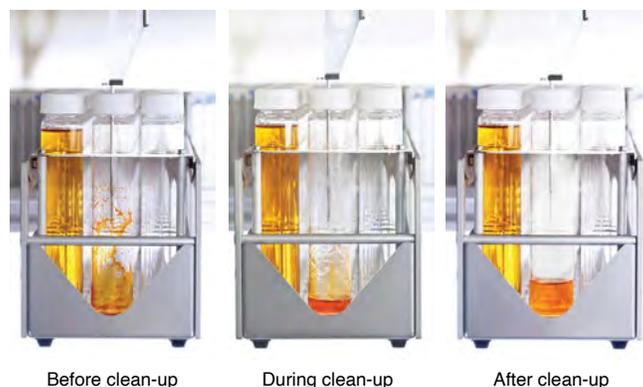
Why choose an automated system?

- Process more samples in less time
- Minimize human error and increase reproducibility
- Reduce hands-on time so you can focus on other tasks



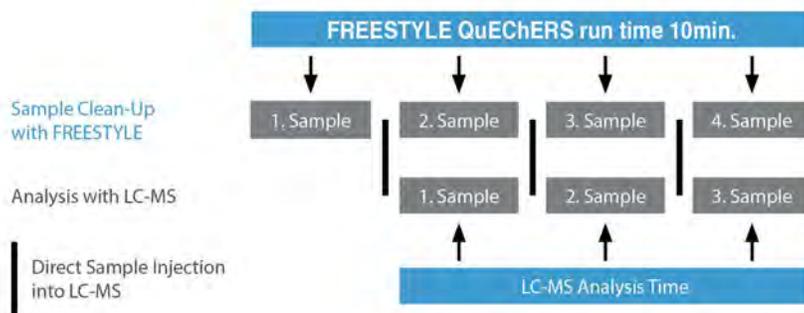
Module 1 – SPE – Solid Phase Extraction

- Uses 1, 3, 6 or 15 mL SPE cartridges
- Up to 15 solvents can be used
- Positive pressure use allows for consistent flow even with thick or particulate-laden samples
- Quantitative transfer with vial rinsing
- Control of both volume and speed parameters
- 3 types of sample loading:
 - through the loop for large volumes
 - through the tip for small volumes
 - through the SPE tip for certified zero carryover applications (forensics, etc.)



Module 2 – QuEChERS clean up – Quick, Easy, Cheap, Effective, Rugged and Safe Extraction

- Uses any QuEChERS cartridge
- Online LC with direct injection module for full automation and nearly zero prep time

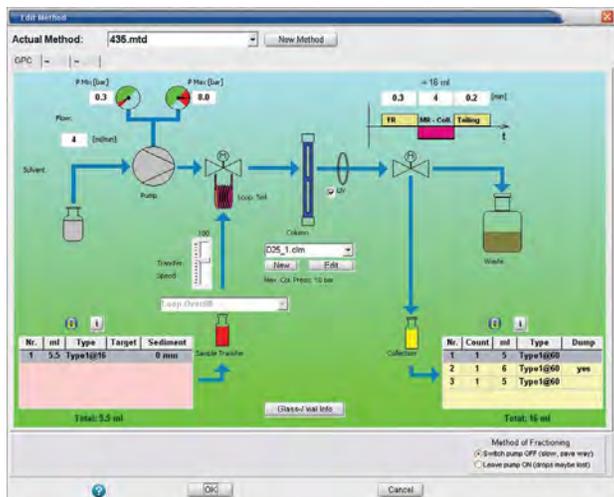


Simultaneous processing of QuEChERS steps and analysis in LC-MS

AUTOMATED SAMPLE PREPARATION

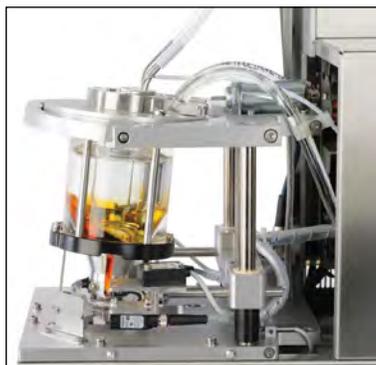
Module 3 – GPC – Gel Permeation Chromatography

- Complies with EPA 3640A, AOAC 984.21, DFG S19 and many more methods
- Easy-to-use and intuitive software
- Optional UV detector
- Quantitative transfer with vial rinsing
- Multi-vial injection
- Flexible fractionation
- Fraction can be sent to the EVA module for total automation



Module 4 – EVA – Sample Concentration / Evaporation

- Automated solvent exchange
- The evaporated sample can be dispensed in aliquots into sealed vials
- Can evaporate samples of undefined volume (load until sample container is empty)
- Selectable end volume from 0.2 to 5.0 mL, in 0.1 mL increments
- 2 evaporation processes: swirling vacuum and nitrogen blow down; both can be combined for even better speed and recovery
- Built-in solvent reclaimer



Module 5 – ThermELUTE – Automated Mycotoxin Analysis

- For automated PPT analysis of mycotoxins and ochratoxins
- 10 times more sensitive than manual methods
- 80% solvent savings compared to manual methods
- Process up to 500 samples per week
- Fully integrable with any HPLC



