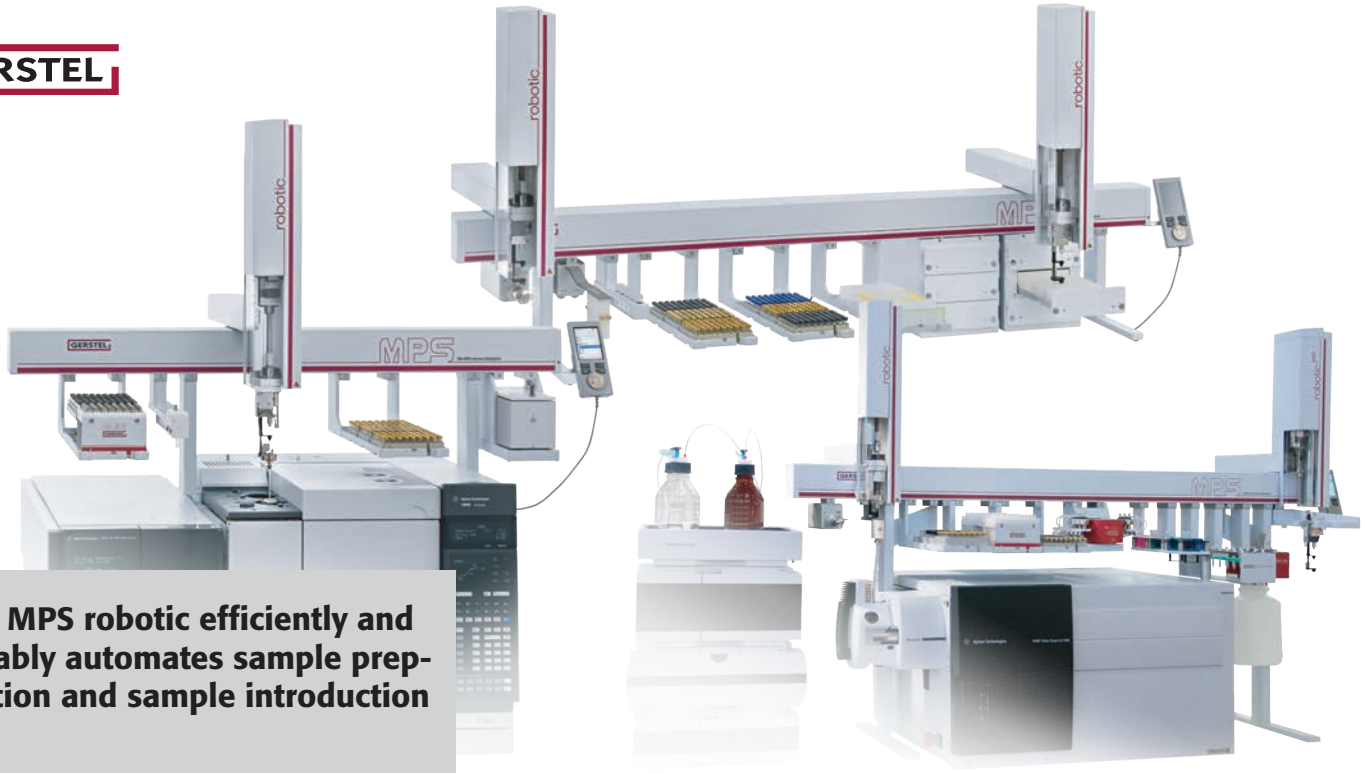
GERSTEL

MultiPurpose Sampler

MPS robotic series

GERSTEL

sample prep for winners



The MPS robotic efficiently and reliably automates sample preparation and sample introduction

MPS robotic for GC and GC/MS
Whether you are determining VOCs or SVOCs, the MPS robotic sets the benchmark for efficiency, throughput and improved limits of detection. In the simplest possible way, the MPS robotic enables you to automate your sample preparation and improve the performance of your GC/MS analysis. **More on pages 4-7.**

MPS robotic for LC and LC/MS
For routine analysis or R&D projects: Removing unwanted matrix material; Concentrating analytes; changing the solvent; or adding standards, reagents or diluents. All this can be combined with automated sample introduction to the LC/MS. Every task is performed and challenges are met In the easiest possible way. **More on pages 8-11.**

MPS robotic WorkStation
The stand-alone MPS robotic WorkStation operates independent of the analysis instrumentation enabling it to prepare samples for multiple analysis techniques. The modular concept of the MPS makes it easy to change to other sample preparation methods enabling you to react quickly and flexibly to changes in lab requirements. **More on pages 12-13.**

MAESTRO Software
Methods, trays and injectors are quickly and easily selected by mouse-click from pull down menus. Sample preparation and analysis runs are easily and efficiently set up and optimized to run simultaneously for maximum productivity and throughput. Urgent samples can be added to the running sequence at almost every point in time – all thanks to MAESTRO software. **More on pages 14-15.**

Unique solutions for automated sample preparation

Analytical laboratories in many branches of science and industry throughout the world use GERSTEL solutions for a wide range of application areas.
These include:

Flavor and fragrance
Food safety
Pharmaceutical
Consumer products
Metabolomics
Forensic toxicology and doping
Chemicals and polymers
Emissions from materials used indoors and in vehicles
Environmental

We offer solutions and services adapted to your needs, individual support and first class service every step of the way.

The most versatile autosampler and sample preparation robot

MPS robotic

The MPS robotic is a highly efficient GC/MS autosampler 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.

GERSTEL Universal Syringe Module USM

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. For example, GC liners can be replaced automatically at a user defined frequency, using Automated Liner Exchange (ALEX), and automated thermal desorption of adsorbent tubes, solid samples such as polymers, or GERSTEL Twisters can be performed in the Thermal Desorption Unit (TDU 2).

GERSTEL USM
for MPS robotic/robotic^{PRO}

GERSTEL Preparative Syringe Module PSM

For large volume liquid syringes from 1 mL to 5 mL total volume with purge gas connector.

