



# Automated Sample Preparation

## Maximize Your Possibilities

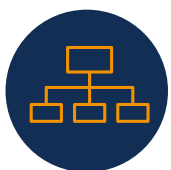
The ideal autosampler for reliable and flexible sample preparation and introduction for LC, LC-MS, GC, and GC-MS analysis. Independent of the analysis instrumentation, the MPS WorkStation automates sample preparation, which improves precision, accuracy, and productivity and optimizes laboratory workflow.

# Maximize the Efficiency of Sample Preparation & Introduction

Explore the many benefits of automating your sample preparation and introduction:



Improved accuracy and precision



Precise control of all experimental variables



Safer work environment through decreased solvent use



Increased productivity by enabling 24-hour operation



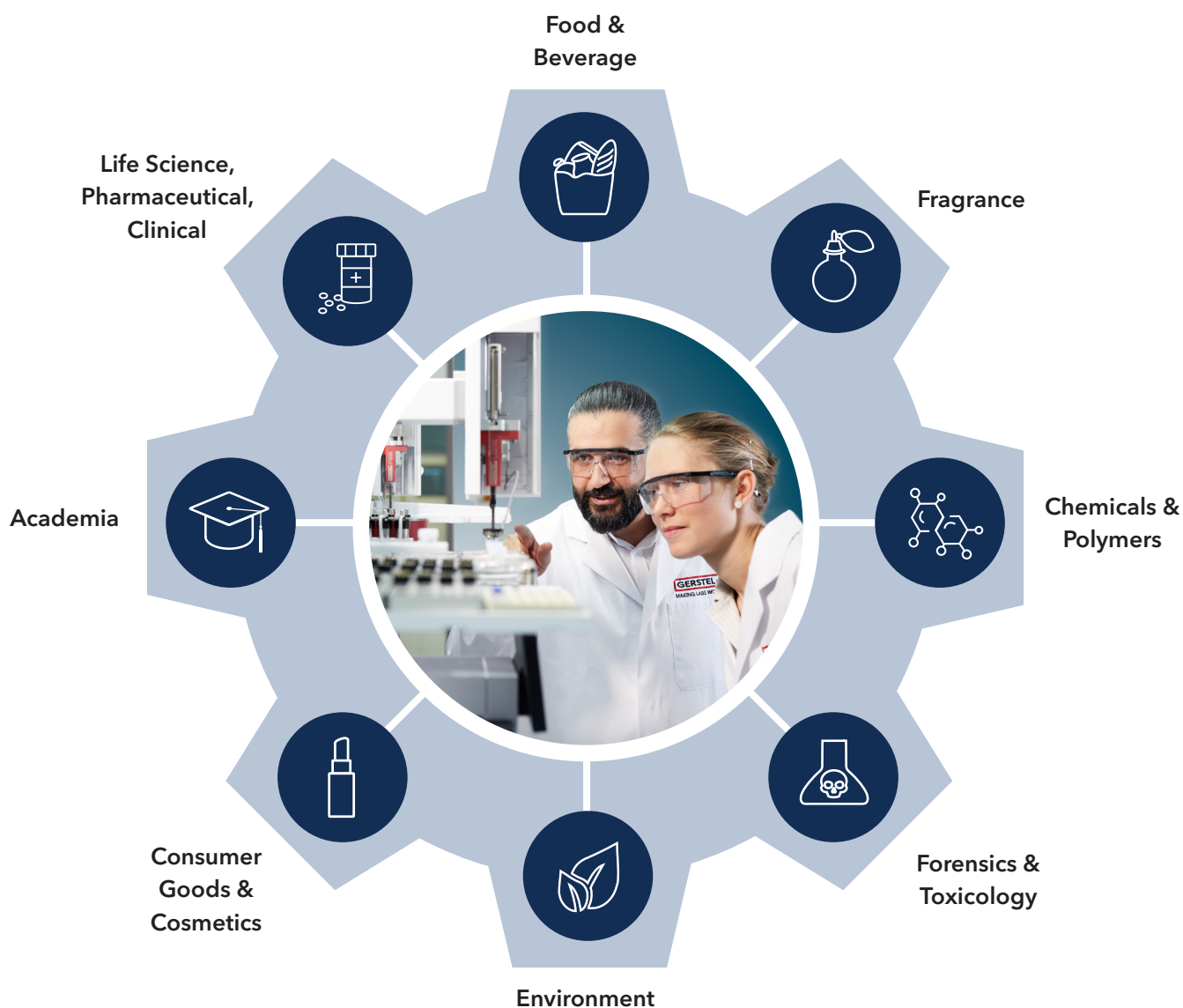
Lower costs through miniaturization



Better use of analyst's time and skills

# Confidence in Automated Sample Preparation and Introduction

Analytical laboratories in all branches of science depend on automated sample preparation to increase efficiency, improve accuracy and precision and reduce resources needed for repetitive tasks:



# Sample Preparation Techniques and Applications

Discover the best solution to meet your needs for sample preparation integrated with LC-MS and GC-MS analysis, or preparing samples from a WorkStation for subsequent injection into an analyzer.



