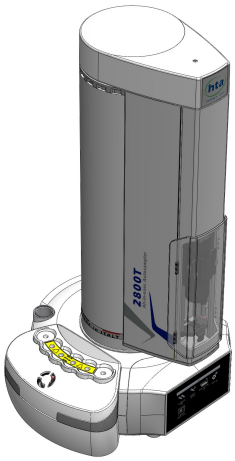
# 2800T

## All-in-one GC Autosampler: Headspace, Liquid and SPME



**INSTRUCTION MANUAL**

Version: h

Original instructions

***NOTICE**: For safe and proper use, follow these instructions. Please keep them for future reference.*

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# 1. Information on this document

## 1.1 Document updates

| Version | Publication date | Updates |
|---|---|---|
| - | 09-2023 | First publication |
| a | 11-2023 | • Correct some typos<br>• Update **PC requirements** for HTA Monitor and HTA Autosampler Manager |
| b | 12-2023 | • Update **HTA Monitor** installation procedure<br>• Revised consumables ordering information |
| c | 04-2024 | • Add analyzers on which the CDS is applicable through HTA software integration and HTA software connectors<br>• Add purge line specifications and external pressure regulator technical data<br>• Add Carry over issue in Analyzer reproducibility issue chapter<br>• Add green OR ring to identify Vial locator for Liquid technique<br>• Add Needles in Ordering information<br>• Change plunger with PTFE cover indicators in Ordering information (from 'x/-' to 'Yes/No')<br>• Update **PC requirements for HTA Autosampler Manager**: add account requirement<br>• Update Syringes in Ordering information |
| d | 01-2025 | • Add information in How to choose desorption depth<br>• Add information in How to choose extraction depth<br>• Add flowchart diagrams for Screen description<br>• Add a Preventive maintenance warning<br>• Add Usage in Troubleshooting chapter<br>• Add two Vial detection problems in HS and SPME Mode<br>• Add instructions on which vial locator use in each mode<br>• Add some internal links to chapters<br>• Correct Change to Liquid/SPME mode procedure<br>• Correct Liquid kit contents<br>• Correct Memory, Touch sensor and Mismatch errors messages<br>• Correct Tray errors in Generic start-up errors<br>• Correct some wrong data<br>• Revise to Get into chapters<br>• Update **HTA Monitor** installation procedure<br>• Update **HTA Autosampler Manager** installation procedure and license purchasing code<br>• Update **PC requirements for HTA Autosampler Manager**: remove Windows XP and update .NET Framework release<br>• Revised the order of chapters in Ordering information |
| e | 01-2025 | • New HTA address<br>• Update software connectors |
| f | 03-2025 | Add Sealed tip management in SPME mode |
| g | 03-2025 | • Remove references to 1.1 fibers / 1.5 fibers in Use in SPME |

| Version | Publication date | Updates |
|---|---|---|
| | | mode<br>• Add SPME kit in Accessories |
| h | 04-2025 | • Correct typos<br>• Rearrange Consumables for Liquid Technique list |

## 1.2 Provided documentation

| Manual | Intended users | Code | Date | Distribution format |
|---|---|---|---|---|
| 2800T Instruction Manual | Installer, Final Users | 1.97.083 | 02/04/2025 | Electronic |

## 1.3 Message concepts

### 1.3.1 Safety messages

Warnings related to safety of the user and equipment as envisaged in this document are as follows:

 **CAUTION** Indicates a dangerous situation which, if not avoided, may cause slight injury.

***NOTICE:*** *Indicates obligations that if not observed may cause damage to the equipment.*

### 1.3.2 Other messages

***Note:*** *Neutral and positive information that emphasize or add information to the main text. They provide information that can only be applied in special cases.*

 *Indicates the path in the software to access the page described.*

# 2. Safety

## 2.1 Warnings

### 2.1.1 Personal protective equipment (PPEs)

During procedures wear the PPEs as prescribed by your laboratory regulations.

### 2.1.2 Electrical risks

- Live part hazard. Do not touch live parts while the autosampler is switched on (for example, connection power, power supply).
- Do not pour water or any other liquids over the power supply.
- Do not use water, solvents, detergents or spray on electrical parts.
- Ensure the power supply and power cord are not damaged.
- The supplied power cord must be inserted into a power outlet with a protective earth contact (ground).
  When using an extension cord, make sure that the cord also has an earth contact.
- Use only the power cord and power supply provided with the autosampler and connect the power supply to the indicated voltage source. See 'Technical data' on page 391.
- Do not turn the autosampler on if you suspect that it has incurred any kind of electrical damage or if it shows visible signs of damage. If, for any reason, the safety protections were compromised or if the autosampler shows visible signs of damage, switch off the autosampler, disconnect the power cord and contact your Customer Representative.
- Switch off the autosampler and disconnect the power cord from the rear before cleaning or maintaining it.
- Do not use solvents nor detergents on the touch screen and all fragile parts of the autosampler.

### 2.1.3 Mechanical risks

- Finger crushing hazard. Do not touch nor place hands near the tray, turret, sledge, needle, oven cover, fan and plunger while they are moving.
- Handle the autosampler and all its consumables and spare parts with care, protecting them from mechanical damage.
- Do not touch nor adjust the injector adapter during injector alignment.

### 2.1.4 Hazardous substance risks

- The operator must be trained to operate in accordance with the safety standards for the laboratory. The autosampler does not have a specific protection mechanism against corrosive substances, or potentially infectious, toxic, radioactive or other hazardous substances.
- If the autosampler is used with hazardous samples the operator must use individual protection measures such as gloves, masks and goggles where appropriate. The use of such devices must comply with the regulations currently in force regarding the safety of testing laboratories.
- To avoid accidents, observe the rules of good laboratory practice while handling solvents, reagents and consumables. Observe the safety regulations about the used chemicals, as indicated in their specific Material safety data sheets (MSDS). Check carefully the physical and chemical properties of the substances before use.

### 2.1.5 Thermal risks

- Do not touch oven or what it is inside the oven during operations. The oven surfaces reach temperature of 170°C that cause burns.

- Do not touch, if present, the cleaning device during operations. The cleaning device reaches temperature of 300°C that cause burns.
- Do not touch vials without adequately protected hands for at least 30 minutes after the vial is removed from the oven. The vial reaches temperature of 170°C that cause burns.
- Do not touch syringe:
  - during operations.
  - without adequately protected hands for at least 30 minutes after the end of the operations.

  The syringe surfaces reach temperature of 150°C that cause burns.
- Do not obstruct the oven fan. The oven surfaces could reach higher temperature that cause burns.

### 2.1.6 Other risks

- The use of the autosampler for any technique invasive for humans or animals is explicitly prohibited. The autosampler must be used only in the manner described in this documentation. Any other use may affect the autosampler and the operator safety.
- Do not store or use the autosampler outside the indicated temperature and humidity range or outdoors.
- The autosampler is heavy. Lift it carefully and using both hands. Do not lift it from the sliding lid.
- The mounting plate has sharp metal parts. Do not open the locking hook by hand.
- The autosampler tray and syringe locations have sharp metal parts. Do not touch them.
- To avoid damaging the equipment and compromising its safety, only use the interface cable, power cord and power supply provided with the autosampler.
- Do not move the turret by hand.
- Maintain a distance of at least 10 cm (3.9") from the autosampler.
- Only use permitted cleaning products.
- If the barcode reader is enabled, do not look at the LED light within a distance of 1 cm. This could cause eye injury.
- Do not use flammable gas like hydrogen to supply the autosampler.

