

GERSTEL

MAKING LABS WORK

LabWorks_{Platform}

Eliminate Doubt, Discover the Unknown

- the only truly universal
sample introduction
system for GC-MS

MultiPurpose Sampler

LabWorks Platform





The GERSTEL LabWorks Platform is the only truly universal system for sample introduction for GC-MS. It provides unmatched capability and flexibility in solving your critical challenges.

The standard platform provides 10 automated sample introduction techniques, all controlled by GERSTEL Maestro software which integrates seamlessly with Agilent ChemStation, MassHunter and Open Lab software.

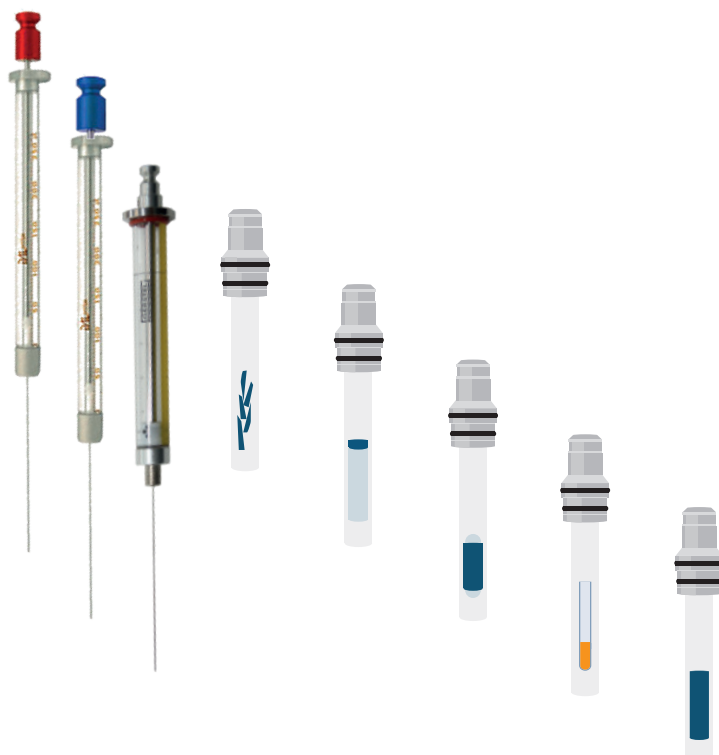
There is no need to have a different instrument for each technique. Liquid, Headspace and Thermal Desorption are all included without the need for additional bench space.

Labworks 10 Standard Techniques

- Liquid Injection
- Large Volume Injection
- Headspace Injection
- Multiple Headspace Injection with Trapping
True HS Enrichment
- Twister
- TF-SPME
- Direct Thermal Extraction
- Sorbent tubes
- Micro-vial (ATEX)
- Sample Preparation

The LabWorks Platform features TrueTrap technology that provides discrimination free trapping of compounds without the need for valves and transfer lines. This is a requirement for determination of unknown compounds (non-targeted analysis). This technology can be used with Headspace, Thermal Desorption, SPME, SPME -Arrow, SBSE and TF - SPME for true compound enrichment, achieving unsurpassed detection limits.

The LabWorks Platform also has sample preparation capabilities, such as internal standard addition, sample dilution, derivatization, and preparation of calibration curves.



LabWorks Platform Hardware Components

- MPS robotic autosampler
Automates all sample introduction techniques as well as sample preparation functions
- Thermal Desorption Unit (TDU 2)
Provides analyte introduction for all types of sample matrices
- Cooled Injection System (CIS4)
PTV type inlet that also acts as a universal trap for thermal desorption

LabWorks Standard Sample Introduction Techniques

- Liquid, including sandwich technique
- Headspace
- Thermal Desorption

Key LabWorks Platform Features

- 10 sample introduction techniques included in standard platform
- TrueTrap technology requires only one trap for all applications
- Cryogen free trapping for target analysis
- True Enrichment for HS, SPME, TD, Twister, TF-SPME and DHS techniques
- No valves or transfer lines - required for non-targeted analysis
- Easy addition of up to 10 additional sample introduction techniques
- Easy addition of more advanced analytical techniques (ODP, 1D/2D, etc.)
- GC inlet does not need to be reconfigured when switching between techniques
- Requires no additional bench space
- Maestro integration into Agilent software platforms



Dynamic Headspace
& DHS Large



µSPE



Pyrolysis



Automated Liner
Exchange



GC-O

The LabWorks Platform is easily expanded so that it can perform over 20 sample introduction and preparation techniques. For the researcher trying to quickly solve the most critical challenges, the True Discovery Platform is the most powerful system available.