GERSTEL PSM
for MPS robotic/robotic^{PRO}

MPS robotic benefits

Multifunctional, flexible autosampler

- Autosampler for all sample introduction techniques: Standard liquid introduction, Headspace (HS), SPME, Dynamic Headspace (DHS) and Thermal Desorption
- Modular expansion enables simple adaptation to future analytical needs
- Reliable results thanks to optimized discrimination-free transfer of analytes using fast injection in combination with hot split/splitless inlets

Universal Syringe Module USM

- One unified syringe module for liquid injection syringes ranging from 1 to 1,000 µL
- Future proof, only the GERSTEL USM is compatible with the GERSTEL Gripper, enabling a multitude of sample preparation techniques such as SPE or filtration

Proven MAESTRO Software control

- Unified control of the MPS robotic and all GERSTEL modules
- Integrated control of MPS robotic and GC/MS system
- Intuitive concept, simple and reliable method generation and –set-up
- Sample Prep by Mouse-Click
- Context-sensitive interactive Help function

New Member of the proven MPS family

- Latest generation MPS Sampler building on experience gained over 15 years and more than 6000 MPS installations

Extended Robotic functionalities of the MPS robotic^{pro}

- µL-Injections performed even from very small sample volumes using Vial Bottom Sensing
- Maximum Flexibility: Automated change of two or more syringe modules in a running sequence enables the combination of liquid, HS and SPME sample introduction in one automated sequence
- Added reliability of complex sample preparation procedures thanks to power feedback for every movement of the sampler

Optimized Tray Design

- Higher sample capacity thanks to extended sample trays
- Flexible use of different vial sizes: Up to three different tray types can be placed in each tray holder
- Extended Headspace and SPME sample capacity: Optimized honeycomb-style tray design for 10- and 20 mL vials and extended sampler reach increases throughput by >50%

The GERSTEL MPS robotic^{pro} in Liquid/HeadSpace/SPME configuration enables efficient processing of Liquid, HeadSpace and SPME Samples in one automated sequence.

The MPS robotic efficiently and reliably automates sample preparation and sample introduction for

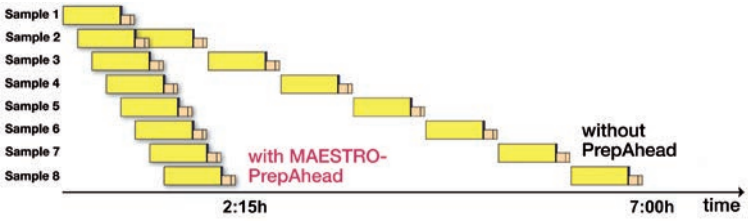
GC & GC/MS analysis

Liquid injection

Standard, fast, sandwich, or large volume injection up to 1000 µL: The MPS performs liquid sample introduction in a highly reliable and efficient manner. Rugged and reproducible analysis - without carry-over or analyte discrimination - is at your finger tips.

Headspace GC (sample volume up to 100 mL)

MPS means maximum productivity: The PrepAhead function of the MAESTRO software enables simultaneous thermostating and analysis of multiple samples for optimal productivity and best utilization of your GC/MS system. The syringe is heated and purged with clean carrier gas to prevent carry-over. Thermostating tempertures range from 10 - 200°C