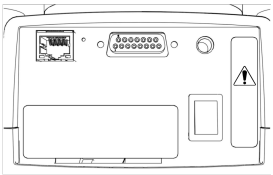
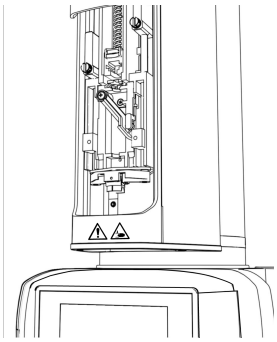
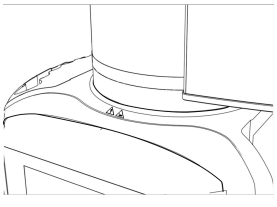
### 2.1.7 Disclaimer

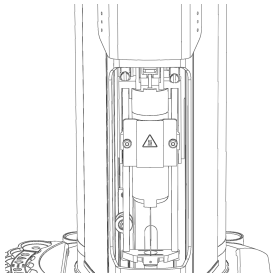
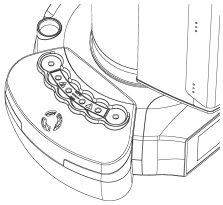
- The operator is responsible for damages caused, even only in part, by improper use of the autosampler, by its unauthorized modification, by a different or missing execution of the procedures described in this manual, or by the use of the autosampler violating the applicable laws and regulations.
- The insertion and positioning of sample, sample vials and syringes and the selection of reagents and washing solvents and purge gas are the sole responsibility of the operator. The operator must operate in accordance with the law, in particular the area concerning the safety of testing laboratories and the accident prevention.
- The standard safety measures and precautions regarding use, maintenance and repair, are not intended for applications that require the use of hazardous substances. For these and other applications requiring IVD certification, extra safety measures are necessary. These additional measures are the sole responsibility of the operator and of the supplier of the IVD system in which the autosampler will be integrated.
- The autosampler operator must be trained about the hazards, use and proper disposal of any hazardous substance. This can be found in the Material safety data sheets (MSDS) and in the regulations, laws, directives and safety decrees currently in force for testing laboratories.

- It is responsibility of the operator the handling and use of hazardous substances in accordance with their safety data sheets (MSDS) and with the law about safety in laboratories. Do not use sample vials without sealing caps or closures. Vapors may be hazardous. Acidic vapors may be corrosive for the mechanical parts.
- It is responsibility of the operator to decontaminate the autosampler from any residual hazardous substances. The cleaning and decontamination agents shall not cause hazard due to reaction with the autosampler or other materials contained inside. We recommend to use a solution of 70% isopropanol (isopropyl alcohol) and 30% water as cleaning solution for external instrument surfaces. If there are doubt about the use of cleaning or decontamination agents contact your Customer representative.
- The autosampler can heat the vials in the oven and the sample in the syringe up to 170°C. Verify, according to an analysis of the laboratory's safety standards and safety cards of chemical substances, that substances can be used at this temperature without any risk to the operator and/or the environment.

### 2.1.8 Safety labels on the instrument

Here are the labels that warn about how to avoid risks:

| Symbol | Description | Location |
|---|---|---|
|  | Electrical risk |  |
|  | Generic risk. Risk for moving parts. | |
|  | Finger crushing hazard. Do not touch nor place hands near the tray, turret, sledge, needle and plunger while they are moving. |   |

| Symbol | Description | Location |
|---|---|---|
|  | Hot surface. Do not touch oven, syringe and vials during operations. |   |
|  | Risk of electrocution. The power supply shall be kept away from liquid sources (liquid containers, liquid spillages and so on). Do not open the power supply. |  |

# 3. Reception

# 3.1 Unpacking

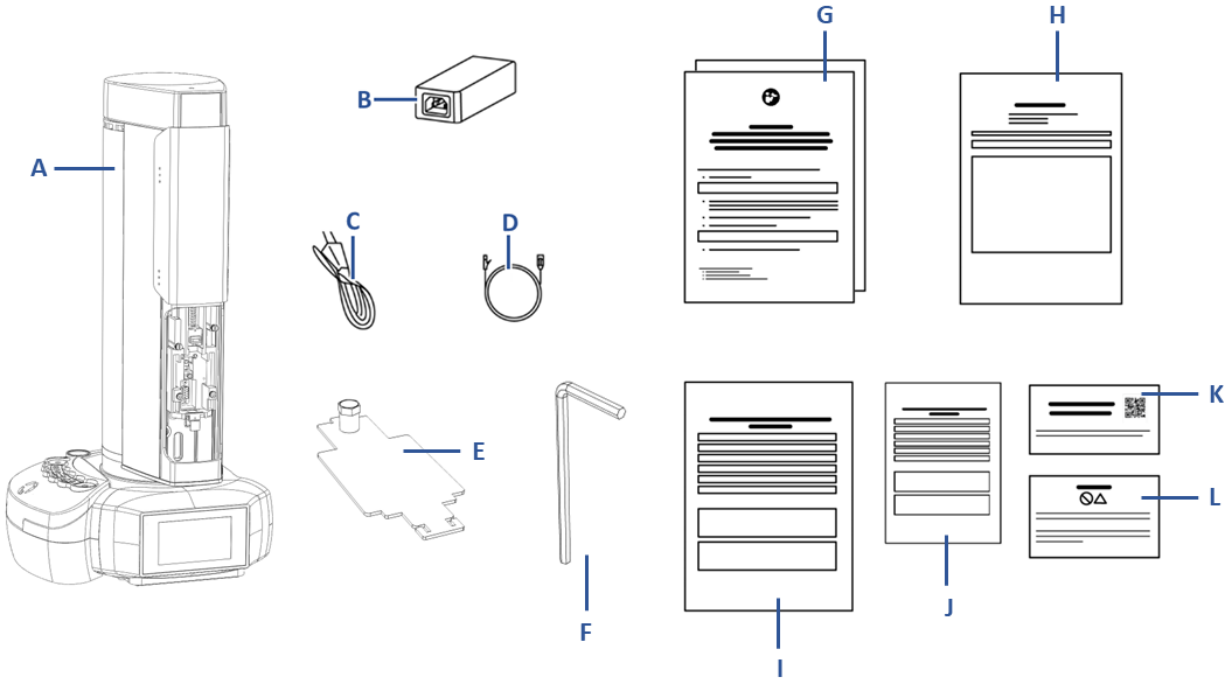
## 3.1.1 Storage warnings

***NOTICE:*** *The package must be stored indoor to avoid exposure to adverse weather conditions. After unpacking, store the packing materials for future use.*

## 3.1.2 Precautions on reception

On reception, check the integrity of the package. If the package is damaged or tampered with, contact your Customer representative. After unpacking, check the presence of all components and their integrity.