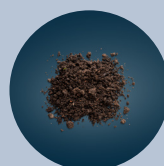
Wide Range  
of Sample  
Types



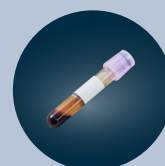
Beverages



Water



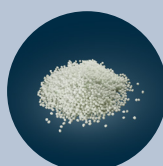
Soil



Blood



Food



Polymers



Plants



Drugs



Multiple  
Applications

## Applied Areas:

- Food Safety
- Food Contamination
- Environmental Pollutants
- Industrial Byproducts
- Forensics
- Toxicology
- Extractables & Leachables
- Metabolomics
- Proteomics
- Lipidomics
- Clinical Research
- Drug Discovery
- DMPK
- FAMES



Versatile  
Functionality

## Techniques

- Dilution
- Standard Addition
- Liquid-Liquid Extraction
- Headspace
- SPME
- Calibration Curve Preparation
- Filtration
- Evaporation
- Weighing
- Mixing
- Centrifugation
- Multiple SPE Options
- Barcode Reading
- QuEChERS



# Advanced Sample Preparation and Introduction

## Ingeniously Smart with Productivity and Flexibility in Mind

### Consumables

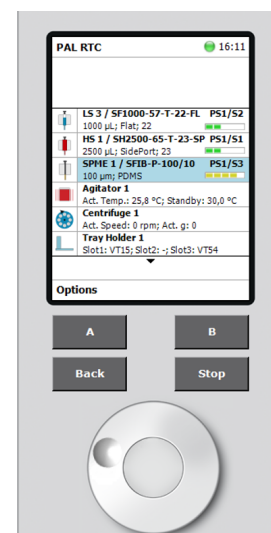
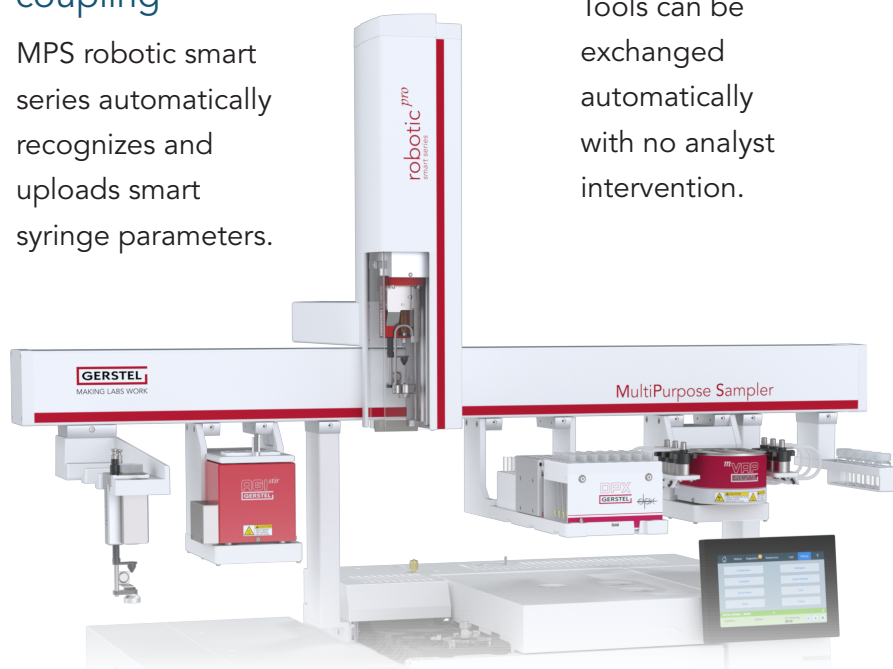
MPS robotic smart consumables are equipped with a chip containing parameters, ranges and history of use.

### Smart plunger coupling

MPS robotic smart series automatically recognizes and uploads smart syringe parameters.

### Tool control

Tools can be exchanged automatically with no analyst intervention.

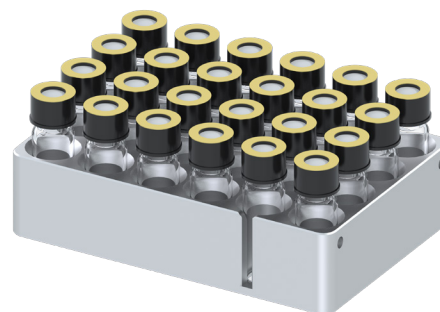


### Read/Write Chip

Critical parameters, such as number of injections of a specific syringe, are displayed and tracked in real time.