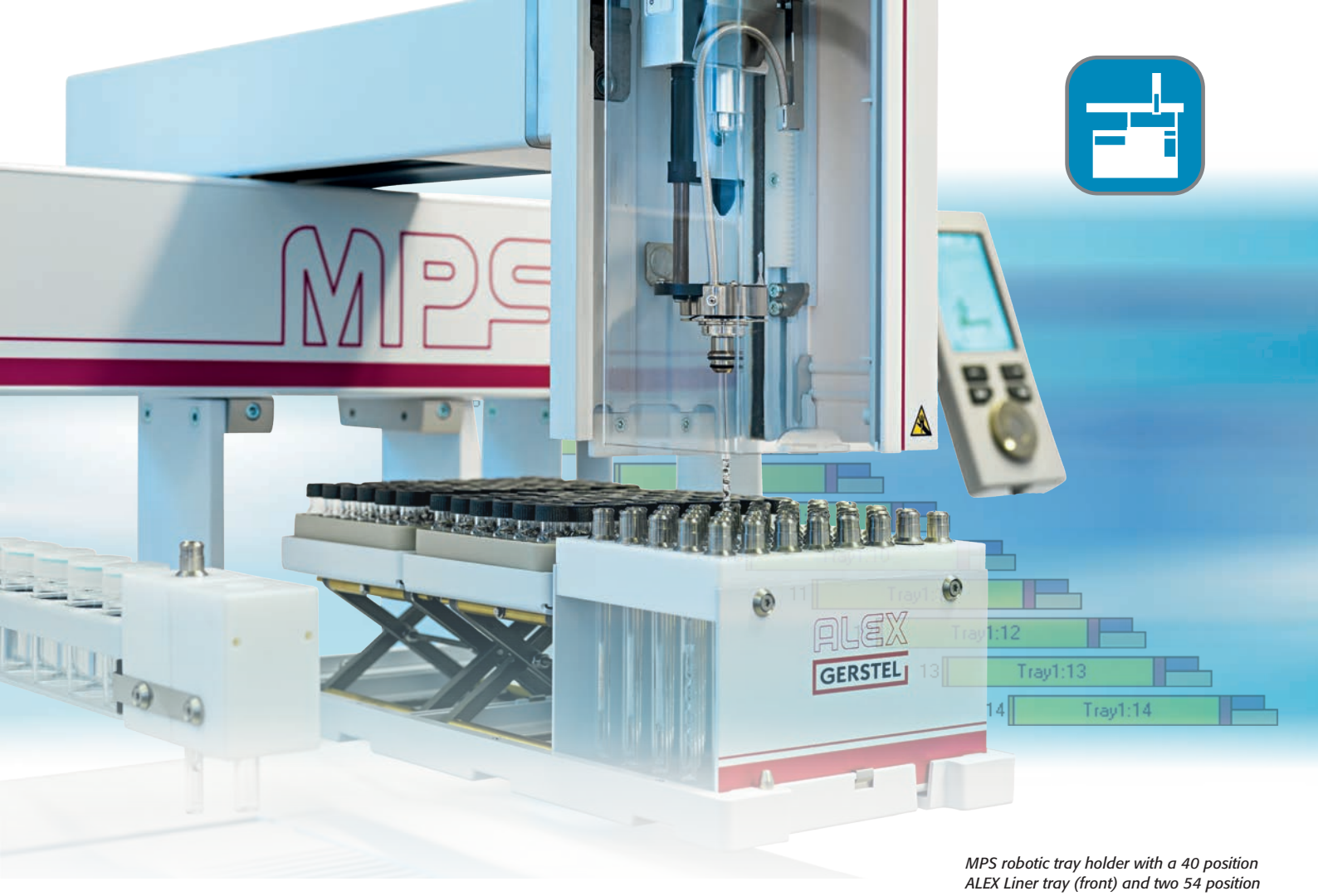
SPME and Fiber Exchange

The MPS completely automates SPME analysis including fiber conditioning, sample extraction, fiber desorption, and fiber exchange. Derivatization can be performed on the fiber or reagents added to the sample prior to extraction.
The unique GERSTEL Agitator Stirrer provides sample agitation with stir bars, accelerating the extraction process and improving throughput. Mechanical stress on the fibers is reduced, resulting in longer fiber life expectancy and improved instrument up-time.

Liquid Sample Preparation

The MPS in combination with MAESTRO sample preparation functions enables easy and efficient automation of all liquid handling steps for sample preparation. Among other techniques, the MPS enables:

- Derivatization, addition of internal standards and weighing
- Dilution and extraction
- Heated syringe for viscous samples
- Heating, cooling and mixing
- Centrifugation and sonication
- Reading and processing of barcode information
- Filtration
- Evaporative concentration (^{m}VAP)



MPS robotic tray holder with a 40 position ALEX Liner tray (front) and two 54 position 2 mL vial trays.

Filtration

Solid material in samples can influence sample preparation, sample introduction and overall system stability leading to incorrect results and increasing the need for maintenance. The MPS Filtration Option enables automated filtration at any stage in the sample preparation process.

Automated Solid Phase Extraction (SPE)

The GERSTEL SPE system is based on the MPS, enabling automated SPE using standard dimension cartridges. In combination with the mvap option, the eluate can be concentrated through evaporation and a keeper solvent introduced to eliminate analyte loss and enable optimal GC sample introduction. SPE methods are easily and intuitively set up in MAESTRO allowing easy transfer of established manual methods to the MPS.

Automated Liner EXchance (ALEX)

In combination with the Automated Liner EXchange (ALEX) option, the MPS can automatically replace GC inlet liners for improved system uptime and ROI. ALEX provides clean chromatograms and correct analysis results even when analyzing large series of matrix laden samples such as QuEChERS extracts.

Solvent Filling Station (SFS³)

Comprehensive sample preparation procedures can require significant volumes of solvent – especially when large numbers of samples have to be processed overnight or on weekends. The GERSTEL Solvent Filling Station (SFS) for the MPS easily covers all your needs. The solvent dispensing station is mounted next to the sample trays and is small enough to avoid limiting the number of samples in most cases.

Every one of the four dispensing positions is connected to a 1 liter reservoir. Up to three SFS can be attached and accessed by the MPS providing sufficient capacity to process a large number of samples without running out of solvent.

Thermal desorption, Thermal extraction and Pyrolysis using the MPS

Thermal desorption of adsorbent tubes

In combination with the GERSTEL Thermal Desorption Unit (TDU 2) or TD 3.5+, the MPS performs automated thermal desorption of up to 120 adsorbent tubes per tray holder. Applications include air monitoring, material emissions, flavors and fragrances. The MPS robotic is the most flexible automated solution available.

Thermal extraction of liquids and solids

In combination with the TDU, the MPS performs automated thermal extraction of liquid and solid samples in disposable µ-vials. The µ-vials and the involatile matrix residue are removed and discarded following the analysis, keeping the GC/MS system clean and stabile.

Efficient trace analysis with the GERSTEL Twister®

In combination with the TDU, the MPS performs fully automated thermal desorption of up to 240 Twisters for ultra-trace determination of organic compounds in aqueous and gaseous samples. Quantitative transfer of the analytes to the GC/MS system enables extraordinarily low limits of detection.

The GERSTEL DHS in combination with a GC/MS system enables trace determination of VOCs in a product or sample under real world product use conditions. Shown here are the MPS robotic pro with TDU 2, GERSTEL Agitator Stirrer, and DHS combined with the DHS Large single sample module for sample volumes up to 1 L.

Dynamic Headspace (DHS)

DHS offers significantly improved limits of detection combined with the ruggedness and ease of use of static headspace analysis. The headspace above a solid, viscous or liquid sample is purged with inert gas and analytes transferred to, and concentrated on, a replaceable sorbent trap. The process is fully automated, including trap desorption in the GERSTEL Thermal Desorption Unit (TDU 2), or TD 3.5+ when larger adsorbent tubes are needed, and introduction to the GC/MS.

DHS Large

The GERSTEL DHS can be extended to accommodate sample containers up to 1 L. A single sample DHS L or an 11 position autosampler can be chosen. DHS Large can be used for material emission screening and for volatiles in consumer products or food among other areas.
The DHS Large 3.5+ in combination with the TD 3.5+ support tubes with up to 240 mg of adsorbent for improved VOC recovery.

Pyrolysis

In combination with the TDU and PYRO option, the MPS performs automated pyrolysis of liquid and solid samples.
A separate thermal desorption step can be performed on the sample prior to pyrolysis in order to determine and/or remove volatile analytes. In this way, cleaner pyrograms and more information is obtained.

Automated generation of standards for Thermal Desorption

The Tube Spiking System (TSS) for the MPS enables automated spiking of adsorbent tubes with liquid standard solutions under a defined flow of inert gas as prescribed in various international standard methods for calibration and validation purposes. Up to five adsorbent tubes can be spiked per TSS option.