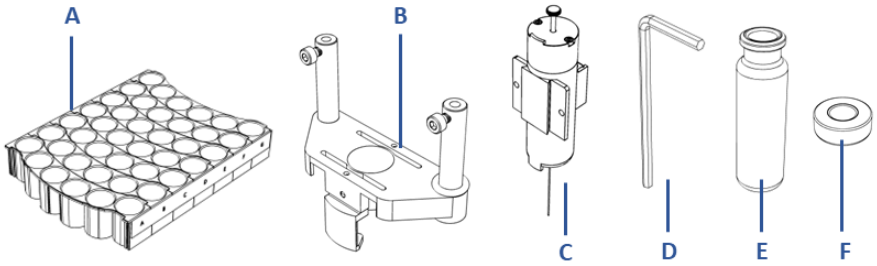
## 3.1.3 Contents




| Part | Name | Function |
|---|---|---|
| **A** | 2800T All-in-one GC Autosampler (hereinafter "autosampler") | Automate the sampling process. |
| **B** | Power supply | Allow to power the autosampler. |
| **C** | Power cord | Allow to power the autosampler. |
| **D** | Ethernet cable | Connect the autosampler to the network. |
| **E** | Syringe pointer | Allow to set the autosampler in operating position, to open the locker and to realign the vial locator to the needle tip. |
| **F** | Allen key 2 mm | Allow to change the vial locator. |
| **G** | Documentation download link (2x) | • 1x contain the digital code to download the manual;<br>• 1x contain the digital code to download the software. |

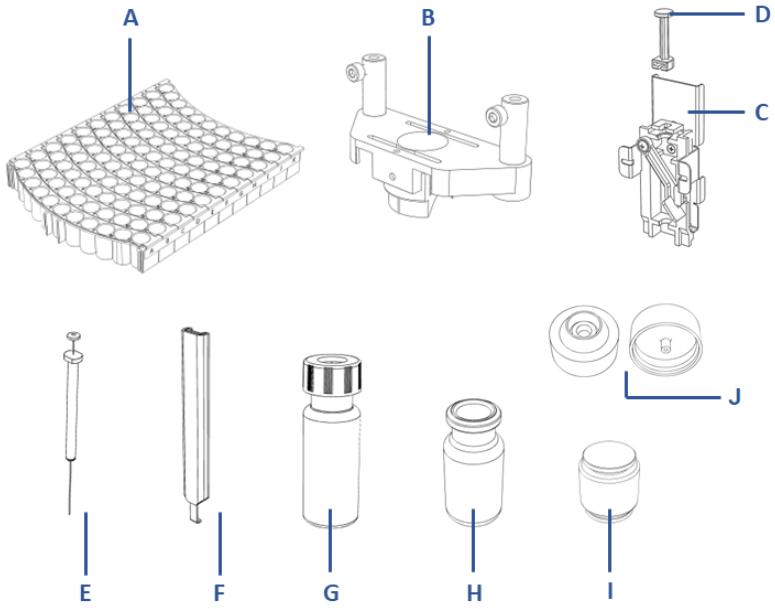
| Part | Name | Function |
|---|---|---|
| **H** | Product paper | List the package contents and provide declarations of conformity and warranty. |
| **I** | Activation key for HTA Autosampler Manager | Allow to use the trial license of the software. |
| **J** | Safety and conformity information | Provide safety and conformity information. |
| **K** | QR code label for installation | Obtain technical assistance on the autosampler installation. |
| **L** | Warning label | Warn to read the manual. |

## Headspace kit:




| Part | Name | Function |
|---|---|---|
| **A** | Sample standard rack | Hold 42 sample vials of 20 ml / 10 ml / 6 ml. |
| **B** | Vial locator | Allow to transport the vial and guide the needle. For details, see 'Vial locators' on page 55. |
| **C** | Heated syringe assembly | Heat and contain syringe glass and syringe plunger. |
| **D** | Allen key 2.5 mm | Tool for syringe replacement. |
| **E** | Sample vials 20 ml | Contain the samples. |
| **F** | Caps with septa | Close the sample vials and allow perforation. |

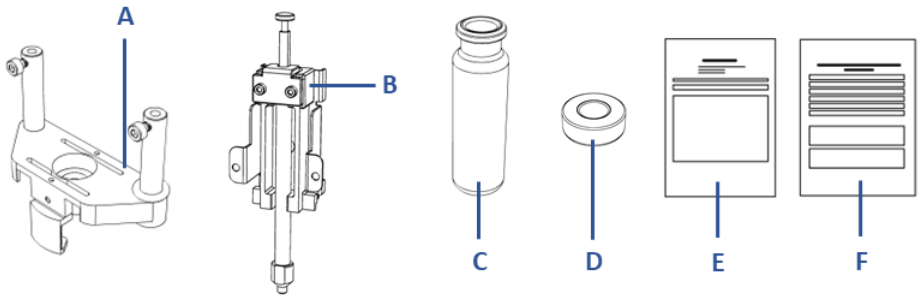
## Liquid kit:




| Part | Name | Function |
|---|---|---|
| **A** | Sample standard rack | Hold 121 sample vials. |
| **B** | Vial locator | Guide the needle. For details, see 'Vial locators' on page 55. |
| **C** | Syringe holder | Hold and move the syringe. |
| **D** | Plunger extension | Hold and move the syringe plunger. |
| **E** | Syringe | Perform the necessary procedures on the sample. |
| **F** | Tweezers | Remove the spacers from the oven. |
| **G** | Sample vials 1,5 ml | Contain the samples. |
| **H** | Vials 10 ml | Contain the solvents / Used as waste vials. |
| **I** | Spacers | Allow to use 10 ml vials as solvent vials in the oven. |
| **J** | Low-maintenance caps with septa | Close the solvent vials and allow perforation. |

### 3.1.4 Optional contents

**SPME kit for standard fibers:**



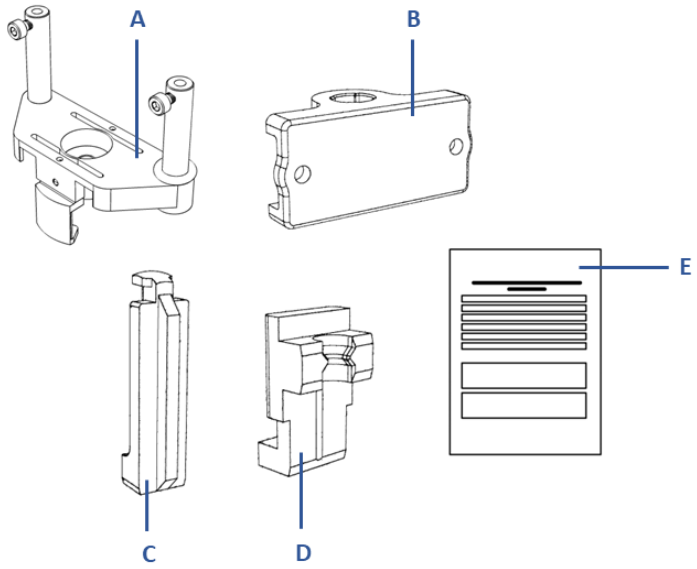

| Part | Name | Function |
|---|---|---|
| **A** | Vial locator | Allow to transport the vial and guide the needle. For details, see 'Vial locators' on page 55. |

| Part | Name | Function |
|---|---|---|
| **B** | Fiber holder | Hold and move the fiber. |
| **C** | Sample vials 20 ml | Contain the samples. |
| **D** | Caps with septa | Close the sample vials and allow perforation. |
| **E** | Product paper | List the package contents and provide declarations of conformity and warranty. |
| **F** | Activation code for SPME mode | Provide the feature code to enable the SPME mode. |

***Note:*** *Two kinds of kit are available:*
- *SPME kit - standard fibers (w/ fibers);*
- *SPME kit - standard fibers (w/o fibers).*

*In case the purchased kit is 'w/ fiber', the kit contains 3 fibers too (PDMS 10 mm, needle size 23 ga).*