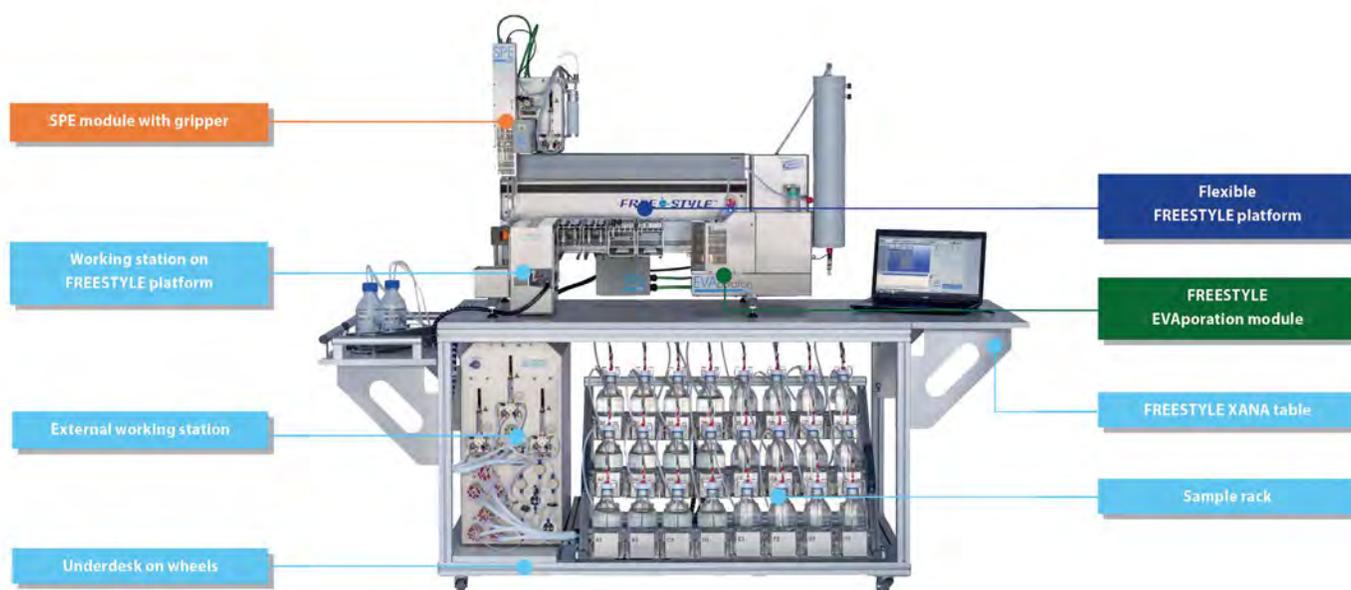
Module 6 – DI – Direct Injection for HPLC

- Takes over the function of the autosampler, no additional HPLC autosampler is needed
- Compatible with any HPLC
- Complete automation of complex analytical routines
e.g. GPC-EVA-DI, SPE-DI, SPE-EVA-DI, ThermELUTE-DI, QuEChERS-DI, QuEChERS-EVA-DI



Module 7 – XANA – High Throughput SPE

- High throughput parallel version of the SPE workstation
- Special rack for up to 24 x 1 L samples



AUTOMATED SAMPLE PREPARATION

LC_{Tech} DEX_{Tech} Plus Automated Dioxin and PCB Analyses

The automated DEX_{Tech} Plus sample preparation system for dioxin and PCB analysis processes all kinds of extracts, including:

- Food and feed samples including fish, meat, fish oil, eggs, vegetable oils and feed mixtures
- Environmental samples such as soil, sludge, sediments
- Biological matrices including blood

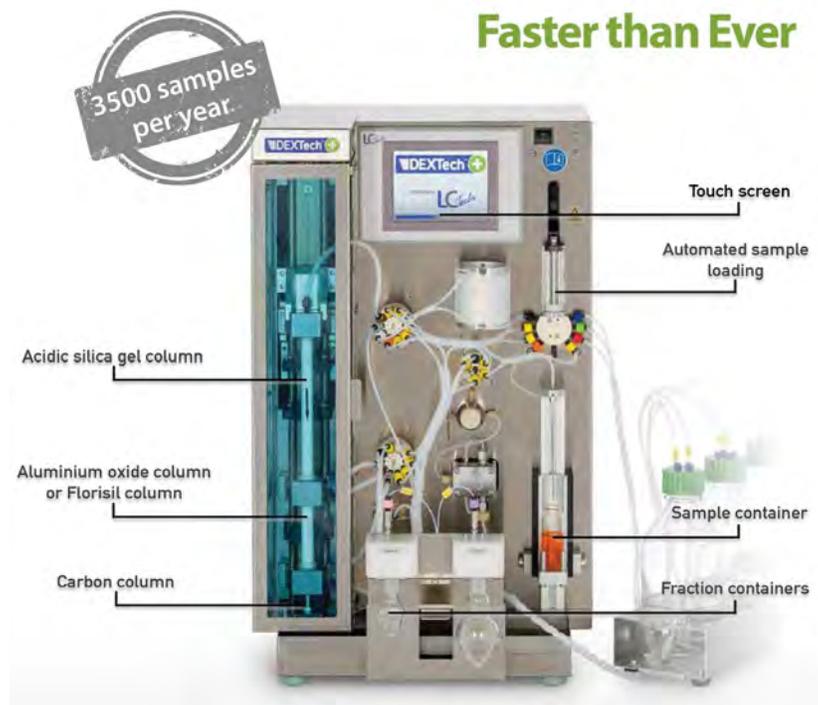
It sets the standard for flexibility, reduced cost-per-sample and ease of handling.

The system is based on a 3-column-concept and can process all kinds of extracts in only 35 minutes; a single system can process up to 3,500 samples per year. By using different types of columns and tweaking various method parameters, the unit can be configured according to your requirements for each sample.

Highest Degree of Automation

- Click columns into the column tower – “just click it”. The tower will be automatically locked by a patented process.
- Place the sample vial into the DEX_{Tech} Plus. The sample is automatically loaded via a syringe pump; however, at no time does the sample come in contact with the syringe pump itself. For quantitative transfer the sample container will be rinsed, and the remains added into the sample loop.
- Select the method parameters and start the process. Throughout the entire process, the touch screen displays the processing status. An acoustic signal as well as an LED display indicates the end of processing.
- The method can be adjusted to collect 2 or 3 fractions depending on your requirements.
- Cross-contamination is prevented due to continuous rinsing of all parts that have come in contact with the sample, exchangeable columns and no contact between the sample and the syringe pump.

The clean-up performed by the DEX_{Tech} Plus is compliant with the EPA method and European regulations.



Safety features include:

- Leakage sensor mounted below a removable drip tray.
- Pressure sensor for pressure monitoring.
- Overflow sensor for waste level control.
- No mechanical movement occurs when the front access door is open.
- The system operates in a low voltage range.
- No fume hood is necessary due to the use of a closed fractionation container.
- Should one of the sensors send a signal, the system will stop processing. After the error has been addressed, processing of the current sample will be continued.

LC Tech DEX Tech 16

A revolution in PCB, PBDE, BFR and Dioxin sample clean-up



The lowest operating cost per sample of any system, even manual processing.