Hot Injection & Trapping (HIT)

The HIT technique enables multiple headspace injections into the heated TDU followed by analyte trapping and split or splitless transfer to the GC/MS. HIT leads to improved recovery and accurate results as well as lower LODs over a wide analyte boiling range.

The right sample container for every application

The MPS can process a variety of different sample vial types meeting almost every need. Sample trays can be heated or cooled or stored in drawers to avoid exposure to light. Several thousand samples can be stored in the smallest possible space.

Micro- and deep well plates

Micro- and deep well plates used in combination with stacked sample drawers enable a throughput capacity of several thousand samples per batch.

Standard vials used for sample preparation and introduction

The MPS can process samples in crimp cap or screw cap vials of the following sizes: 0.7 mL; 1 mL; 2 mL; 10 mL; 20 mL and 40 mL. Metal- or polymer based caps are available.

Highly flexible headspace analysis

The MPS headspace option is based on standard 10- and 20 mL headspace vials. In addition, sample trays and agitators are available for vial sizes from 2 to 100 mL.

Sample ID (SID)

The MPS bar code reader enables unequivocal control and traceability of sample ID based on 1D or 2D barcodes.

Thermostated sample trays

Samples can be stored at sub-ambient temperature to eliminate analyte decomposition or at above ambient temperature to enable sampling of viscous liquids.

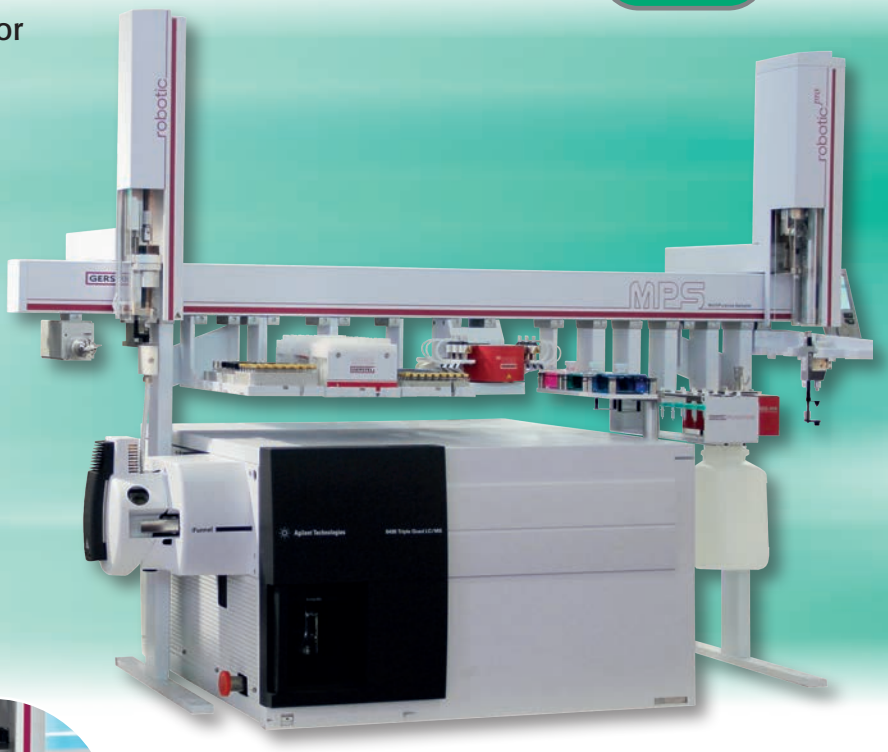
Customized trays

GERSTEL offers customized sample trays enabling you to work with the sample containers that meet your needs. Please contact us to learn more about how we can help ease your workload.

GERSTEL MPS robotic pro configured for Solid Phase Extraction (SPE). From left to right: SPE option (SPE 2), Solvent Filling Station (SFS 3) and associated solvent reservoirs, as well as Tool Exchange Option.

The MPS efficiently and reliably automates sample preparation and sample introduction for

LC & LC/MS analysis



Thanks to its reliability, flexibility, and outsize capacity to hold and process samples, the MPS is the perfect autosampler for LC/MS analysis. Samples can be introduced from any standard size vial and from micro well or deep well plates as well. When using stacks, up to several thousand samples can be placed on the sampler under controlled conditions, cooled or heated as needed for best sample stability.

Zero carry-over LC/MS sample introduction

The MPS robotic LC/MS tool reduces carry-over in your LC/MS analysis to an absolute minimum. This novel and innovative technology eliminates all contact between sample and syringe and all surfaces in the sample flow path are inert. System rinse is performed in the sample introduction direction. The fast inject-wash cycles make the MPS robotic series the perfect start for fast ultra-trace analysis.

Automated Solid Phase Extraction (SPE)

The SPE option upgrades your MPS to a fully automated SPE robot. The SPE process is performed in a highly reproducible and reliable manner:

- ➔ Positive liquid displacement eliminates variations in recovery even when sample variability leads to changes in flow restriction across the cartridge.
- ➔ A new cartridge is used for every sample eliminating cross-contamination.
- ➔ The standard dimension 1, 3, and 6 mL cartridges used ensure that established manual methods are easily transferred to the MPS and automated.
- ➔ Following SPE, the eluate can be introduced directly to the LC/MS system or processed further.
- ➔ SPE setup is performed reliably and intuitively in the MAESTRO software.

The GERSTEL MPS robotic also performs:

- SPE cartridge drying for complete solvent change
- Evaporative concentration of the eluate; if needed an LC- or GC compatible keeper solvent can be added
- Additional liquid sample preparation steps

Online SPE

The GERSTEL SPE^{xos} extends the sample preparation portfolio of the MPS with online SPE based on exchangeable cartridges. SPE^{xos} is based on compact cartridges with less sorbent than standard cartridges enabling a reduction in the amount of sample and solvent required. The cartridges can be inserted directly into the HPLC mobile phase for elution, enabling 100 % transfer and recovery of analytes to the HPLC column for improved LODs. The extraction and clean-up process is integrated with the LC-MS/MS analysis under one integrated sequence table for easy and error free operation. SPE^{xos} is installed between the MPS and LC/MS system enabling integrated operation including the addition of standards and reagents prior to SPE and LC-MS/MS determination.

