


**GERSTEL**


## MultiPurpose Sampler

# MPS for GC

## Specifications

### Sampler Type

- XYZ robot with syringe-only concept
- positioning accuracy  $\pm 0,1$  mm

### System Configuration

- compatible with most standard GCs
- compatible with all standard inlets
- operates with all injector positions
- for more than one injector
- numerous accessories available

### System Versions

- MPS Liquid
- MPS Headspace
- MPS SPME

### Control

- based on GERSTEL MAESTRO software and the MPS handheld keypad
- sample prep by mouse click
- in-depth, context sensitive online help for easy operation of the software

### Sample Capacity

- 200  $\times$  1 mL vials per tray
- 98  $\times$  2 mL vials per tray
- 78  $\times$  1 mL vials per tray

- 32  $\times$  10 mL/20 mL vials per tray
- 8  $\times$  100 mL vials per tray
- max. 4 trays, depending on configuration

### Thermostated Sample Trays

- temperature range 4 ... 200 °C
- for 1 mL, 2 mL, 10 mL and 20 mL vials
- with peltier or liquid cooling

### Wash Stations

- solvents 2 ... 4
- solvent reservoirs 10 ... 1000 mL

### Agitators/Incubators

- 2 ...15 positions
- for 2 mL, 10 mL, 20 mL and 100 mL vials
- temperature range 10 ... 200 °C
- agitation speed 250 ... 750 rpm ( $\pm 15$  %)
- stirring speed 500 ... 1500 rpm ( $\pm 15$  %)

### Dilutor Module

- 1 mL, 2,5 mL, 5 mL and 10 mL dilutor syringe
- solvent reservoir 1000 mL

### Fiber Bake-out Station

- bake-out temperature max. 350 °C
- gas flow 6 or 12 mL/min



## MultiPurpose Sampler MPS for GC

### Interfaces

- 2 × AUX to connect heaters or agitators
- 2 × Interface
- RS 232 to connect a computer
- LAN to connect a computer
- WASH STATION
- MODBUS for valve control

### Operating Conditions

- 10 ... 40 °C
- relative humidity 95%

### Power Requirements

- 97.5 ... 264 VAC
- 45 ... 66 Hz
- 150 VA

### Dimensions (W × D × H)

- 828 × 385 × 648 mm

### Weight

- 10 kg (without accessories)

### Regulatory Certifications and Standards

- 2006/95/EG (Low Voltage)
- 89/336/EG (EMC)
- 2006/42/EG (MD)
- DIN EN 61010-1:2001
- IEC 61010-1:2001
- ANSI/UL 61010A-1:2004 2<sup>nd</sup> Edition
- CAN/CSA C22.2 No.61010-1:2004 2<sup>nd</sup> Edition
- DIN EN 61326:1997-1 +A1:1998
- IEC 61326-1:2005
- IEC 61326-2-6:2005
- CISPR 22:2005 +A1:2005 +A2:2006
- FCC 47CFR Part. 15:2003

### MPS Liquid

#### Vials

- 1 mL, 2 mL, 10 mL or 20 mL
- thermostated, 4 ... 200 °C

#### Syringe

- 1.2 µL, 5 µL, 10 µL, 25 µL, 100 µL, 250 µL, 500 µL or 1000 µL
- particular LVI syringes allow slower injections
- heated 10 µL syringe, 35 ... 80 °C
- one universal syringe holder for all syringe volumes

#### Injection Volume

- 0.12 ... 1000 µL, depending on syringe volume
- max. 99 injections per vial

#### Injection Modes

- standard
- sandwich technique using air or solvent
- large volume

#### Speed

- injection speed 0.05 ... 500 µL/s, depending on syringe volume
- fill speed 0.05 ... 500 µL/s, depending on syringe volume
- separate settings for injection and rinse steps
- separate settings for sample and solvent

#### Precision\*)

- < 0.8 % RSD

#### Carryover\*)

- < 0.08 %

#### Rinsing Steps

- separate adjustment of pre- and post-clean steps
- using sample or solvent
- for up to 2 different solvents

#### Needle Penetration

- in sample vial 1 ... 45 mm
- in solvent vial 1 ... 45 mm
- in CIS injector 20 ... 45 mm