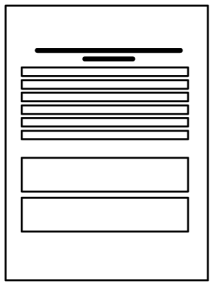
## SPME kit for 1.1 fibers / 1.5 fibers:




| Part | Name | Function |
|---|---|---|
| **A** | Vial locator | Allow to transport the vial and guide the needle. For details, see 'Vial locators' on page 55. |
| **B** | Sealed tip holder | Hold the sealed tip. |
| **C** | Plunger extension | Move the sealed tip. |
| **D** | Sealed tip spacer | Allow to mount the sealed tip on the instrument. |
| **E** | Activation code for sealed tip fiber | Provide the feature code to enable the usage of sealed tip fiber. |

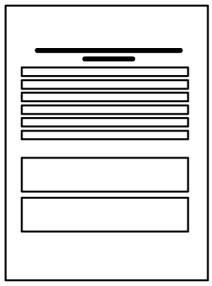
***Note:*** *To use the SPME kit - 1.1 fibers / 1.5 fibers it is necessary to have the SPME fiber - standard fibers (w/ fibers) or the SPME kit - standard fibers (w/o fibers).*

## HTA Autosampler Manager (Standard license):



| Part | Name | Description |
|---|---|---|
| **A** | HTA Autosampler Manager (Standard license) | Allow to use the Standard license of the HTA Autosampler Manager software. |

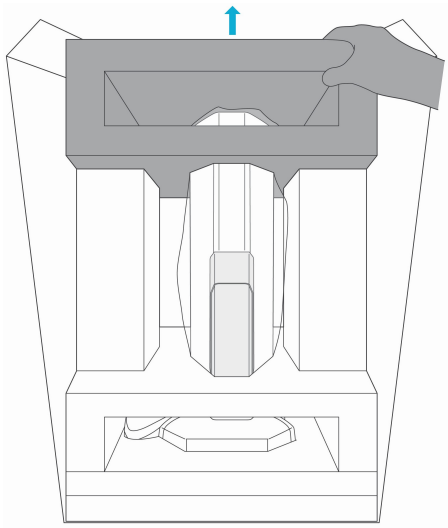
## Upgrade to CFR 21 Part 11 for HTA Autosampler Manager:



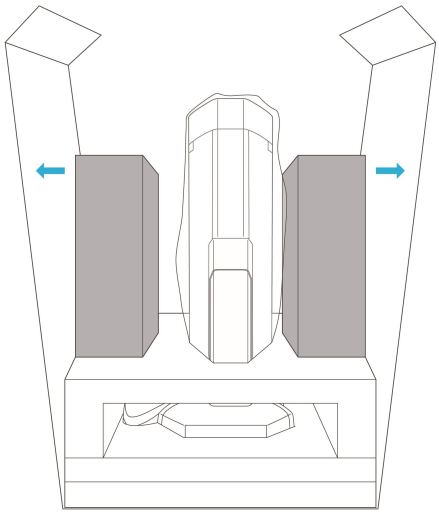
| Part | Name | Description |
|---|---|---|
| **A** | Upgrade to CFR 21 Part 11 for HTA Autosampler Manager | Allow to use the HTA Autosampler Manager software in CFR 21 Part 11 version. It requires 1.90.499 HTA Autosampler Manager (Standard license) to work. |

### 3.1.5 Unpack the autosampler

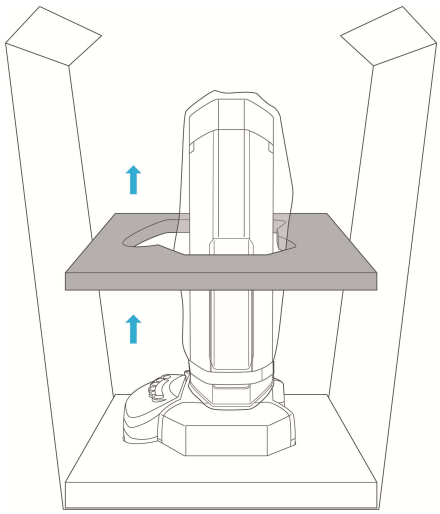
1. Open the box and remove the free package cushioning.
2. Hold the autosampler with two hands and extract it from the box.
3. Place the autosampler vertically on a flat surface.
4. Cut the adhesive tape on the top to open the packaging.
5. Remove the upper package cushioning.



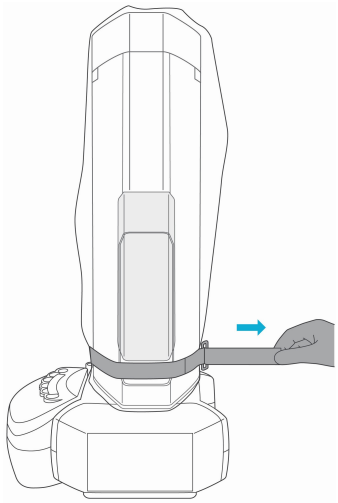
6. Remove the accessory boxes and extract the included accessories.



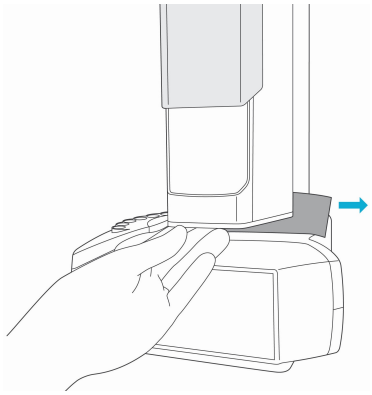
7. Remove the lower package cushioning.



8. Check the product paper to verify if the position of oven is consistent with your analyzer specification. If not, please contact your Customer Representative.
9. Remove the protection belt and the polythene bag from the turret.



10. Remove the turret protection.
    ***NOTICE**: Do not turn the turret.*

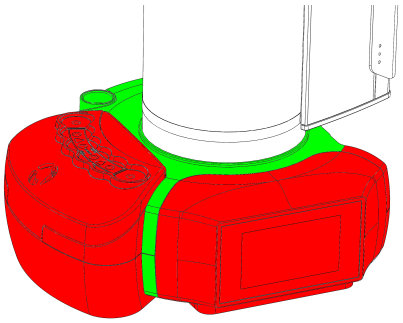


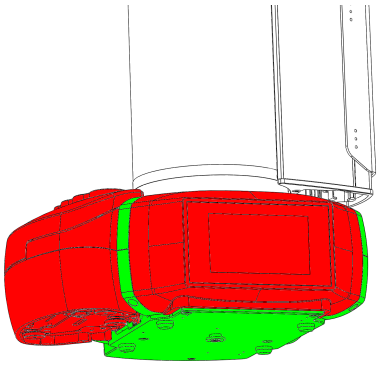
### 3.1.6 Lift the autosampler

1. Remove all the removable parts, such as sample vialsand sample rack.
2. Hold the autosampler base without touching the frontal part and the oven structure.