Cooled Injection System CIS 4

The CIS 4 system functions as a cold trap for the TDU in the LabWorks Platform. This cold trap features True Trap Technology which uses a combination of forward flow, low temperature, and an inert trap surface to ensure there is no compounds loss, discrimination, or degradation during analyte transfer onto the GC column. This technology eliminates valves or transfer lines in the flow path and eliminates doubt with regard to analysis integrity especially when performing non-targeted analysis.

The CIS can also be used as a universal inlet for all injection techniques that are used in GC and GC-MS analysis. In addition to conventional split/splitless injection, it also allows oncolumn injection and cooled injection to be performed.

Temperature-programmed sample introduction using CIS eliminates compound discrimination and degradation during injection. The septumless head (SLH) prevents contamination due to septum bleed or septum particles getting into the inlet liner and maintains column head pressure even after hundreds of injections.

Minimum Temperatures with Cooling Options (GC oven at 70 °C)

- -150 °C with LN2 cooling
- -70 °C with LCO2 cooling
- -40 °C with cryostatic cooling device
- -30 °C with cryostatic cooling device and TDU module
- 10 °C with Universal Peltier Cooling device

Types of sample introduction

- Split/splitless
- Solvent venting
- Large volume
- On-column (requires optional kit)

Temperature program

- 2 temperature ramps
- 2 heating modes
- Heating rate max. 16 °C/s Start temperature max. 400 °C End temperature max. 450 °C Hold time max. 60 min per end temperature



Thermal Desorption Unit TDU 2

TDU Tube Dimensions

- Empty tubes, for GERSTEL Twister® and -TF-SPME, 60 mm L x 6 mm OD x 5 mm ID
- Sorbent tubes, 60 mm L x 6 mm OD x 4 mm ID

Desorption temperature

- Ambient to 350 °C

Temperature program

- 2 temperature ramps
- Heating rate max. 720 °C/min
- Start temperature 10 up to 350 °C
- First end temperature 10 up to 350 °C
- Second end temperature 10 up to 350 °C
- Maximum hold time 650 min per end Temperature

Desorption flow

- > 200 mL/min
- Low split mode for sample introduction with a fixed low split ratio

Analyte transfer to CIS

- Split
- Splitless
- Solvent venting
- Low split

The TDU 2 system is used for thermal desorption of all sample matrices (gases, liquids, solids, and packed tubes) as well as GERSTEL Twister and TF-SPME extraction devices. The system uses the CIS 4 inlet as cold trap featuring True Trap technology that eliminates doubt with regard to analysis integrity, especially for non-targeted analysis.

The system has a unique liner-in-liner interface between the TDU 2 and the CIS providing a completely inert flow path without valves or transfer lines that greatly simplifies the system's configuration and provides exceptional robustness.

The TDU 2 system features advanced temperature and pneumatic control, providing almost unlimited flexibility in temperature and gas flow programming to achieve optimum analysis conditions; all controlled using the GERSTEL MAESTRO software with a simple to use graphical user interface.

Sample analysis can be completely automated using the GERSTEL MultiPurpose Sampler.

Thermal Desorption Accessories

Tube Conditioner TC 2

- For simultaneous thermal conditioning of up to 10 TD tubes or up to 60 Twisters® under a flow of inert gas

Thermal Extractor

- For thermal extraction of analytes from larger samples onto packed tubes



MultiPurpose Sampler robotic

The MPS robotic is a highly efficient GC/MS auto-sampler with extended robotic functionality. The MPS robotic provides reliable and efficient processing of complex tasks. Syringes are mounted in individual syringe modules, which can be exchanged automatically within a running sequence when using the MPS robotic pro for maximum flexibility.