#### Specials with MAESTRO Software only

- real sandwich technique
- standard addition
- multiple sample prep-ahead



## MultiPurpose Sampler MPS for GC

### MPS Headspace

#### Vials

- 10 mL, 20 mL or 100 mL, depending on configuration

#### Syringe

- 1 mL, 2.5 mL or 5 mL
- heated syringe holder for all syringes

#### Syringe Temperature

- 35 ... 150 °C, in increments of 1 °C

#### Injection Volume

- 100 ... 2500 µL, depending on syringe volume

#### Speed

- injection speed 10 ... 1000 µL/s, depending on syringe volume
- fill speed 10 ... 1000 µL/s, depending on syringe volume

#### Needle Penetration

- in sample vial 1 ... 45 mm
- in CIS injector 20 ... 45 mm

#### Syringe Cleaning

- 0 ... 60 min flush time with inert gas

#### Incubation

- incubation temperature max. 200 °C
- incubation time max. 24 h

#### Sampling

- from agitator/incubator
- directly from tray

#### Precision\*)

- < 1.0 % RSA

#### Carryover\*)

- < 0.05 %

#### Specials with MAESTRO Software only

- sample pre-pressurization
- multiple headspace sample enrichment MHSE
- multiple sample prep-ahead

### MPS SPME

#### Vials

- 2 mL, 10 mL, 20 mL or 100 mL

#### Fiber

- 23 gauge
- fiber sets for different analytes available
- one fiber holder for all fibers

#### Fiber Conditioning

- inside fiber bake-out station or injector
- before or after extraction
- temperature set by user depending on fiber used

#### Derivatization

- pre- or post-extraction
- derivatization time max. 24 h

#### Extraction

- using standard Agitator
- using Agitator Stirrer, for longer fiber-life
- directly from tray

#### Specials with MAESTRO Software only

- multiple sample prep-ahead

\*) under GERSTEL standard conditions



## MultiPurpose Sampler MPS for GC

### Agitators and Incubators

#### Standard Agitator

- 6 positions
- 2 mL, 10 mL and 20 mL vials
- temperature range 35 ... 200 °C, in increments of 1 °C
- agitation speed 250 ... 750 rpm ( $\pm$  15%)
- dimensions 180 x 115 x 185 mm (H x W x D)
- weight 2.2 kg

#### Agitator for 2 mL Vials

- 15 positions
- 2 mL vials
- temperature range 35 ... 200 °C, in increments of 1 °C
- agitation speed 250 ... 750 rpm ( $\pm$  15%)
- dimensions 180 x 115 x 185 mm (H x W x D)
- weight 2.2 kg

#### Agitator Stirrer

- 6 positions
- 20 mL vials
- temperature range 35 ... 120 °C, in increments of 1 °C
- operation in agitation or stirring mode selectable
- agitation speed 250 ... 750 rpm ( $\pm$  15%)
- stirring speed 500 ... 1500 rpm ( $\pm$  15%)
- dimensions 180 x 115 x 185 mm (H x W x D)
- weight 2.2 kg

#### Cooled Agitator

- 6 positions
- 2 mL, 10 mL and 20 mL vials
- temperature range 10 ... 200 °C, in increments of 1 °C
- with peltier cooling UPC
- controlled by AUX controller 163
- dimensions 180 x 115 x 185 mm (H x W x D)
- weight 2.2 kg

#### Incubator for 100 mL Vials

- 2 positions
- 100 mL vials
- temperature range 35 ... 180 °C, in increments of 1 °C
- dimensions 212 x 128 x 336 mm (H x W x D)
- weight 6.2 kg

#### Heated Tray 32-20

- 32 x 20 mL vials
- 35 ... 200 °C

### Extensions and Options

- GERSTEL SPE, for automated solid phase extraction
- Twister-Option, for automated desorption of GERSTEL Twisters inside the Thermal Desorption Unit TDU
- DHS, for automated dynamic headspace analysis
- ATEX-Option, for automated liquid injection, thermal extraction of the liquid and tube exchange in a GERSTEL Thermal Desorption Unit TDU
- ALEX-Option, automated liner exchange for the GERSTEL CIS used for samples with a high matrix-load
- SPME Multi Fiber Exchange MFX for the Solid Phase Micro Extraction with automated fiber exchange
- Disposable Pipette Extraction DPX, a novel alternative to SPE with a powdery adsorbent.
- MPS PrepStation, the system with 2 towers and 2 rails allows the simultaneous use of two different syringes or the combination of liquid sample prep and SPME or HS sample introduction
- special solutions on request