### Optimal Tray Design

Flexible use of different vial sizes with up to 3 different trays in each tray holder.



### Trays

All tray formats needed for your applications are available, including cooled and custom trays.

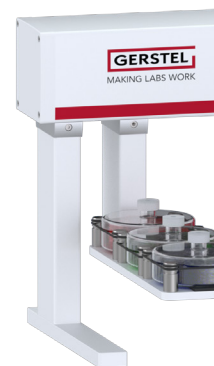
### Vials

Flexible use of different vial sizes from 1 mL up to 100 mL, vacutainer, bottles, or any sampling device for your application.

# Sample Preparation and Introduction

## Expand Your Capabilities

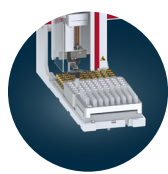
The MPS robotic smart series is the perfect autosampler for LC-MS analysis. Automated sample introduction can be combined with LC-MS for routine analysis or R&D projects, including removing unwanted matrix materials, concentrating analytes, changing solvents, and adding standards, reagents, or diluents.



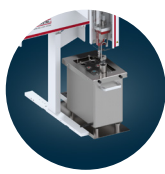
# MPS for WorkStation

The stand-alone MPS robotic smart series WorkStation, available as single or dual-head, operates independent of the analysis instrumentation, enabling it to prepare samples for multiple analysis techniques.

## Expand Your Possibilities



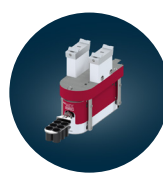
μSPE



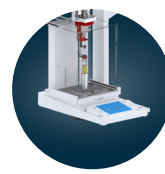
UltraSonic  
Bath



mVap



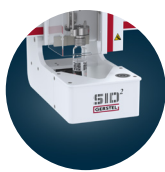
quickmix



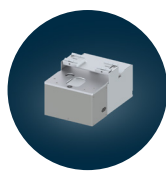
Balance



Agitator  
Stirrer



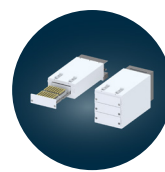
Barcode  
Reader



Centrifuge



Solvent Filling  
Station



Cooled Stacks



5 Position  
Dilutor



Filtration



DPX



# Dual Head

For LC, LC-MS, GC, and GC-MS or stand alone operation, the MPS Dual Head robotic smart series version maximizes your analytical possibilities. The additional head enables the simultaneous use of two different tools.



# The Right Tools

## The GERSTEL USM

The GERSTEL USM is a universal syringe module for liquid syringes ranging from 1 to 1,000  $\mu$ L. 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.

## The GERSTEL PSM

The GERSTEL PSM is a prep syringe module for large volume liquid syringes from 1 mL to 5 mL, with a purge gas connector.