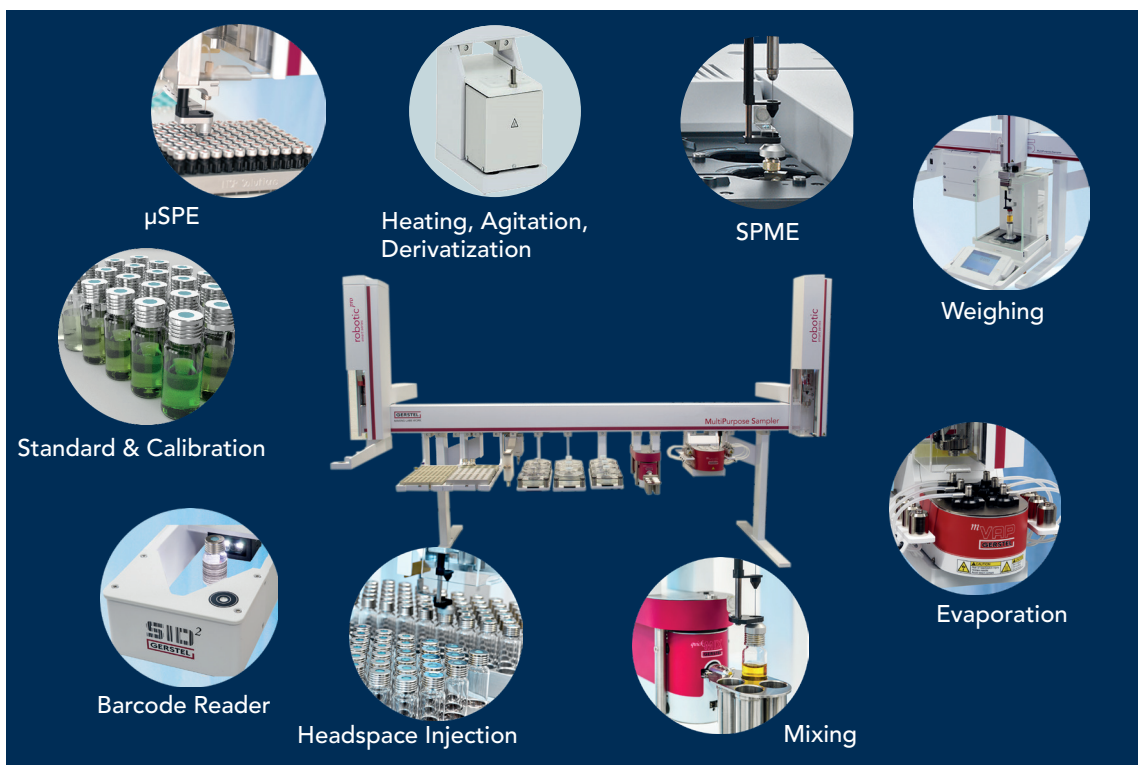
The GERSTEL USM is a universal syringe module for liquid syringes ranging from 1 to 1,000 μL total volume. Most application requirements can be met without changing syringe modules, saving time and money - and reducing the risk of error. The USM is compatible with the GERSTEL gripper enabling automation of multiple sample preparation techniques.

Sampler Type

- X, Y, Z robot based, multifunctional, flexible autosampler for GC
- Extended robotic functionality
- Large sample capacity, high flexibility
- Manual syringe exchange
- Upgrade option to MPS robotic pro with automated tool exchange
- Fast injection
- Automatic recognition of installed actively communicating modules such as an agitator, a barcode reader, etc.

Sample Capacity

- 6 tray holders or 4 stacks
- 3 small or 1 large tray per tray holder
- 3 deepwell or microtiter plates per tray holder
- Modular tray concept
- Up to three different tray types can be placed on every tray holder



GERSTEL LabWorks Platform

-All Techniques in one Platform

For analysts that need to automate their GC-MS sample introduction processes and require maximum sample introduction and method flexibility with accurate results and no down time, the GERSTEL LabWorks Platform is the only truly universal sampling platform available.

Unlike other limited platform approaches, the GERSTEL LabWorks Platform includes over 10 sampling techniques and can be expanded with up to 20 additional techniques. All techniques are controlled through MAESTRO software that is integrated into Agilent GC-MS software.