***Note:** Parts to be touched are highlighted in green; parts not to be touched are highlighted in red.*

**CAUTION** Heavy product. Lift the autosampler carefully and using both hands.





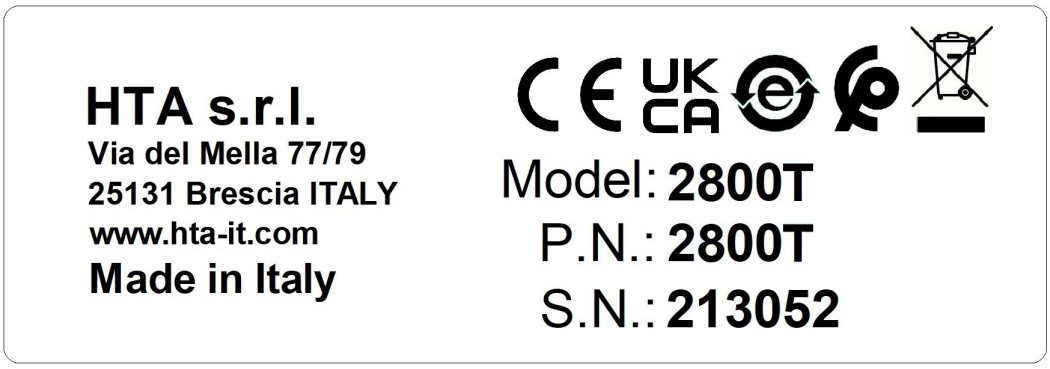
## 3.2 Identification

### 3.2.1 Manufacturer's contacts

HTA s.r.l.
Via del Mella, 21
25131 Brescia (BS)
Italy

enquiry@hta-it.com
www.hta-it.com
+39 030 3582920

### 3.2.2 Autosampler identification label




| Part | Description |
|---|---|
| CE | CE mark, declaration of conformity for Europe |
| UKCA | UK mark, declaration of conformity for the United Kingdom |
| | China RoHS |
| | CMIM mark, declaration of conformity for Morocco |
| | Dispose of the instrument as electronic waste (European Community Directive 2012/19/EU). |

| Part | Description |
|---|---|
| **Model** | Product model |
| **P.N.** | Part number |
| **S.N.** | Serial number |

# 4. Product description

## 4.1 Introduction to the autosampler

### 4.1.1 Description

The autosampler is an automatic sampling device that automates the procedures for injecting liquid samples and headspace sample gas in GC or other chemical analyzers. By getting the optional kits, the autosampler can inject a sample trap into a SPME fiber (standard fibers or 1.1mm / 1.5 mm fibers).

### 4.1.2 Intended users

The autosampler is intended to be used by operators with a background in chemistry and knowledge of standard laboratory procedures and instrumentation.

### 4.1.3 Intended use

This autosampler is designed to be used in chemical analysis laboratories in R&D, contract or control laboratories.

### 4.1.4 Switch between modalities

The autosampler allows for quick and easy switching from one injection technique to another: a procedure will show which parts must be changed in order to begin to inject in the desired injection technique.

### 4.1.5 Typical operating principle for Headspace technique

For correctly serving the analyzer, the autosampler must be mounted on the analyzer specific mounting kit. Once installed, prepared and set for running the desired operations on the samples through specific methods and sequences, the autosampler and the analyzer start to communicate autonomously through the interface cable. The autosampler performs the following actions for each sample vial:

| Phase | Description |
|---|---|
| 1 | Load the vial into the oven. |
| 2 | Incubate and shake the vial for a defined time. |
| 3 | When the analyzer is ready, aspirate the headspace sample gas. |
| 4 | Inject it in the analyzer injector/s. |
| 5 | Signal to the analyzer that the injection has been done. |
| 6 | If necessary, clean the syringe with the flush gas. |

***Note:*** *In case of electrostatic discharge, the autosampler can restart automatically without malfunctioning or loosing information.*

### 4.1.6 Sample preparation overlap for Heaspace and SPME technique

The autosampler is able to overlap sample preparation in order to improve the high throughput. In case the combination of analysis time, conditioning time and preparation time will allow it, the autosampler will take automatically care to load the subsequent sample vial in a free position of the oven, to start the conditioning of the subsequent vial during the conditioning of the previous sample.

### 4.1.7 Methods for Headspace technique

A method instructs the autosampler on what to do for each sample vial. The autosampler has ten preset methods. A method is defined by several parameters, whose values can be modified according

to the specific analysis required.

The following table shows the preset parameter values for the ten methods:

| List item | Set parameter |
|---|---|
| **General parameters** | |
| **Syringe Volume** | 2.5 ml |
| **Analysis Time** | *GC Cycle Time: GC run time plus any additional time needed for the GC to execute any post-run program, then return to a Ready state.* |
| **Advanced parameters** | |
| **Ernichment Cycle(s)** | 1 |
| **Dwell Between Injections** | 0 min |
| **Pre-Flush** | Off |
| **Preparation parameters** | |
| **Syringe Temperature** | Off |
| **Oven Temperature** | Off |
| **Incubation** | The incubation time has to be established with method development. For details see 'Typical operating principle' on page 29. |
| **Shaker On** | 0.2 |
| **Shaker Off** | 0.1 |
| **Sample parameters** | |
| **Sample Volume** | 0.5 |
| **Fill Volume** | 1 ml |
| **Pull Up Strokes** | 2 |
| **Equilibration delay** | 1 sec |
| **DHS time** | *To be set for special application only.* |
| **Sample speed** | 6 ml/min |
| **Syringe prefill** | No |
| **Injection parameters** | |
| **Injection Speed** | 30 ml/sec |
| **Pre Injection Dwell** | 1 sec |
| **Post Injection Dwell** | 3 sec |
| **Flush Time** | 3 min |

### 4.1.8 How to calculate the Analysis time correctly

The Analysis time is the GC run time plus any additional time needed for the GC to execute any post-run program and then return to a Ready state.

Please consider that the autosampler uses the Analysis time (GC cycle time) to calculate throughput and timing. An accurate Analysis time is crucial to optimizing throughput and for correctly processing samples.

| If the Analysis time set into autosampler method is... | this can cause... |
|---|---|
| longer than the actual one | lowered throughput because vials wait longer than needed before processing. |
| shorter than the actual one | sequence faults because the vial may sit too long while waiting for the GC to become Ready. |

It is better to enter a longer time than needed than to enter a too short time and possibly reduce sample quality.

To determine the Analysis time, program the GC to perform a sequence of two or three blank (no injection) runs. If you are using a Chromatography Data system, you can determine the cycle time from the data system sequence log and compare the start times for the runs. A good Analysis time is the average difference between the start times, plus 0.2 to 0.5 minutes. If you are not using a Data system, watch the GC. Count the time between the start of the first run and when the GC becomes Ready for the second run, then add 1 minute.

You can also estimate the Analysis time without making a run. By adding the GC oven program duration and the duration of any post-run programs, you can get close to the true cycle time.

Also consider time for data processing. While in most cases data processing is not a problem, a very busy Data system may need extra time between samples.

To validate the Analysis time, look at the GC run time. The Analysis time cannot be less than the total run time. Then look at the GC post run program duration. The Analysis time cannot be less than the total run time plus the post run program duration.

Finally, consider that the GC cooling time may vary according to room temperature: the higher the room temperature the more time is needed for the GC cooling time; typically, it implies a shorter time during winter seasons and a longer time during summer seasons. Therefore, the analysis time should be set according to the worst scenario (summer season).

### 4.1.9 Principle of “Optimized Sequence” to achieve run time and processing optimizations of sequence steps

During a creation of a sequence it is strongly recommended to program the sequence step with accuracy. 2800T autosampler automatically creates optimized sequences in order to optimize the executions and reduce the total run time of the sequence.