- Lowest cost for consumable sets
- Lowest solvent use: Only 146mL needed per sample (including conditioning, loading and elution)



- **Complete sample clean-up automation for up to 16 samples**

Processes 16 samples one after another without any manual working steps in between

- **Cross-contamination free sample loading**

The column remains sealed until use and the injection loop is rinsed between samples to reliably prevent cross-contamination

- **Fastest purification time of any system**

High pressure column and low dead volume allow for purification times as low as 34 minutes

- **Unbeatable safety features**

Leak detection, overpressure detection, waste sensor, password protected software



Scan the QR code for a video.

LC Tech



Why choose an automated system?

- Process more samples in less time
- Minimize human error and increase reproducibility
- Reduce hands-on time so you can focus on other tasks



Contact us for a **FREE** consultation and a Return on Investment calculation.



AUTOMATED SAMPLE EXTRACTION

LCTech X-TRACTION

A good extraction is essential for every successful analysis.

To complement their automated sample preparation portfolio, LCTech has recently launched a sample extraction system called X-TRACTION.

X-TRACTION is a flexible and reliable system designed to extract analytes out of a variety of sample types, including foods, feeds, environmental matrices and more. Compared to common extraction methods (Soxhlet, accelerated solvent extraction, etc), this system offers fast extraction times with low solvent usage, ease of handling, no cross-contamination and high reproducibility, all at a low cost. The unit is simple to operate and is designed with unique safety features.



Product advantages:

- Simple to use – The innovative **extraction cell** design requires no tools (preventing issues related to threaded sample vessels)
- Solvent savings – Short cycles, with only 10 - 20mL of solvent needed for rinsing
- Time savings – Short extraction times
- Cost savings – Only one glass fibre is consumed per sample
- Extremely low maintenance
- Fast “plug & use” installation and low operating costs
- Suitable for US EPA 3545A and many others

Inspired by
minimalism

As simple as ingenious: The extraction cell

The lids of the cell are equipped with magnets and thus allow exceptionally easy opening and closing - no threads or additional tools required.



The cell with a capacity of up to 75 mL is assembled with only a few parts. **Stainless steel design** brings exceptional robustness.

Scan the following QR codes for more information:



Video – Features & Benefits



Application Note



LCTech Product Information

Please contact our Instrumentation Team at **1-800-267-8103** or **instrum@chromspec.com** to discuss how X-TRACTION can help you automate your sample preparation work.

AUTOMATED SOLID PHASE EXTRACTION

Horizon Technology SPE-DEX® 5000 Disk Extraction System

The perfect solution for dirty and particulate-laden water samples.

Compliant with most US EPA, ISO EN and other regulatory bodies, the Horizon SPE-DEX® 5000 has been designed to use SPE disks to run particulate-laden samples without the need of pre-filtration.



- Uses original sample bottles
- Automatically rinses the sample bottle for maximum recovery
- Built-in cleaning function between samples to eliminate carryover
- Handles up to 7 solvents for conditioning / washing and elution
- Compatible with all SPE solvents
- Segregated sample and solvent waste minimizes waste disposal costs
- Never lose a sample: a self-contained detection system will pause the run if a problem arises
- Intuitive and user-friendly software mimics manual processing for easy programming
- Up to 4 modules can be controlled with one computer allowing to run up to 12 samples at a time
- Fully integrated vacuum and pumping system requires less bench space



Horizon Technology has been in the sample preparation business since 1992.

SPE EXTRACTION WORKSTATION

Empore™ EZ-Trace

Semi-automated SPE Extraction

Empore™ EZ-Trace Solid Phase Extraction (SPE) extraction workstation is designed to improve the efficiency of the traditional disk and cartridge SPE workflow by allowing users to perform up to 4 extractions simultaneously. This manual, vacuum-controlled extraction workstation offers a high quality, cost-effect alternative to other high-priced, automated options.



EZ-Trace features:

- Universal Compatibility for SPE Disks and Cartridges
- User-friendly Layout
- Independent Channel Design
- Precise Flow Rate Control
- High-throughput Flow Path Switches
- Inert Sample Pathways
- Separate Organic and Aqueous Waste Collection



Application Note: SVOCs in Water using EPA Method 525.3

This application note demonstrates the performance of the EZ-Trace workstation using Empore™ SDB-XC SPE Disks under EPA Method 525.3 for reagent grade and ground water analyses. The recovery is determined for 125 analytes and demonstrates that the Empore™ EZ-Trace system provides a clean and efficient extraction with Empore™ SDB-XC SPE Disks.

For further information please contact tech@chromspec.com and request app note CDS17.



Empore™ Solid Phase Extraction (SPE) Disks

Empore™ SPE disks provide a sample prep solution for large volume aqueous samples. The unique disk format provides a large surface area for sorbent/sample interactions allowing for fast flow rates and higher throughput compared to other extraction media.

Product Number	Description	Qty	Price*
CD2240	Empore™ Solid Phase Extraction Disk, SDB-XC, 47mm	60	\$864.00
CD2340	Empore™ Solid Phase Extraction Disk, SDB-XC, 90mm	30	2,145.00
CD2215	Empore™ Solid Phase Extraction Disk, C18-HD, 47mm	60	745.00
CD2315	Empore™ Solid Phase Extraction Disk, C18-HD, 90mm	30	1,513.00
CD2270	Empore™ Solid Phase Extraction Disk, Oil & Grease, 47mm	60	421.00
CD2370	Empore™ Solid Phase Extraction Disk, Oil & Grease, 90mm	30	442.00

* Pricing subject to change – please inquire.

Please note that many other types of Empore™ SPE Extraction Disks are available. Please contact tech@chromspec.com to discuss your specific needs.

LabTech Rotary Evaporators

With innovative designs, these instruments are durable and economical.
Compare our prices and save!



From entry level to feature-rich high-end systems, LabTech offers a full line of rotary evaporators and ancillary devices such as chillers and vacuum pumps.

- High quality : price ratio
- Programmable operations
- Anticorrosion sealing system
- Integrated vacuum control
- Maximum safety
- Quiet operation



Vacuum Pump

Rotary Evaporator

Chiller



LabTech Refrigerated and Heated Circulating Baths

- Supports both refrigeration and heat functions in one unit
- Temperature range from -40°C to 100°C
- Temperature control is accurate and stable at any temperature, even ambient
- Both internal and external circulation functions are available
- High / low temperature and low liquid protection sensors
- Large LCD display
- Very quiet
- Multiple racks are available for holding your samples

Many options and models are available, contact us to discuss your needs.
We'll help you find the system that is best suited for your applications.