Solvent Filling Station (SFS^3)

Comprehensive sample preparation procedures can require significant volumes of solvent – especially when large numbers of samples have to be processed overnight or on weekends. The GERSTEL Solvent Filling Station (SFS) for the MPS easily covers all your needs. The solvent dispensing station is mounted next to the sample trays and is small enough to avoid limiting the number of samples in most cases.

Every one of the four dispensing positions is connected to a 1 liter reservoir. Up to three SFS can be attached and accessed by the MPS providing sufficient capacity to process a large number of samples without running out of solvent.

Liquid Sample Preparation

The MPS in combination with MAESTRO enables easy and efficient automation of all liquid handling steps for sample preparation.
Among other techniques, the MPS performs:

- Derivatization, addition of internal standards and weighing
- Dilution and extraction
- Pipetting of viscous samples
- Heating, cooling and mixing
- Centrifugation and sonication
- Reading and processing of 1D and 2D barcodes (SID)
- Filtration
- Evaporative concentration (^{m}VAP) and solvent exchange
- Capping and decapping

Filtration

Solid material in samples can influence sample preparation, sample introduction and overall system stability leading to incorrect results and increasing the need for maintenance. The MPS Filtration Option enables automated filtration at any stage in the sample preparation process.

The DNPH / Filtration Option also enables automated elution of aldehydes and ketones collected on DNPH cartridges from air. Up to 24 DNPH cartridges can be placed on each tray and, depending on configuration and size, multiple trays can be installed on the MPS robotic ^{Pro}.

^{Quick}Mix

The ^{quick}Mix option enables extremely fast and efficient mixing and extraction of a sample as part of the automated sample preparation process. The mixing power is comparable to that of vortex mixing. The sample is placed in a special tray on the module holding up to 6 samples at a time. The tray can be exchanged to operate with 2 mL, 4 mL, 10 mL and 20 mL vials. If needed, ^{quick}Mix can be configured with a heated tray.
All sample steps are set up by mouse-click in the MAESTRO software

ITSP

ITSP® (Instrument Top Sample Preparation) is a patented consumable cartridge for automated small-scale SPE. The MPS can move the ITSP device enabling significant method flexibility. Further benefits are: Just in time sample preparation and a significant reduction in solvent usage, sample volumes, time and labor required for sample preparation. The ITSP process is controlled by mouse-click using MAESTRO with PrepAhead productivity and Agilent MassHunter® integration.

Efficient sample preparation for

LC & LC/MS analysis

Maximize your possibilities

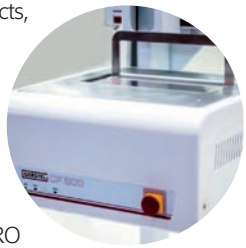
For GC (GC/MS), LC (LC/MS) or standalone operation the MPS Dual Head version maximizes your analytical possibilities. The additional tower enables the simultaneous use of two different syringes. Sample preparation steps are performed in a controlled and highly accurate and reproducible manner for best possible results. Every step is selected by mouse-click from a pull-down menu in the GERSTEL MAESTRO software and added to the overall GC/MS or LC/MS method or sequence.

MPS Dual Head configuration for sample preparation and sample introduction to an HPLC system.

Pyrolysis for HPLC

The GERSTEL PyroVial enables Pyrolysis procedures in a dedicated sample vial up to 800 °C. Placing the sample into the reaction chamber is very simple and the PyroVial can be used as a micro-scale reaction chamber. The gas phase in the vial can be replaced by an inert gas or a reactant. Pyrolysis products can be taken up in a suitable solvent for subsequent GC/MS- or LC/MS determination – or for analysis using other techniques. Volatile pyrolysis products can be sampled directly from the Headspace for GC/MS determination. The Pyrolysis process is fully automated based on the MPS robotic series. Food preparation processes, such as the Maillard reaction can be simulated in small scale and the formed flavor compounds determined. Pyrolysis of polymers such as those based on polar acrylic resins can be followed by HPLC determination of the reaction products. The addition of reagents or catalysts before pyrolysis enables simulation of industrial processes.

Centrifugation



Whether for clean-up of QuEChERS extracts, for faster phase separation after liquid-liquid extraction, or for general removal of unwanted sample matrix: Centrifugation is an important step in many sample preparation processes. The MPS enables full automation of the centrifugation step in the sample preparation process under easy and efficient MAESTRO software control. Depending on your application needs, different types and sizes of centrifuges are available

MPS

MPS WorkStation

Flexible and reliable sample preparation robot providing efficient automation of your laboratory processes.

The GERSTEL MultiPurpose Sampler (MPS) provides a wide range of capabilities in one robotic system. The MPS WorkStation is a bench-top version of the MPS, independent of the GC/MS or LC/MS analysis system. The WorkStation can be configured as Single Head or Dual Head version enabling it to perform a range of functions to meet almost every requirement in terms of performance and throughput. The MPS WorkStation provides complete flexibility. In combination with the GERSTEL MAESTRO software, the MPS WorkStation offers simple set-up and advanced automation capabilities.

Liquid Sample Preparation

The MPS in combination with MAESTRO sample preparation functions enables easy and efficient automation of liquid handling steps for sample preparation, including:

- Derivatization and addition of internal standards
- Dilution and extraction
- Heating, cooling and mixing of the sample and other liquids
- Centrifugation and weighing
- Reading and processing of barcode information
- Filtration
- Evaporative concentration (^{m}VAP)
- Capping and decapping

Weighing of samples

Whether producing standards of exact known concentrations - or highly accurately weighing samples or added standards - the MPS can reliably and efficiently automate these laborious tasks. The weighing option provides accurate results, which are registered, logged, and transferred to the data analysis system for final calculations.