This table shows the difference between a non-optimized sequence and an optimized sequence: during the optimized sequence the autosampler takes care to load more than one vial in oven (if possible, depending on the autosampler method parameters and on GC run time) to get the best possible throuput.

| No. | Non-optimized | No. | Optimized |
|---|---|---|---|
| 1 | Load vial 1 | 1 | Load vial 1 |
| 2 | Incubate vial 1 | 2 | Incubate vial 1 |
| 3 | Inject vial 1 | 3 | **During incubation** of vial 1, load vial 2 |
| 4 | Unload vial 1 | 4 | Incubate vial 1 and 2 |
| 5 | Wait for analysis time | 5 | Inject vial 1 |
| 6 | Load vial 2 | 6 | Unload vial 1 |
| 7 | Incubate vial 2 | **7** | **Load vial 3** |
| 8 | Inject vial 2 | 8 | Inject vial 2 |

| No. | Non-optimized | No. | Optimized |
|---|---|---|---|
| 9 | Unload vial 2 | 9 | ... |
| 10 | Wait for analysis time | 10 | |
| **11** | **Load vial 3** | 11 | |
| 12 | Incubate vial 3 | 12 | |
| 13 | Inject vial 3 | 13 | |
| 14 | Unload vial 3 | 14 | |
| 15 | Wait for analysis time | 15 | |
| | ... | | |

To make the optimizations there are the easy rules to follow:

- The samples to be executed with the same method must be placed in consecutive position;
- Each sequence step must contain all the samples to be executed with the same method and with the same injection mode.

In the following table there are some example of step programming: to simplify the example they refers just to the method, but the same example can be used for the injection mode parameter.

| Example | Details | Description |
|---|---|---|
| Optimized sequence | Step 1:<br>• Method: 1<br>• First sample: A1<br>• Last sample: A3<br>• Injection mode: front<br>...<br>Step 2:<br>• Method: 2<br>• First sample: A4<br>• Last sample: A5<br>• Injection mode: front | The sample vials to be executed with the same method and injection mode are placed in consecutive position in the rack, and every group of sample vials is contained in one step, to reduce the required execution time. |
| Not-optimized sequence: one sample per step | Step 1:<br>• Method: 1<br>• First sample: A1<br>• Last sample: A1<br>...<br>Step 2:<br>• Method: 1<br>• First sample: A2<br>• Last sample: A2 | The autosampler will not optimize the run-time, because the consecutive sample vials to be executed with the same method were not programmed in the same step. |
| Not-optimized sequence: sample vials not placed in | Step 1:<br>• Method: 1<br>• First sample: A1 | The autosampler will not optimize the run-time at its best, because the sample vials placed in position A5 and A6 could be placed in position A4 and A5, to be programmed in the step 1 with the rest of the sample |

| Example | Details | Description |
|---|---|---|
| order, taking care of the method to be used | • Last sample: A3<br>...<br>Step 2:<br>• Method: 2<br>• First sample: A4<br>• Last sample: A4<br>• ...<br>Step 3:<br>• Method: 1<br>• First sample: A5<br>• Last sample: A6 | vials that must be executed with the same method. |
| Not-optimized sequence: sample vials not in consecutive positions | Step 1:<br>• Method: 1<br>• First sample: A1<br>• Last sample: A3<br>...<br>Step 2:<br>• Method: 1<br>• First sample: A5<br>• Last sample: A6 | The autosampler will not optimize the run-time at its best, because the sample vials are not consecutive. They could have been placed in consecutive position (from A1 to A5) and be contained in just one step. |

### 4.1.10 Typical operating principle for Liquid technique

For correctly serving the analyzer, the autosampler must be mounted on the analyzer specific mounting kit. Once installed, prepared and set for running the desired operations on the samples through specific methods and sequences, the autosampler and the analyzer start to communicate autonomously through the interface cable. The autosampler waits until the analyzer is ready to receive the samples and then automatically moves the syringe installed in its turret to perform the following actions for each sample vial:

| Phase | Description |
|---|---|
| 1 | Wash the syringe with the desired solvent/s. |
| 2 | Prime syringe by aspirating the sample from the sample vial and emptying the syringe in the waste. |
| 3 | Eliminate the bubbles from the sample in the sample vial. |
| 4 | Aspirate the sample and inject it in the analyzer injector/s. |
| 5 | Signal to the analyzer that the injection has been done. |
| 6 | If necessary, wash the syringe with the appropriate solvent/s. |
| 7 | Wait until the analyzer is ready to receive another sample and repeat all the phases for another sample vial. |

***Note:*** *In case of electrostatic discharge, the autosampler can restart automatically without malfunctioning or loosing information.*

### 4.1.11 Sample preparation overlap for Liquid technique

The autosampler is able to overlap sample preparation, in order to improve the high throughput in case of usage of "pre-ahead" sample list (available through HTA Autosampler Manager software).

### 4.1.12 Methods for Liquid technique

A method instructs the autosampler on what to do for each sample vial. The autosampler has ten preset methods. A method is defined by several parameters, whose values can be modified according to the specific analysis required.

The following table shows the preset parameter values for the ten methods:

| List item | Set parameter |
|---|---|
| **General parameters** | |
| **Syringe Volume** | 10 µl |
| **Analysis Time** | *Time of the sample analysis (time from the injection to the moment in which GC will be ready again).* |
| **Fill Speed** | 1 µl/sec |
| **Viscosity Delay** | 5 sec |
| **Solvent wash parameters** | |
| **Pre Wash Cycle (s)** | 3 |
| **Pre Wash Volume** | 10 µl |
| **Pre Wash Mode** | Inject |
| **Post Wash Cycle (s)** | 3 |
| **Post Wash Volume** | 10 µl |
| **Post Wash Mode** | Inject |
| **Internal standard parameters** | |
| **Enable** | No |
| **Volume** | - |
| **Air Gap Mode** | - |
| **Air Gap Volume** | - |
| **Sample parameters** | |
| **Sample Volume** | 1 µl |
| **Fill Volume** | 5 µl |
| **Air Volume** | 1 µl |
| **Sample Washes** | 2 |
| **Pull Up Strokes** | 5 |
| **Injection parameters** | |
| **Injection Speed** | 100 µl/sec |
| **Pre Injection Dwell** | 1 sec |
| **Post Injection Dwell** | 3 sec |

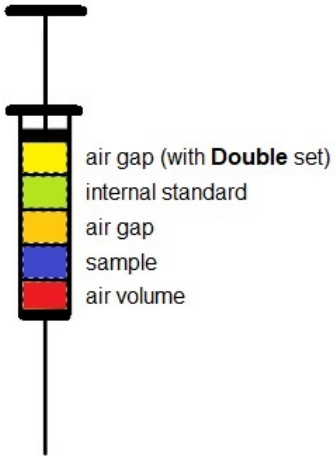
### 4.1.13 Pre and post-washing operations

The autosampler performs specific pre- washing operations on the syringe before injecting the sample in the analyzer. After having injected the sample in the analyzer, it performs post- washing operations.

Both washing operations consist of aspiring a solvent with the syringe and then injecting it in the waste vial. When a combination of solvents is indicated (for example, A + B), the second solvent aspiration occurs only after the disposal of the first solvent in the waste vial.