AUTOMATED PARALLEL CONCENTRATORS



LabTech

M10 Automated Parallel Concentrator

The LabTech M10 automatic parallel concentration system increases sample capacity and throughput in laboratories. This system allows for evaporation to solid state or concentration to a fixed end-point volume.

- Vortex nitrogen purge to achieve the highest concentration efficiency. The location and direction of nitrogen purge can be adjusted according to the concentration cup size and sample volume
- A digital nitrogen gas regulator controls the nitrogen flow and the evaporation speed
- Visual monitoring of the concentration process through a front window with internal lighting; sample cups do not need to be handled to check the residual volume
- Sealed concentration chamber includes a highly efficient vapour exhausting system
- Auto-locked cover offers the user protection during operation
- Automatic detection of the liquid sample endpoint
- 10 positions support 50 and 200mL concentration cups simultaneously
- 10 infrared sensors allow for single cup volume control
- Liquid bath with temperature control from ambient to 99.9°C
- Low liquid level and pressure alarms
- Touch screen control interface
- Many different racks and tubes are available; custom racks to fit your specific requirements are an option
- Quick connect fitting allows for easy draining of the water bath
- Automated placement of the concentration cups to the liquid handler of a GPC/SPE system is possible



Scan QR Code
Video – Features and Benefits



**Contact our Instrumentation Team to discuss your specific applications
and which LabTech unit best suits those needs.**

MV5 Automated Parallel Concentrator

Nitrogen evaporators and blowdown concentrators are suitable alternatives to rotary evaporation, especially in labs handling large quantities of small volume samples (under 50mL).

Concentrators accelerate the evaporation process by decreasing the partial vapour pressure of the solvent just above the surface of the liquid. Blowdown evaporators use a jet of gas to continually force off the layer of air that is saturated with vapour. By immediately removing molecules that enter the vapour state, the molecules do not have a chance to return to the liquid, which increases the evaporation rate. Since the samples are immersed in a water bath, with programmable temperatures up to 100°C, the evaporation is further accelerated.

Chromatographic Specialties is pleased to represent LabTech's offering of these units.

The LabTech MV5 is a **multi-channel and multi-functional parallel instrument** designed to ensure the highest standard of efficiency, speed, reliability, throughput, and safety.

- Up to 54 sample positions are able to work individually or simultaneously
- Automatic adjustment of nitrogen needle relative to the sample volume helps to reduce evaporation time by up to 20%
- Easy replacement of nitrogen needles
- Visual monitoring of the concentration process through a front window with internal lighting
- Auto-locked cover offers the user protection during operation
- 7" touch-screen color control panel
- Low water level alarm
- Intuitive software interface
- Many different racks and tubes are available, from 10mL to 200mL; custom racks to fit your specific requirements are an option
- Quick connect fitting allows for easy draining of the water bath



Scan QR Code
Video – Features and Benefits

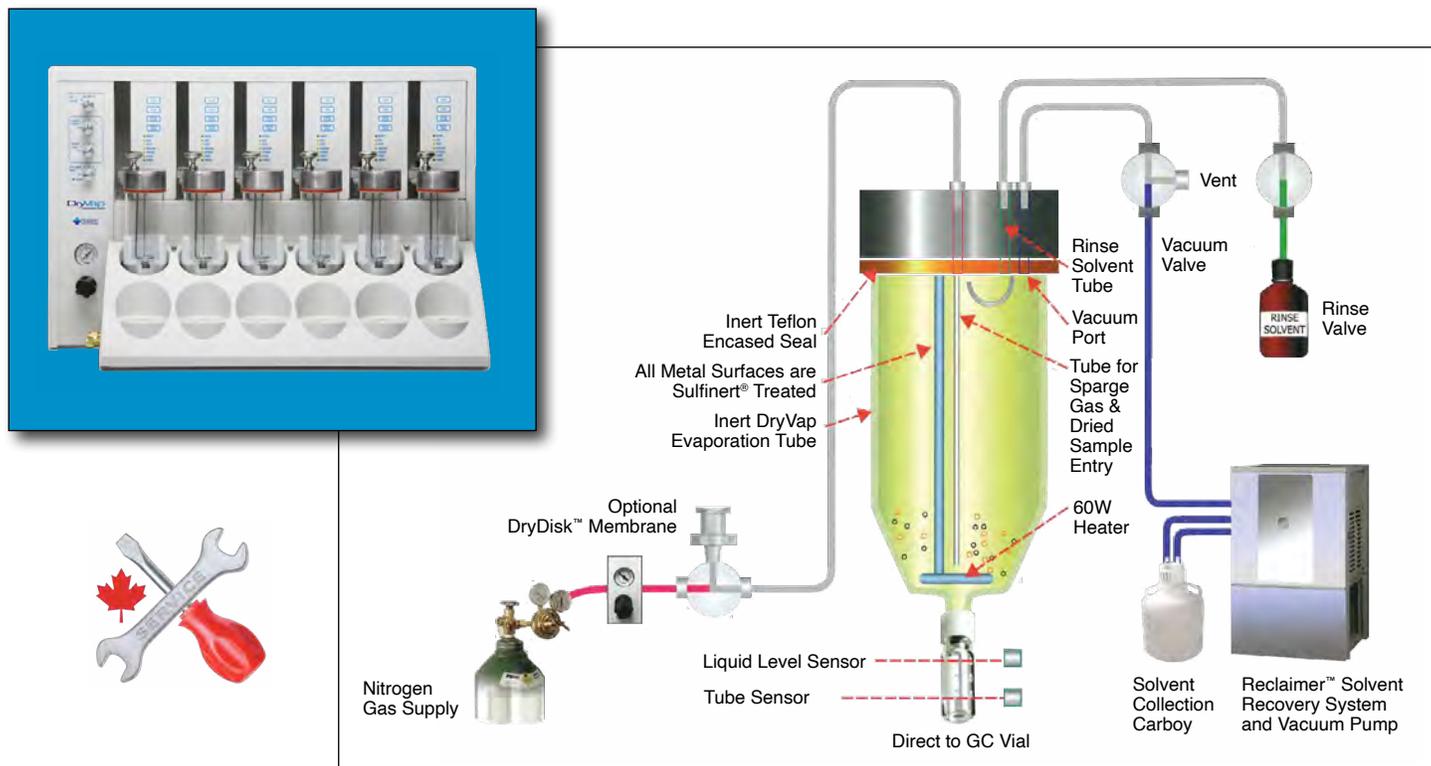


AUTOMATED DRYING AND SAMPLE CONCENTRATION

Horizon Technology DryVap®

Simultaneously dry and concentrate samples without losing volatile analytes.