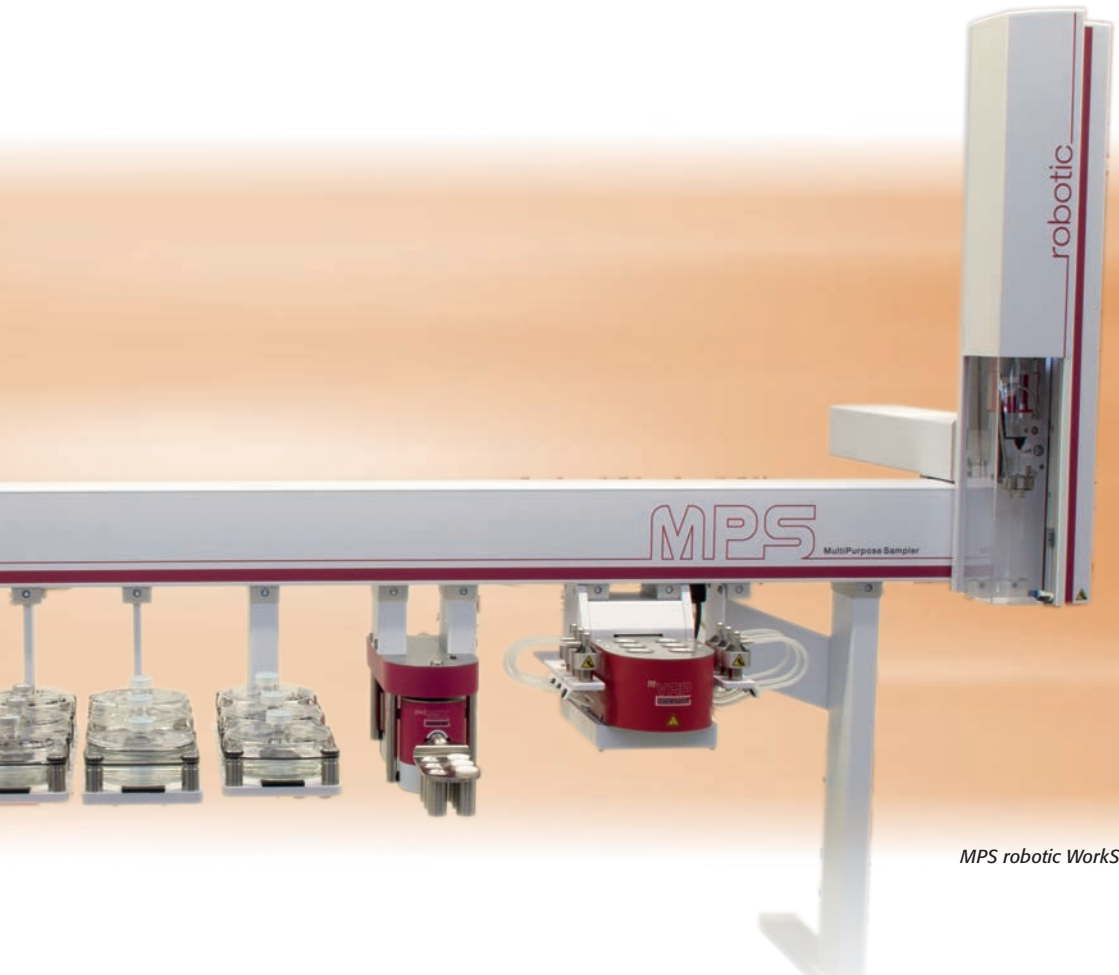
Automated Solid Phase Extraction (SPE)

The SPE option upgrades your MPS to a fully automated SPE robot. The SPE process is performed in a highly reproducible and reliable manner:

- Positive liquid displacement eliminates variations in recovery even when sample variability leads to changes in flow restriction across the cartridge.
- A new cartridge is used for every sample eliminating cross-contamination.
- The standard dimension 1, 3, and 6 mL cartridges used ensure that established manual methods are easily transferred to the MPS and automated.
- Following SPE, the eluate can be introduced directly to the LC/MS system or processed further.
- SPE setup is performed reliably and intuitively in the MAESTRO software.
- Solvent Filling Station (SFS3) accommodates up to four 1 L solvent bottles.

The GERSTEL MPS also performs:

- SPE cartridge drying for complete solvent change
- Evaporative concentration of the eluate, with or without adding keeper solvent
- Additional liquid sample preparation steps
- Reproducible timing, always the exact same timing of



MPS robotic WorkStation in Dual Head configuration.

preparation and sample introduction for best possible reproducibility.

Fast and efficient Dispersive SPE (DPX)

The MPS performs automated Disposable Pipette Extraction (DPX), a dispersive SPE technique based on loosely contained sorbent in disposable pipette tips. The sample and sorbent undergo efficient turbulent mixing resulting in ultra-fast solid phase extraction with high recovery even for complex samples such as blood or urine. The required sample and solvent volumes are much smaller than with standard SPE processes, making DPX more cost efficient and environmentally friendly. The intuitively operated MAESTRO software makes it easy to set up your method or sequence whether the MPS is operated as a stand-alone WorkStation or integrated with the LC/MS system. Even if additional sample preparation steps are needed, such as eluate concentration or the addition of internal standards, it´s done with the click of a mouse.

Solvent Evaporation

The Multi-Position Evaporation Station (mVAP) option performs solvent evaporation and sample concentration for lower detection limits as well as solvent exchange for improved chromatography and LC/MS ionization.
Samples in standard vials can be concentrated in batches of up to six. Concentration is performed at user defined temperature, agitation and vacuum levels enabling highly flexible operation under mild temperature conditions with limited analyte loss.

Centrifugation

Whether for clean-up of QuEChERS extracts, for faster phase separation after liquid-liquid extraction, or for general removal of unwanted sample matrix: Centrifugation is an important step in many sample preparation processes. The MPS enables full automation of the centrifugation step in the sample preparation process under easy and efficient MAESTRO software control. Depending on your application needs, different types and sizes of centrifuges are available

quickMix

quickMix is an option for the GERSTEL MPS family of samplers. quickMix enables extremely fast and efficient mixing and extraction of a sample as part of the automated sample preparation process. The mixing power is comparable to that of vortex mixing. The sample is placed in a special tray on the module holding up to 6 samples at a time.

The tray can be exchanged to operate with 2 mL, 4 mL, 10 mL and 20 mL vials. If needed, quickMix can be configured with a heated tray. All sample preparation steps are set up by mouse-click in the MAESTRO software.