### 4.1.14 Use of an internal standard

The autosampler allows the use of the internal standard technique to inject in the analyzer a sample with a reference standard at the same time. In such case, the contents of the syringe will be organized as shown below:




### 4.1.15 Typical operating principle for SPME technique

For correctly serving the analyzer, the autosampler must be mounted on the analyzer specific mounting kit. Once installed, prepared and set for running the desired operations on the samples through specific methods and sequences, the autosampler and the analyzer start to communicate autonomously through the interface cable. The autosampler performs the following actions for each sample vial:

| Phase | Description |
|---|---|
| 1 | Load the vial into the oven. |
| 2 | Incubate and shake the vial for a defined time. |
| 3 | Expose the fiber into the liquid sample or the headspace sample gas. |
| 4 | If necessary, expose the fiber into a wash vial (pre-wash procedure). |
| 5 | Expose the fiber in the analyzer injector and signal to the analyzer that the exposure has begun. |
| 6 | If necessary, expose the fiber into a different injector or the cleaning device (post-clean procedure). |

***Note:*** *In case of electrostatic discharge, the autosampler can restart automatically without malfunctioning or loosing information.*

### 4.1.16 How to choose the desorption depth correctly

Desorption depth is the distance from vial locator to the fiber tip. For different depths set, the autosampler exposed:

- only fiber;
- fiber and needle;
- fiber, needle and fiber holder

***Note:*** *the desorption depth is set during the alignment of the injectors position (see 'Realign injectors' on page 234). During the run, the instrument will always expose completely the fiber, therefore with 'desoption depth' we mean the sum of the fiber length (10 mm or 20 mm) and the needle fiber penetration depth.*

**Example 1** - desorption depth: 40 mm (w/ 10 mm fiber) -> 30 mm of needle movement + 10 mm of fiber exposure
**Example 2** - desorption depth: 60 mm (w/ 10 mm fiber) -> 49 mm of needle movement (maximum value for the needle) + 11 mm of fiber exposure (10 mm fiber + 1 mm fiber extension)

***Note:*** *Be aware that the fiber exposure is 28 mm:*
*- in case of 10 mm fiber: 10 mm of fiber + 18 mm of fiber extension*
*- in case of 20 mm fiber: 20 mm of fiber + 8 mm of fiber extension*

Therefore, it is highly important to calculate the proper desired depth before to execute the injector alignment, to be sure that the needle penetration depth will be enough to allow the fiber to be exposed below the analyzer septum.

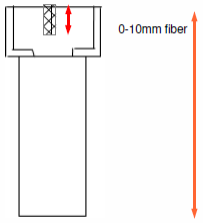
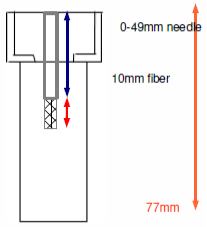
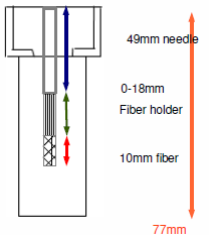
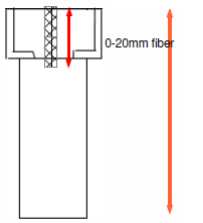
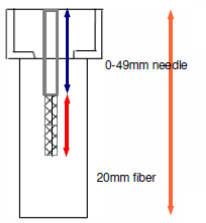
During this alignment procedure, the instrument could move in a different way than when it will reach the desired depth into the run, if the desired depth is lower than 59 mm.
This behaviour is due to the fact that, during the alignment procedure, the instrument does not know which will be the depth chosen, and therefore it will move first the needle fiber for it maximum (49 mm) and then, it will start exposing the fiber.

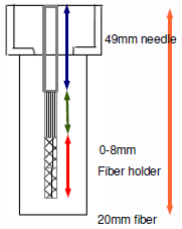
## Example of different behaviour with a 10 mm fiber

| Desorption depth | Behaviour during injector alignment procedure | Behaviour during the run |
|---|---|---|
| 40 mm | The instrument will move the needle fiber for 40 mm. | The instrument will move the needle fiber for 30 mm, then the fiber will be exposed for 10 mm. |
| 60 mm | The instrument will move the needle fiber for 49 mm, then it will expose the fiber for 11 mm. | As for during the injector alignment. |

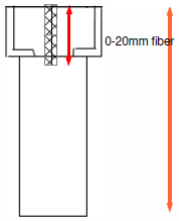
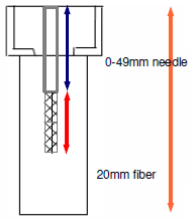
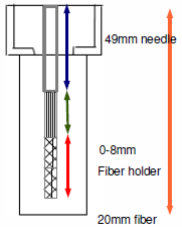
Use this info to set a proper depth, that will assure that the fiber is exposed below the injector septum.

## Injection depth setting in Standard SPME mode

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| 10 mm | <10 | The instrument moves the needle 1 mm under the vial locator, then expose fiber moving only the plunger. |  |
| | 10<depth< 59 | The instrument moves the needle 10 mm over the final position, then moves the plunger to expose 10 mm of fiber. |  |
| | 59<depth< 77 | The instrument moves the needle until 49 mm, moves the plunger to expose 10 mm of fiber and then from 0 mm to 18 mm of fiber holder to reach the right depth. |  |
| 20 mm | <20 | The instrument moves the needle 1 mm under the vial locator, then expose fiber moving only the plunger. |  |
| | 20<depth< 69 | The instrument moves the needle 20 mm over the final position, then moves the plunger to expose 20 mm of fiber. |  |

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| | 69<depth< 77 | The instrument moves the needle until 49 mm, moves the plunger to expose 20 mm of fiber and then from 0 mm to 8 mm of fiber holder to reach the right depth. |  |

### Injection depth setting in Sealed Tip SPME mode

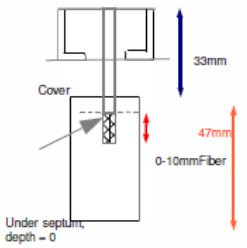
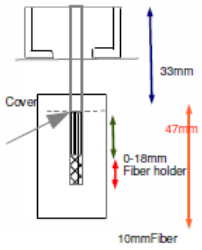
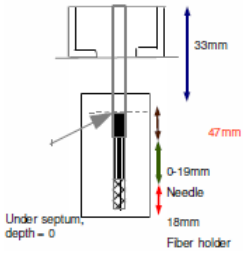
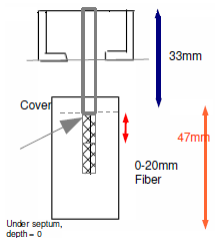
| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| 20 mm | <20 | The instrument moves the needle 1 mm under the vial locator, then expose fiber moving only the plunger. |  |
| | 20<depth< 69 | The instrument moves the needle 20 mm over the final position, then moves the plunger to expose 20 mm of fiber. |  |
| | 69<depth< 77 | The instrument moves the needle until 49 mm, moves the plunger to expose 20 mm of fiber and then from 0 mm to 8 mm of fiber holder to reach the right depth. |  |

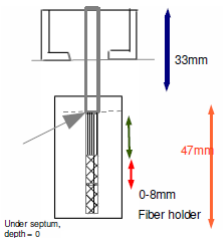
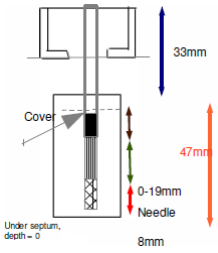
## 4.1.17 How to choose the extraction depth correctly

For Extraction depth and Derivatization depth, the position “Under septum” (depth =0) is between 5 and 7 mm under vial septum. This spread depends on the vials height and the mechanical tolerance of the oven loading.

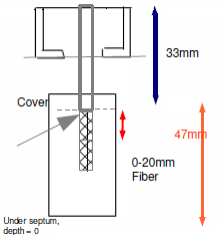
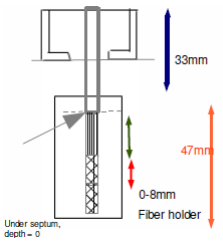
Therefore, during the extraction and derivatization phase the fiber is always exposed below the vial septum (see 'Sample vial specifications for SPME technique' on page 395). Take care to choose the proper depth in order to have the fiber exposed into the liquid samples or to stay higher than the samples in case of SPME headspace sampling.