The DryVap® concentrator sets new standards for rapid sample concentration with built-in drying, for the highest reproducibility of results. The system automatically removes water and concentrates samples through evaporation of the extraction solvent.



- Rapid evaporation of sample using vacuum
- Automatic endpoint detection
- Concentrate sample directly into a vial for analysis
- Automatic rinsing of vessel for maximum recovery
- Multiple evaporation tubes available with different optical endpoints
- Most samples can be dried and concentrated in under 30 minutes, 6 at a time
- The condensation mimics the Kuderna-Danish cloud, which improves the recovery of volatile compounds
- Tight seal on evaporation vessel prevents loss of volatile analytes and cross-contamination



DryDisk™ Separation Membrane

The DryVap® System is the first system to incorporate in-line sample drying.

Using Horizon Technology's patented DryDisk™ separation membrane technology, users can rapidly dry a liquid sample "in-line" by simply utilizing the built-in port for each evaporation tube. It is available in a 60 mL DryDisk™ tube, and a 200 mL DryDisk™ holder.

Horizon technology has been an innovative leader in the sample preparation field since 1992. Visit www.chromspec.com/horizon for more information.



LCTech D-EVA

Fast, parallel, and reproducible evaporation of up to 26 samples.

Before or after sample clean-up in PCB, dioxin and PFAS analyses, it is often necessary to concentrate the samples to a lower volume; LCTech's D-EVA evaporation system is the perfect tool for the task.

The system uses a combination of vacuum and infrared heat to concentrate samples; a sensor reliably prevents evaporation to dryness.

Product Features:

- Process from 1 to 26 samples in parallel
- Selectable final volume / end point
- Centrifugation prevents boiling concerns, including cross-contamination in the head space and sticking of analytes to the glass wall
- Direct transfer into a GC vial is possible even without rinsing due to centrifugal forces
- Technology and design prevent the continuation of evaporation after stopping the process
- Different sized sample containers can be accommodated using a variety of sample rotor trays
- A cold trap restricts allows for solvent recovery and restricts vapours from entering the laboratory
- Save valuable laboratory space due to parallel processing of a larger numbers of samples using only one system



SAMPLE CONCENTRATION SYSTEMS

TurboVap® II and TurboVap® LV by Biotage

The next generation of solvent extractors featuring the patented sheared vortex technology.



TurboVap® II



TurboVap® LV



Scan QR Code
Video – Features and Benefits

Flexible rack: A novel and innovative feature of the new TurboVap® II and LV is the Multi Rack system that can be fully adjusted for a variety of tube and vial sizes, from 1.5 mL to 60 mL for the TurboVap® LV and from 50 mL to 200 mL for the TurboVap® II.

Acid resistant version: For demanding applications involving the use of aggressive acids and bases, upgraded versions of both the TurboVap® II and TurboVap® LV are available, featuring PTFE coated needles and manifolds.

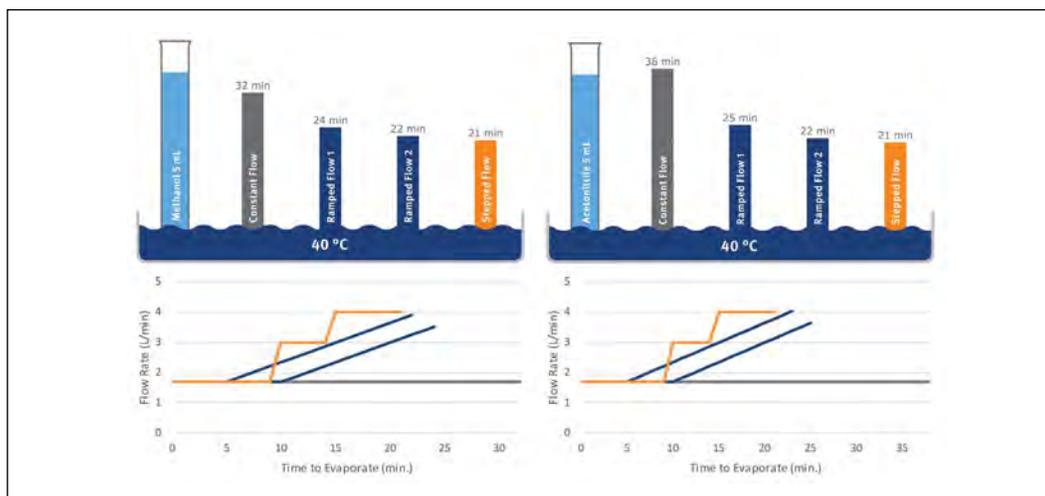
Removable adjustable nozzles: Easily replaceable individual nozzles allow for quick, easy and inexpensive maintenance.

Independent gas flow control: Each row can individually be turned on or off depending on the number of samples, allowing for reduced gas consumption if the unit is not full.

Illuminated water tank with indicator: The 3 sided glass reservoir allows for monitoring the evaporation process without having to interrupt it.

Reduced footprint: The footprint has been reduced by 30% while maintaining the same number of samples as the previous versions of the unit.

Flow gradient: Flow gradients can be programmed to gradually increase as evaporation occurs, decreasing the amount of time it takes to reach the desired end-point, without splashing.



Approximate evaporation times for different solvents and evaporation modes using TurboVap® LV at 40°C.

LabTech DigiBlock Digesters**Finally, an affordable, EPA approved digester.**

LabTech offers a wide variety of high-temperature digesters to suit any application.

- Digestion, evaporation and constant-volume maintenance in a single instrument – eliminates the possibility of sample loss and contamination during sample transfer
- Temperature control accuracy of $\pm 0.2^{\circ}\text{C}$
- Excellent thermal conductivity ensures temperature variance of less than $\pm 1.5^{\circ}\text{C}$ at 150°C
- Over-heat protection and corrosion resistance
- Programmable multipoint heating function satisfies different heating requirements with the iTouch optional add-on
- Many choices of racks and vessels available as accessories

**Couple the digester with the iTouch terminal for the perfect solution**

In addition to all the advantages provided by the stand-alone configuration, the LabTech iTouch terminal offers DigiBlock users the ability to program and store multiple sample digestion methods.