Efficient, intuitive and convenient

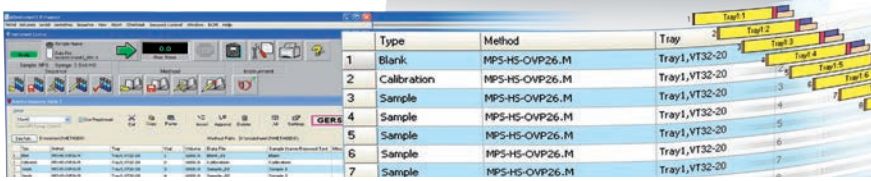
sample preparation:

GERSTEL MAESTRO Software

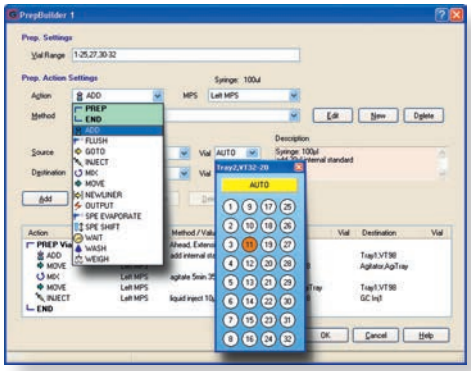
MAESTRO provides a comprehensive and efficient solution for the modern laboratory. All GERSTEL modules and systems are operated in a simple, efficient and transparent manner in stand-alone mode or integrated with the GC/MS or LC/MS software. Just one sequence table and, depending on the system, one integrated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

MAESTRO is designed for simple and efficient laboratory operation – day in and day out.

- **Add Standard**
  Derivatize
- **Transfer sample**
- **Wash**
- **Dilute**
- **Extraction**
  Heat, cool, agitate
  Condition
- **Liner Exchange**
- **Weigh**
- **SPE**
  DPX
  Filtration
- **Evaporate**
- **Introduce**
- **Centrifuge**
- **Barcode**

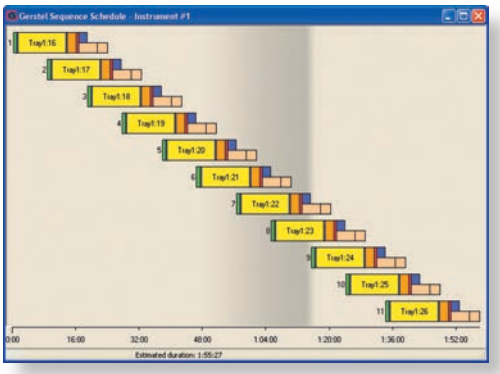


	Type	Method	Tray
1	Blank	MPS-HS-OVP26.M	Tray1,VT32-20
2	Calibration	MPS-HS-OVP26.M	Tray1,VT32-20
3	Sample	MPS-HS-OVP26.M	Tray1,VT32-20
4	Sample	MPS-HS-OVP26.M	Tray1,VT32-20
5	Sample	MPS-HS-OVP26.M	Tray1,VT32-20
6	Sample	MPS-HS-OVP26.M	Tray1,VT32-20
7	Sample	MPS-HS-OVP26.M	Tray1,VT32-20



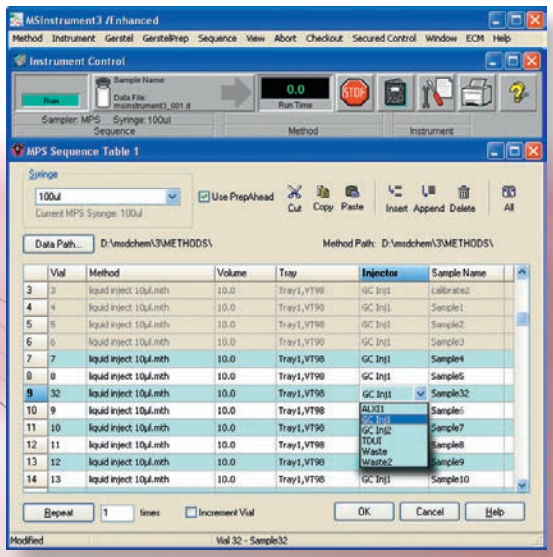
Sample preparation by mouse-click

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 on-line help is always at your finger-tips in case a question pops up.



Scheduler

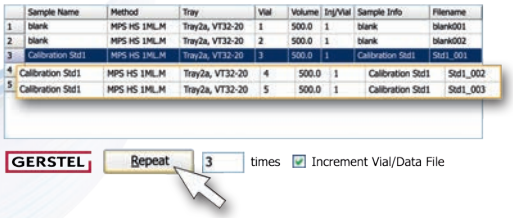
The MAESTRO Scheduler gives you a clear overview of the sequence run time and the duration of each step over the entire process from sample preparation to GC/MS or LC/MS analysis. The Scheduler displays how various steps are performed simultaneously for maximum efficiency. The effect of each method change on the total analysis time is instantly shown. making it easy to optimize your method for highest productivity and throughput.



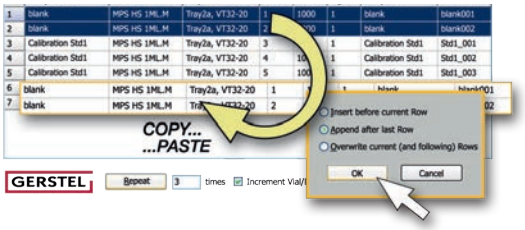
Priority samples can be added to a running sequence at any point. Methods, trays and inlets are selected from pulldown menus. Only sequences that can be completed by the current instrument configuration are accepted, eliminating time-consuming errors and ensuring best possible transparency and productivity.

Intelligent sequence editor

The sequence editor has intelligent fill-down functions that let you generate new sequences easily and quickly. Very little effort is required to create the sequence table that runs your daily samples.