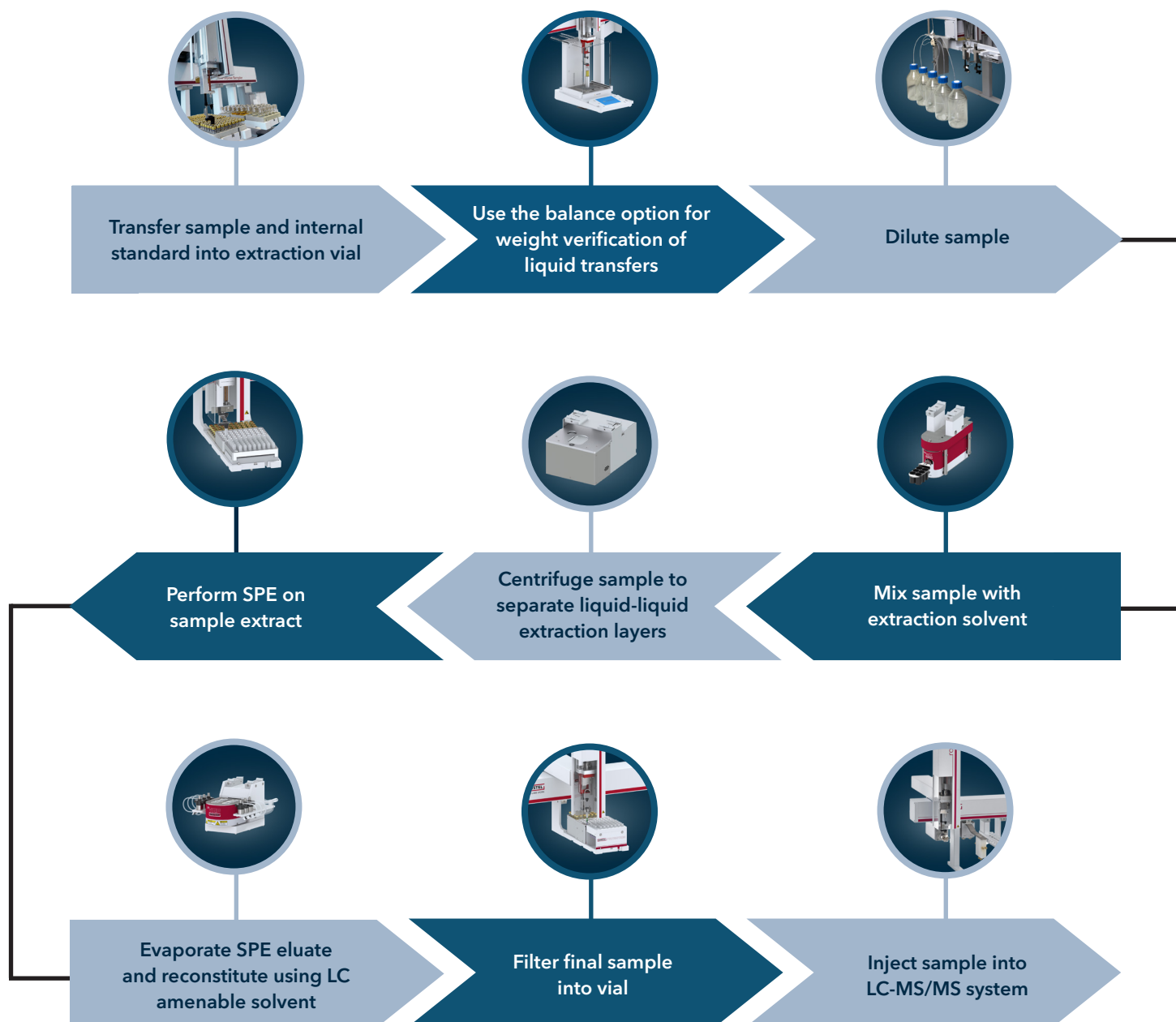
## Headspace and SPME

Tools are available for static headspace, SPME, and SPME Arrow extraction.



# Automated Applications and Solutions

Consider automating your manual method. From a simple injection to a complete workflow, the possibilities for sample preparation are endless. The modular design allows the addition of future modules to meet almost any requirement.



# Customize Your Rail for Your Method



Add the right  
modules for  
your workflow

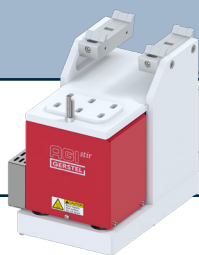
## Derivatization

Addition of solvents and  
derivatizing agent

Agitation and mixing at  
higher temperatures

Solvent extraction

Evaporation and reconstitution



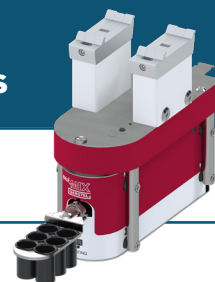
## Antibiotics in Complex Samples

Addition of  
extraction solvents

Thorough mixing for  
solvent extraction

Centrifugation for phase separation

Chemical filtration and final dilution



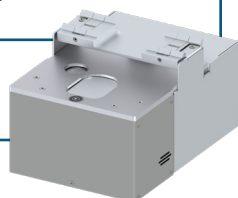
## Dispersive Liquid-Liquid MicroExtraction (DLLME)

Dispensing of extracting solvent  
with aqueous sample

Mix to promote LLE

Centrifuge to separate phases

Remove extract and  
inject onto GC-MS



## Hydrolysis and DPX Extraction from Urine Samples

Addition of hydrolysis enzyme and buffer

Hydrolysis and sample transfer

Dispersive Solid Phase Extraction  
(DPX)

Evaporation and  
sample introduction



# GC and GC-MS Analysis

Whether you are determining VOCs, VOCs or SVOCs, the MPS robotic smart series sets the benchmark for efficiency, throughput and improved detection limits. It provides the simplest way to automate and improve the performance of your GC-MS analysis.



## Expand Your Possibilities



**Thermal Desorption**  
(TDU 2, TD 3.5+, TDS)



**Dynamic Headspace**  
(DHS)



**Pyrolysis (PYRO)**



**Olfactory Detection**  
Port (ODP)

## MAESTRO Software/Scheduler

In addition to complete GERSTEL instrument control, Maestro software allows sample preparation and analysis runs to be easily and efficiently set up and optimized to run simultaneously for maximum productivity and throughput.

- Provides a clear overview of sequence run time
- Shows the duration of each step from sample preparation to GC-MS or LC-MS analysis
- Displays how various steps are performed simultaneously for maximum efficiency
- Optimizes your methods to achieve the highest productivity and throughput in your analysis