Sample Preparation Page

**You know
Chromatographic
Specialties
as a source of...**

- Quality Instrumentation
- Great Advice
- Exceptional Customer Service

**But did you know –
That we also have an
extensive offering of...**

- GC
- HPLC
- and Sample Preparation Consumables Products?

Chromatography is our specialty, but we're also strong in sample preparation!

Our roots date back to 1963 when we began manufacturing GC columns and supplying chromatographic product to Canadian laboratories. Nearly 60 years later we are a well-known and trusted source of product and support for separation scientists. Think of us as your full-service chromatography partner!

In addition to providing the quality sample preparation instrumentation services and product that is detailed in the preceding pages, we have access to many world-class suppliers of consumables products, including:

- SPE Columns, Disks and Well-Plates and Manifolds
- QuEChERS Products
- Filtration Papers, Disks, Supplies and Apparatus
- Autosampler Vials and Sample Handling Glassware
- Crimpers and Decappers
- Biospecimen Collection and Preservation Cards
- And much more..



Need Expert Advice?

Our friendly and knowledgeable Technical Support and Instrumentation Teams consist of experienced chromatographers who understand the challenges facing separation scientists. They are available to assist you with everything from method reviews and application support to instrumentation needs and troubleshooting. This is a free service for our customers, we will not charge for helping to resolve a chromatography problem.

Technical Support

Phone: 1-800-267-8103

Email: tech@chromspec.com

Instrumentation Team

Phone: 1-800-267-8103

Email: instrum@chromspec.com



Hamilton Microlab 600



Experience 80% savings in solvent usage AND a significant decrease in variability compared to manual dilutions.

The Microlab 600 is a highly precise syringe pump with a graphical user interface designed to quickly and easily dilute and dispense liquids.

This positive displacement system provides better than 99% accuracy, independent of a liquid's viscosity, vapor pressure, and temperature. The inert fluid path minimizes sample carryover and is compatible with harsh chemicals.

- Positive displacement system provides unsurpassed accuracy and precision
- Inert fluid path allows dilution and dispensing of volatile, viscous, corrosive and other harsh liquids
- Bubble Free Prime Syringe simplifies priming
- Large touch screen and innovative user interface provides for simplified programming



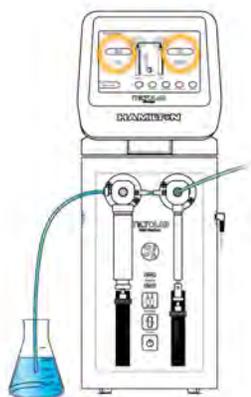
Scan the QR Code for more information.



How does the diluter work?

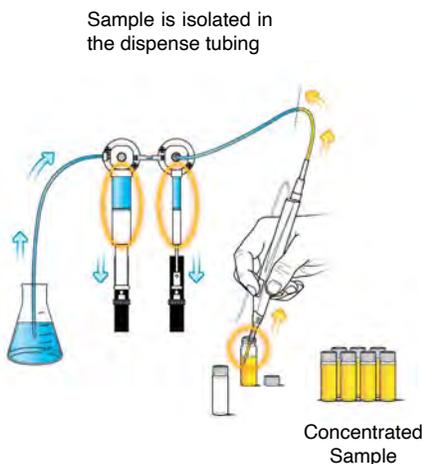
Step 1

Program the desired Diluent and Sample volumes.



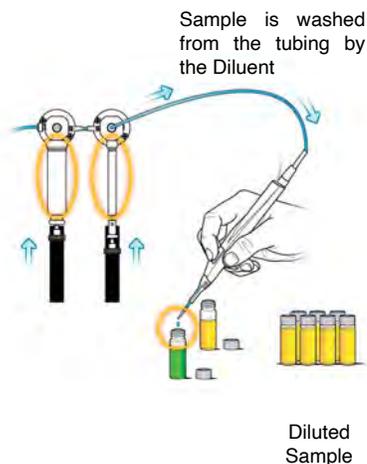
Step 2

Trigger the hand probe to fill the left syringe with Diluent and aspirate Sample into the hand probe with the right syringe.



Step 3

Trigger the hand probe to dispense the Sample and then Diluent into a vial.



Why choose the Microlab 600?

- Reduce time preparing samples
- Minimize experimental variation from one user to the next
- Simplify compliance to EPA, FDA (GLP, GMP) and ISO
- N.I.S.T. traceable calibration



Chromatographic Specialties Inc. is the only Canadian Supplier authorized to complete Calibration and Repairs on Hamilton products.

LABORATORY WATER PURIFICATION SYSTEMS

AQUA SOLUTIONS Water Purification Systems

Water systems that conveniently, economically, and reliably deliver high purity reagent grade water for your laboratory.

AQUA SOLUTIONS offers modular systems that allow you to select the appropriate configuration for your laboratory's particular needs; the system is easily upgradeable should your needs change in the future. Depending on your lab / facility requirements, you may opt for a single large system to cover all lab needs, or smaller systems tailored to the exact requirements of each particular lab.

These systems are easy to install, operate and maintain, without complex service requirements, like weekly chemical sanitization, that can complicate maintenance, while costing you money and down-time.

- Type I, Type II & Type III Reagent Grade DI systems
- Reverse Osmosis pre-treatment systems
- Combination Reverse Osmosis plus Type I, Type II or Type III DI systems in a single cabinet
- Water deionization, UV sterilization / oxidation, TOC reduction, removal of pyrogens and endotoxins by filtration, and hydrogen generator pre-treatment
- Systems can deliver from 0.35 to 40 L/min.
- Replacement cartridges and accessories are available for other brands of systems
- Recirculating PTFE remote dispensers with 7 feet of tubing and a 0.2 micron final filter capsule is included with all Type I systems (longer dispenser lengths are available)
- Wide range of optional storage tanks



AQUA SOLUTIONS offers:

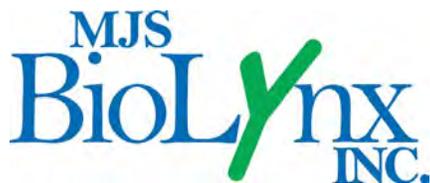
- 2-year warranty on all systems
- Complete installation packages for single or distributed outlets, customized to your needs



Contact us for a free consultation on your laboratory water needs.