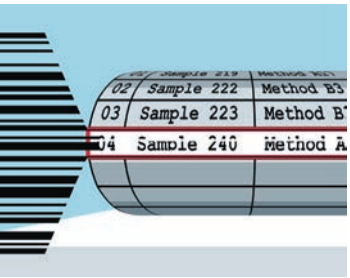


Generate a new sequence with just one click of the mouse: The chosen row is copied the specified number of times. Using the "Increment Vial/Datafile" function, the vial position number and data file number are automatically incremented, no need to edit individual lines.



Copy and paste function: Simply point and click, the destination is clearly marked, it couldn't be easier.

Sequence by barcode



The GERSTEL Sample ID (SID) barcode reader can be used to set up the analysis method and sequence. Samples are either scanned one by one prior to each individual analysis, or as a batch up front. Using database synchronization, the barcodes trigger the correct analysis methods for each sample. In batch mode, a sequence table is automatically generated. Blanks and Check Standard runs can be triggered for routine QC procedures.

MAESTRO benefits

Software for all GERSTEL Modules and Systems

- Unified and reliable control of all GERSTEL modules for GC/MS and LC/MS
- Stand-alone operation with any analysis system
- Fully integrated operation with Agilent ChemStation® or GC MassHunter®: Intuitive and error-free operation of the complete analysis system using one method and one sequence table
- Integrated sequence table for Agilent LC MassHunter®, AB SCIEX Analyst® and Thermo Scientific® Xcalibur™

Simple and intuitive operation

- Context sensitive on-line help and parameter range information enable fast method generation and ensure a short learning curve
- Time saving sample preparation by mouse-click for highest efficiency. Prep steps are selected from a drop-down menu in the PrepBuilder and are easily edited. No need for macro programming

Highest productivity

- Optimized system utilization through intelligent PrepAhead sample processing. Chromatography and sample preparation are automatically perfectly synchronized and performed in parallel
- The Scheduler clearly shows you the timing of every step as well as the total run time for the batch enabling easier laboratory work-flow planning

Unique flexibility

- Priority samples can be added at any time without stopping the on-going sequence
- Real-time display of instrument parameters provides at-a-glance reassurance that the ongoing analysis is progressing as planned. The display can be configured to the needs of the analyst

Reliable operation and results you can rely on

- For highest reliability and confidence in the results, MAESTRO monitors maintenance intervals and reminds the analyst to replace consumable items in a timely manner
- The log file and service log file register all system parameters for full traceability of all steps in the process
- A notification is immediately e-mailed to specified recipients if there is an unplanned interruption in the analysis sequence, enabling the analyst to take corrective action to ensure that results are generated on time

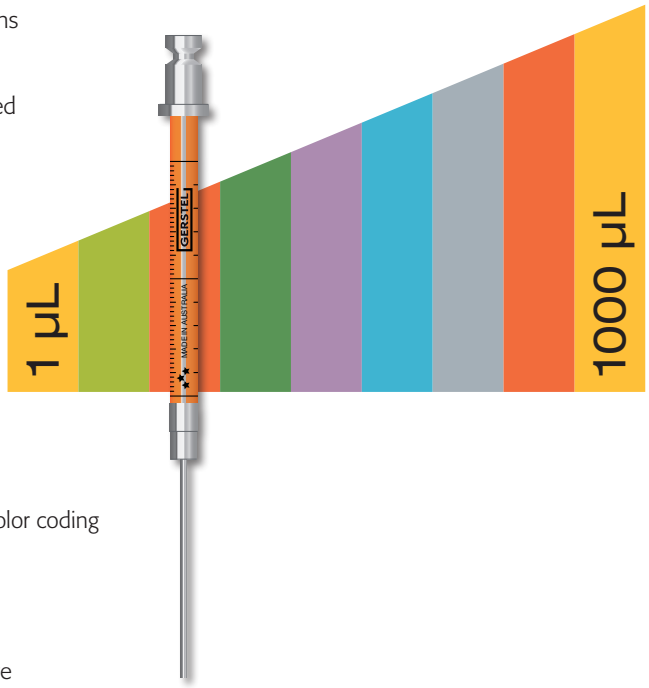
GERSTEL TriStar Syringes

You need an excellent autosampler syringe in order to perform complex sample preparation methods and reliably inject large numbers of samples into a chromatography system. Lowest possible sample to sample carryover and highest accuracy are required and GERSTEL TriStar Syringes are designed and produced to meet these demands.

The TriStar syringe series offers several improvements to minimize or eliminate sources of carry-over, such as reduced dead volume and elimination of active sites. The sample is kept clean and uncontaminated, and the needle remains firmly fixed without the risk of solvent attacking the sealant.

The rugged and inert materials used provide resilience to solvents, expanded temperature range and long operating life.

Syringes for the GERSTEL MPS are available in all standard sizes.



Benefits of the GERSTEL TriStar Syringes

Color coded

- Easy selection of the correct syringe size through clear and unambiguous color coding
- Reliable analysis, the risk of incorrect syringe selection is minimized

Inert, rugged materials

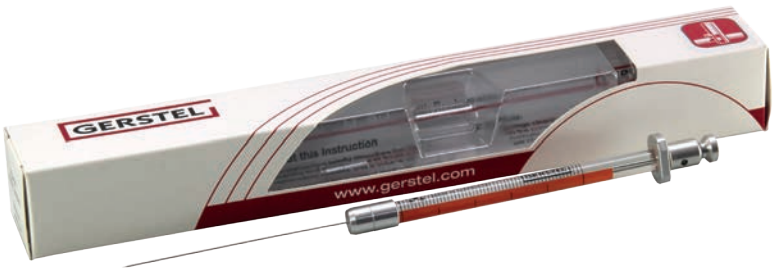
- Reliable analysis performance with solvent-resistant surfaces
- Extended temperature range for increased ruggedness and application range
- Extended operation life

Minimized background

- Inert surfaces and elimination of contact between sample and sealants

Optimized assembly

- Carry-over minimized through reduced residual volumes in the plunger assembly, improved surfaces and PTFE surface sealing
- Carry over and contamination reduced through improved syringe-to-needle connection, eliminating cavities and contact with sealant
- Active plunger tip provides improved Headspace syringe sealing and reduced temperature equilibration times resulting in improved flexibility and productivity



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