GERSTEL

MAKING LABS WORK

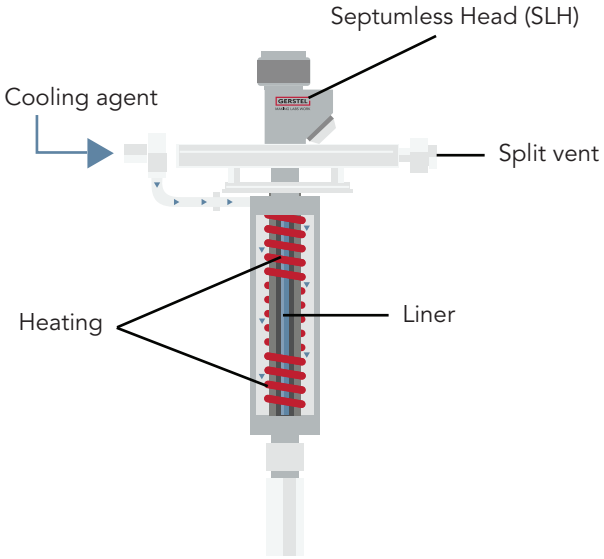
Cooled Injection System CIS

Universal inlet for all injection techniques used in GC and GC-MS

Solve your critical analytical challenges with unmatched capability and flexibility

The GERSTEL CIS
Optimized GC Sample Introduction

High Performance with Unique Flexibility



Maximum flexibility

- One PTV-type universal inlet for all GC & GC-MS injection techniques: Split & Splitless, On Column and Large Volume Injection (LVI)
- A range of cooling options to meet all user requirements: LN_2, LCO_2, Cryostatic and proprietary Peltier cooling
- Temperature range up to 650 °C enables the reliable determination even of the highest boiling compounds
- Operation independent of the GC-MS system using GERSTEL ^{e}Pneumatics (EPC)

Rugged analysis, reliable results

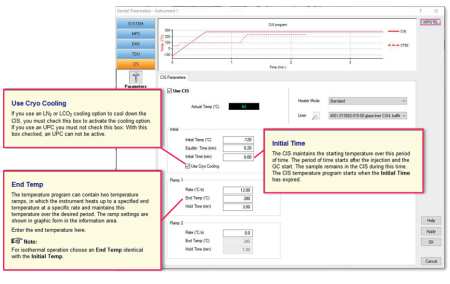
- No interference from septum bleeding, particles, or coring when using the GERSTEL Septum-Less Head (SLH)
- Optimized transfer of thermally labile compounds without overheating
- Proprietary heating system and user defined programmable heating rates
- Reliable analysis of dirty samples with Automated Liner Exchange (ALEX)

Improved separation and lowest limits of detection

- Cryofocusing and concentration of trace analytes
- Analyte transfer as narrow band improves peak shape
- Large Volume Injection (LVI) up to 1000 µL
- Improved quantification and elimination of analyte discrimination achieved through controlled evaporation

Simple operation

- Intuitive and efficient operation using GERSTEL MAESTRO Software both in stand-alone mode and fully integrated with Agilent Technologies GC-MS software
- MAESTRO operates integrated with the sequence table of other software such as Thermo Scientific® Xcalibur™
- Context-sensitive online help in MAESTRO enables fast and error-free method generation and set-up
- The LVI Calculator enables fast and reliable optimization and set-up of Large Volume Injection parameters with the GERSTEL CIS



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The GERSTEL CIS

The Best Means to Trap Analytes for Sample Introduction

Techniques

Cryofocusing

The CIS is ideally suited for cryofocusing of volatile compounds and is a key component in many GERSTEL systems that incorporate thermal desorption:

- Thermal Desorption using the GERSTEL Thermal Desorption Unit (TDU), Thermal Desorption System (TDS) or TD 3.5+
- Thermal Extraction in µ-vials
- Desorption of GERSTEL Twisters® after Stir Bar Sorptive Extraction (SBSE)
- Dynamic Headspace (DHS) and DHS Large