Compare our prices for the instruments and consumables against other brands!



AQUA SOLUTIONS products are available to us through our sister company, MJS BioLynx Inc. Visit www.biolyinx.ca/aqua for more information.

To simplify your purchasing process MJS BioLynx products can be ordered through Chromatographic Specialties Inc. and vice versa.

TUBEWRITER™ 360 AUTOMATIC TUBE LABELER

TubeWriter 360™ is a high-speed inkjet unit that prints directly on vials, tubes and other labware to eliminate the cumbersome and time-consuming application of adhesive labels or messy handwriting.

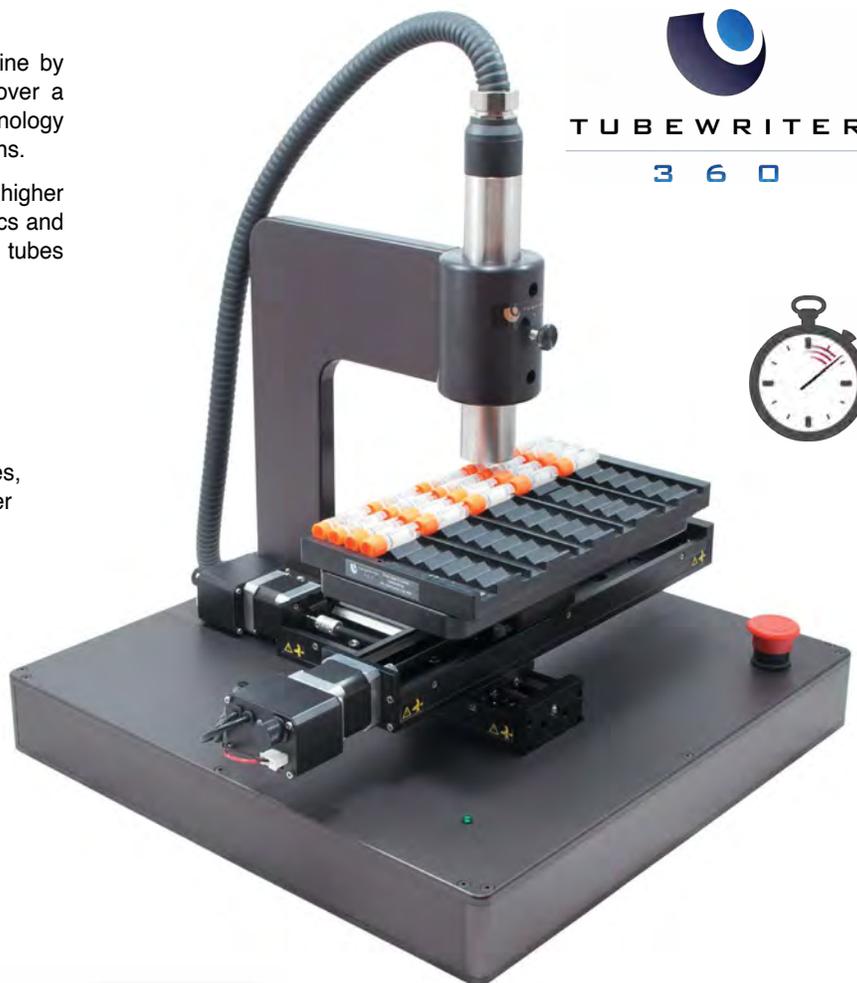
Tradition of Innovation

TubeWriter 360™ expands on the TubeWriter product line by employing a high-speed ink-delivery system used in over a quarter of a million systems world-wide. The inkjet technology has been designed to withstand harsh industrial conditions.

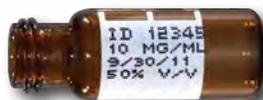
Continuous inkjet technology brings higher speed and higher resolution to the analytical laboratory. Barcodes, graphics and smaller more legible fonts are all now possible on your tubes and glassware.

The Fastest Direct Printer for Labware

- Proven assembly-line technology for the lab bench
- High-speed – Up to 2,500 tubes / hour
- Any labware – Autosampler vials, microcentrifuge tubes, screw cap tubes, conical tubes, snap cap tubes, cluster tubes, cryogenic vials, histology cassettes, slides and microplates.
- Scannable barcode printing on demand (e.g., 2D Data Matrix, Code 128, etc.)
- Excel Interface or LIMS Integration
- Graphics include logos, warning symbols, manufacturing marks and more
- Size and Weight:
 - Printing Unit: 18" x 18" x 16", 50lbs
 - Inkjet Cabinet: 13.6" x 11.2" x 21.3", 49lbs



Print on Any Labware!



Who Can Benefit from TubeWriter 360™?

- QA / QC labs where every sample must be tracked and positively identified
- High-volume clinical reference and testing labs
- Reagent manufacturers. Protects identification in dry ice and eliminates use of adhesive labels.
- Pharmaceutical companies looking to reduce time-to-market on drug discovery
- Cell banks storing cryovials exposed to liquid nitrogen and -80°C
- Tube manufacturers needing flexible printing solutions for custom runs

SURFACE PLASMON RESONANCE (SPR)

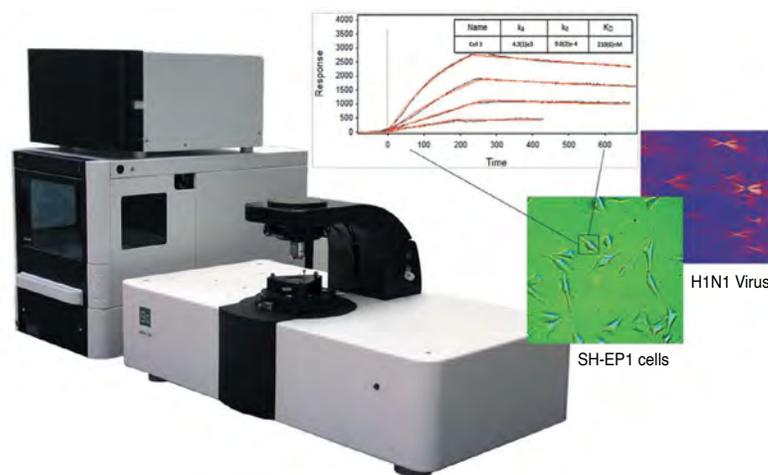
Versatile SPR instruments for a wide range of applications, including:

- **Environment and Food:** Trace metal analysis, hazardous residue screening, sensor development
- **Life Sciences:** Protein, DNA, drug interactions, gene assays, drug development
- **Electrochemical Measurements:** Anodic stripping analysis, electropolymerization, redox-and charge-related processes
- **Chemical Vapor Sensing:** Fundamental solid-gas interface studies, detection of toxic molecules



BI-4500 Series

- High throughput with 5 channels and a fully automated 384-well plate autosampler
- High sensitivity for detection of small molecules (< 100 Daltons)
- BI-DirectFlow™ Technology delivers samples to the sensor surface with near-zero dispersion
- Temperature control for thermodynamic studies, 6°C to 50°C
- Innovative multi-module design provides users with maximum flexibility
- Switch between various analysis modules for electrochemistry and liquid applications



SPRM 200 Series SPR Microscopy System

Integrated optical microscopy with SPR measurements in one instrument.

- Large field of view with high resolution optics to view single or multiple cells
- In vitro, label-free molecular binding activity measurements
- Provides SPR sensorgrams and binding activity map of individual cells as well as the binding kinetic constants (k_a , k_d , KD)
- Nanoscale monitoring of bacteria or virus metabolic or binding activity for studying nanoparticle drug delivery

Biosensing Instrument products are available to us through our sister company, MJS BioLynx Inc. Visit www.biolyx.ca/spr for more information.

To simplify your purchasing process MJS BioLynx products can be ordered through Chromatographic Specialties Inc. and vice versa.



Associates of Cape Cod Inc. – Pyros Kinetic Flex

Fully compliant USP bacterial endotoxin testing system.



ASSOCIATES OF
CAPE COD
INCORPORATED
Specialists in Endotoxin and Glucan Detection

- An optical reader that runs both chromogenic and turbidimetric endotoxin assays
- Available in 3 configurations: 32, 64 or 96 positions
- Best sensitivity range in the industry with detection limits as low as 0.001 EU / mL
- Increased efficiency: easy-to-use software that provides quantitative results while the assay continues to run
- Flexible testing: variable volume and ratios can be used
- Reduced lysate usage: volumes as low as 50 μ L per analysis
- Independently timed wells: allows for more samples to be added for a continuous run
- 21 CFR part 11 compliant software with Oracle-based best-in-the-industry data security
- Precise temperature-controlled incubator: 37°C \pm 0.5°C
- Solid state design with LED light source for low maintenance
- Two wavelength settings: 405 nm and 660 nm
- Complete validation protocol is available



Associates of Cape Cod Inc. products are available from our Sister Company, ^{MJS} BioLynx Inc., a Canadian distributor of high quality products for protein chemistry, molecular biology, immunology, microbiology, and other life science disciplines.

Visit www.biolynx.ca/endotoxin or call 1-888-593-5969 for more information.

MJS
BioLynx
INC.

RWD Minux S700A

A Slice Above The Rest!

RWD's Minux S700A is a fully automated microtome with automatic, semi-automatic, and manual options that meet the different needs of microtomists. Four mechanized cutting modes produce high-quality sections across an extensive range of specimen types.

The unit features extraordinary ergonomic characteristics resulting in comfortable operation while maintaining reproducible precision.

Its unique side specimen knob and visual pointer design make specimen advance and retraction extremely precise.

A handwheel double lock system and knife ejector and guard enhance safety.

RWD



Precise

- Patented visual pointer orientation system provides accurate sample position and consistent angles
- Advanced technology allows high quality and precision sectioning
- Blade holder position is designed to provide high accuracy and improved slicing performance

Safe

- Handwheel designed with enhanced dual locking system
- Equipped with a knife ejector and guard so user can safely replace the sample and blade
- Emergency stop button

Intelligent

- Easy-to-use, stylish 5" touch screen interface
- Quickly problem solve with easy tracking information and historical record system
- Improve efficiency with advance position memory function

Convenient

- Ergonomically and comfortable knobs and controls
- Easy-to-clean, antistatic, removeable waste tray
- Simple, efficient, effortless half-knife repair function
- Semi-Automatic or Fully-Automatic Models

Micronic – 1D and 2D Code Readers

A complete range of code readers to enable fast, accurate and efficient sample identification.

Single Tube Readers

- Read 1D rack barcodes, 1D barcoded tubes and 2D Data-Matrix coded tubes in less than a second
- Handheld Wireless Scanner MINI is a portable lightweight device
- TS201 MINI features unique condensation-free scanner plate
- Affordable pricing

Whole Rack Readers

- Compatible with 384-, 96-, 48-, 24- or 12-well format racks
- Scan time between 1 and 15 seconds (depending on model)
- Scan and decode 2D Data-Matrix and TraXis code
- CCD image sensor for accurate reading (RD235)
- Anti-frost system minimizes condensation from frozen samples on the scanner plate

Micronic readers come with a 5-year warranty and are compatible with most brands of 2D coded tubes and racks.

Micronic – Electric Cappers

Improve productivity and minimize repetitive motion issues.

Push Cap Cappers

- Compatible with TPE Capmats, Capbands, Capclusters and EVA Capmats
- Seal an entire rack of 96 tubes within 12 seconds
- Controlled pressure system for even capping

Screw Cap Recappers

- Each Screw Cap is tightened securely and uniformly
- CS500 Recapper caps a row of 8 tubes in 5 seconds and a whole rack of 96 tubes in only 1 minute
- SR096, SR048 and SR024 systems cap an entire rack in 30 seconds

Micronic electric cappers come with a 3-year warranty. They do not require adapters and can be integrated into automated systems and robotics.

Micronic products are available to us through our sister company, ^{MJS} BioLynx Inc. Visit www.biolynx.ca/micronic for more information.



Tracxer Code Reader TS201 MINI



Handheld Wireless Scanner MINI



Tracxer RD235 CRYO

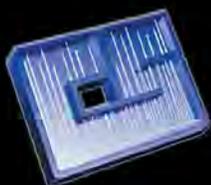


Univo CP480



Screw Cap Recapper CS500





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