GERSTEL's modular approach to upgrading allows you to „Future Proof' your investment so that you can continually solve your most critical challenges while receiving lifetime support.

Sample introduction techniques

- Liquid Injection
- Large Volume Injection
- Automated Liner Exchange (ALEX)
- Headspace Injection (HS)
- Multiple HS Injections with Trapping
- SPME
- SPME Arrow
- Thermal Desorption with TDU
 - Multi-Desorption Mode
 - Twister
 - TF-SPME
 - Direct Thermal Extraction TD tubes
 - Micro-vial (ATEX)
- Pyrolysis
 - Pulsed, Ramped, and Smart Ramped
- Dynamic Headspace
 - Full Evaporation DHS
 - Multi-Volatiles Method (MVM)
- Dynamic Headspace - Large Vessel

Additional modules for advanced problem solving

- Olfactory Detection Port (ODP)
- Preparative Fraction Collector (PFC)
- Cold Trapping System (CTS) - in oven
- Selectable 1D/2D GC for Heartcutting

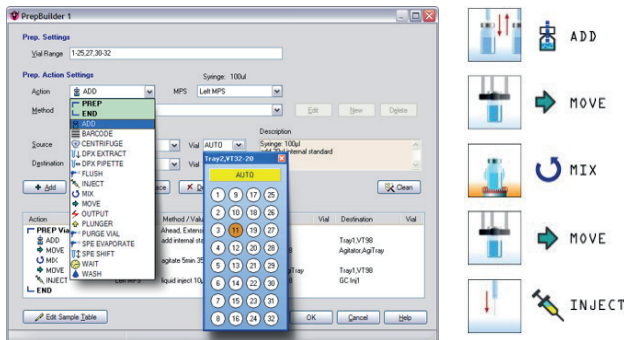
Sample Preparation Options

- Dilution
- Standard Addition
- Calibration Curve Preparation
- Bar Code Reading
- Filtration
- Evaporation
- Weighing
- Mixing
- Centrifugation
- Multiple SPE options
- Sonication
- Cooled Trays and Stacks
- Custom Trays and Wash Stations

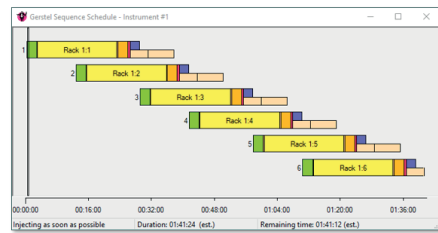
MAESTRO Software

GERSTEL MAESTRO software provides a comprehensive and efficient solution for the modern laboratory. All GERSTEL modules and systems are operated in a simple, efficient and transparent manner in stand-alone mode or integrated with the GC/MS or LC/MS software. Just one sequence table and, depending on the system, one integrated method runs the complete system from sample preparation and sample introduction to GC/MS or LC/MS analysis.

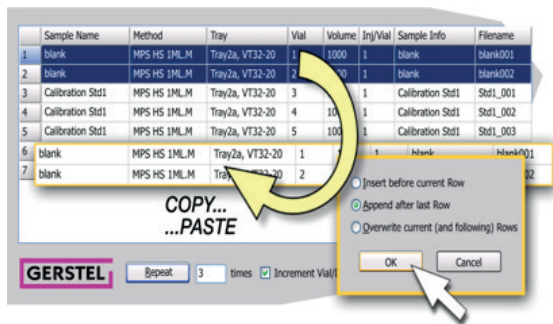
MAESTRO offers easy and intuitive control of the MPS. All steps from sample preparation to introduction to your GC/MS or LC/MS system are selected by mouse-click from a drop-down menu. Context-sensitive help is always at your finger-tips in case a question pops up.



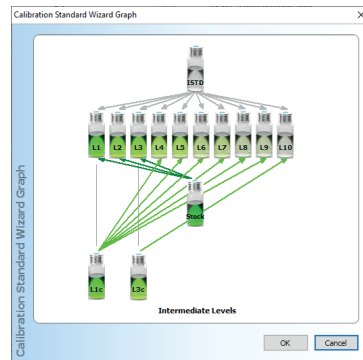
PrepBuilder



PrepAhead



Simple User Interface



Calibration Standard Wizard