TDU 2

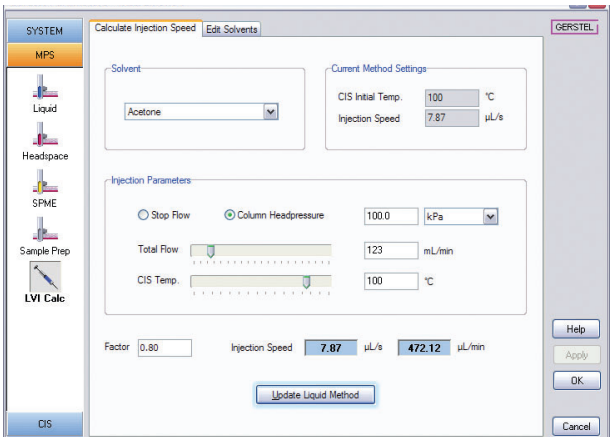
DHS and DHS L

Following thermal desorption, analytes are re-focused using the CIS as cryotrap and subsequently transferred to the GC-MS system using programmed temperature vaporization. This approach ensures sharp peaks, excellent separation and best possible recovery and detection limits over a wide boiling range.

The Hot Injection and Trapping (HIT) technique enables multiple Headspace or SPME injections into the hot TDU combined with trapping in the cold CIS and splitless transfer to the GC column for best possible recovery and limits of detection. The number of injections is simply selected by mouse-click in the method.

Large Volume Injection (LVI)

Whenever limits of detection need to be improved, a simple approach is to increase the injected sample volume. This only works when the inlet and column are not overloaded, the solvent must be steadily evaporated during the injection phase while retaining analytes in the GC inlet liner. To accomplish this goal, the injection speed, inlet temperature and gas flows must be adapted to the solvent used and the analytes to be determined, and must be tightly controlled for best possible recovery and accuracy. The GERSTEL LVI Calculator makes it a breeze to pick the optimal LVI parameters for rugged and reliable injections up to 1000 µL.



The LVI Calculator is an integral part of the MAESTRO Software. After selecting the solvent from a pull-down menu and entering the injection volume and column flow, a set of optimized method parameters are suggested, which can be transferred to the method.

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GERSTEL Automated Liner Exchange

Reliable and efficient routine analysis of matrix laden samples

GERSTEL Automated Liner Exchange (ALEX) increases overall system efficiency by removing contaminated CIS liners at user defined intervals and enabling automated sequence completion and system productivity maintenance.

Upgrade to ALEX for Easy and Efficient CIS Liner Exchange

Features & Benefits

Rugged operation - highest productivity and throughput

- High throughput and improved ROI for the complete analysis system through Automated Liner Exchange in the running sequence
- Faster, more efficient analysis of dirty samples with less sample preparation
- Highest system reliability through proven pneumatic sealing technology

Reliable results

- Any CIS can be upgraded
- Automated changing of the CIS liner
- Septum bleeding is eliminated through heat-decoupled septa without the need for septum purge
- 40 position liner rack

Simple operation and method development

- Intuitive and efficient operation using GERSTEL MAESTRO Software in stand-alone mode or fully integrated with Agilent Technologies GC-MS software
- Simple method development and setup through use of different liner types in one sequence

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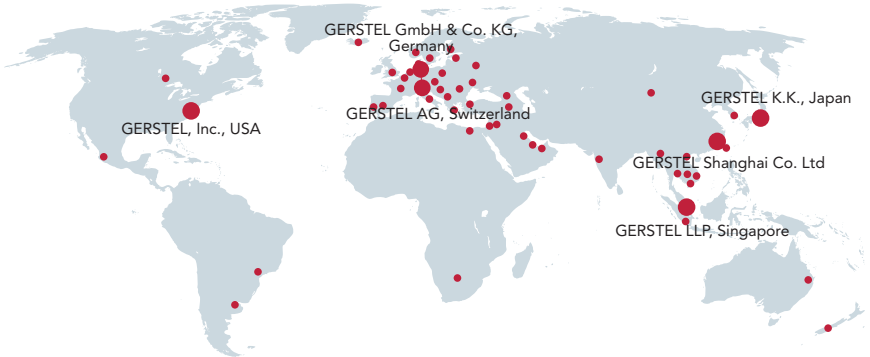

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