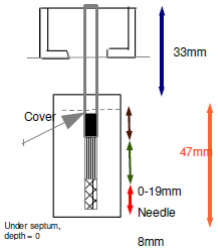
## Extraction / Derivatization depth setting in Standard SPME mode

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| 10 mm | <10 | The instrument moves the needle to have the needle tip just under the septum, then expose the fiber moving only the plunger. |  |
| | 10<depth<28 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 10 mm of fiber and if necessary, up to 18mm of fiber holder. |  |
| | 28<depth<47 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 10 mm of fiber and 18mm of fiber holder and, if necessary, it moves the needle down up to 19mm further. |  |
| 20 mm | <20 | The instrument moves the needle to have the needle tip just under the septum, then expose the fiber moving only the plunger. |  |

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| | 20<depth<28 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 20 mm of fiber and if necessary, up to 8mm of fiber holder. |  |
| | 28<depth<47 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 20 mm of fiber and 8mm of fiber holder and, if necessary, it moves the needle down up to 19mm further. |  |

## Extraction / Derivatization depth setting in Sealed Tip SPME mode

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| 20 mm | <20 | The instrument moves the needle to have the needle tip just under the septum, then expose the fiber moving only the plunger. |  |
| | 20<depth<28 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 20 mm of fiber and if necessary, up to 8mm of fiber holder. |  |

| Fiber length | Injection depth (mm) | Instrument behaviour | Notes |
|---|---|---|---|
| | 28<depth<47 | The instrument moves the needle 28mm over the final position, then moves the plunger to expose 20 mm of fiber and 8mm of fiber holder and, if necessary, it moves the needle down up to 19mm further. |  |

### 4.1.18 Methods for SPME technique

A method instructs the autosampler on what to do for each sample vial. The autosampler has ten preset methods. A method is defined by several parameters, whose values can be modified according to the specific analysis required.

The following table shows the preset parameter values for the ten methods:

| List item | Set parameter |
|---|---|
| **General parameters** | |
| **Vial Type** | 20 ml |
| **Analysis Time [min]** | 5 |
| **Preparation Time** | 00:13:30 |
| **Wash & Clean parameters** | |
| **Pre-Washing** | No |
| **Pre-Washing Time [min]** | 0.0 |
| **Post-Cleaning** | No |
| **Post-Cleaning Time [min]** | 0.0 |
| **Extraction parameters** | |
| **Extraction Time [min]** | 10.0 |
| **Extraction Depth [mm]** | 25 |
| **Derivatization** | None |
| **Derivatization Time [min]** | 0.0 |
| **Derivatization Depth [mm]** | 3 |
| **Conditioning parameters** | |
| **Oven Temperature [°C]** | Off |
| **Incubation Time [min]** | 5 |
| **Shaker On [min]** | 0.2 |
| **Shaker Off [min]** | 0.1 |
| **Desorption parameters** | |
| **Desorption [min]** | 3.0 |

### 4.1.19 Sequences

Once the methods have been modified, it is necessary to set a sequence. The sequence represents the procedure that the autosampler must follow to process all the available sample vials. The sequence contains one or more steps. Each step defines, among other things, the position of the sample vials that must be processed with the same method.

***Example:***

*The operator has ten sample vials: five sample vials must be injected in the analyzer with method A and the other five with method B.*

*Since the operator wants to use two different methods, he/she creates a sequence with two steps. The operator sets the first step so that the autosampler processes the sample vials from number 1 to number 5 with method A, and the second step so that the autosampler processes the sample vials from number 6 to number 10 with method B.*

### 4.1.20 Software used

The autosampler is equipped with HTA Monitor and HTA Autosampler Manager software. Their functions are shown in the following table:

| Software name | Is the software required? | Function |
|---|---|---|
| **HTA Monitor** | Yes, Required | • Allow to control the autosampler through a virtual screen (requires Ethernet connection).<br>• Save the autosampler log records in a database for receiving technical assistance.<br>• Generate a QR code with a basic log to be sent to the Customer Representative in case help is needed. |
| **HTA Autosampler Manager** | No, Optional | • Allow to control the autosampler by its dedicated interface<br>• It offers CFR 21 Part 11 compliancy by buying additional license<br>• Allow to backup autosampler data, restore them on critical events and print relevant information. |

Depending on the operation mode desired, the autosampler can be managed directly by the analyzer software (also known as CDS – Chromatography Data System or Data Acquisition software). For this to be possible, specific software must be activated. Some software have activation keys that must be provided to the autosampler in order for the communication to be possible.

Read 'How to operate the autosampler' on page 46 or contact your Customer Representative for more information.

## Versions and licenses of HTA Autosampler Manager

HTA Autosampler Manager is available in the following versions. All the versions requires a license. All the licenses require an activation key to be activated.

| Version | License Type | Description |
|---|---|---|
| **Standard** | Trial | • Time limitation: 60 days<br>• Supplied for free with the autosampler |

| Version | License Type | Description |
|---|---|---|
| | | • Linked to the PC used to activate the license and the autosampler serial number |
| **Standard** | Full | • No time limitation<br>• Linked to the autosampler serial number |
| **CFR 21 Part 11** | Full | • No time limitation<br>• Linked to the PC used to activate the license<br>• Requires also a full standard license |

### 4.1.21 System integrity test for Headspace technique

The System integrity kit is sold as an option. The System integrity test is used to verify the syringe integrity.

If this test is enabled, at the beginning of each batch the system performs a check to verify the syringe integrity through a heuristic procedure. This test is carried out using the system integrity tool .The septum of this tool should be replaced periodically.

This check can verify if it is better to replace the syringe (barrel and plunger). Please note that this check does not replace the necessary periodic validations you have to program for the instrument qualification. If the test fails, a warning message appears.

### 4.1.22 Vial leakage check for Headspace technique

This function can only be enabled by the HTA Autosampler Manager: **Setup** > **Options**. If this option is enabled, the pressure inside vials is monitored by a heuristic procedure in order to check against anomalous values that are indicative of a vial leakage problem.

The Vial leakage test can discriminate samples correctly sealed vs. bad crimping or missing septa. Each sample is marked with **PASS** or **FAIL** information in HTA Autosampler Manager Windows.

### 4.1.23 Method development option for Headspace and SPME technique

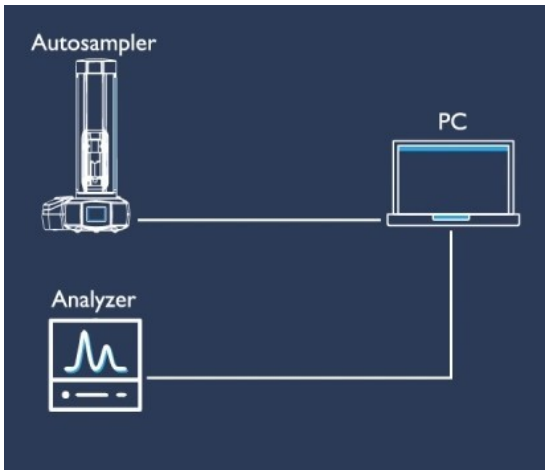
During method development it can be useful to test methods characterized by a progressive increment of a specific parameter in order to define which are the best settings for this parameter.

The parameters that can be increased in this way are the syringe/oven temperature and the incubation time.

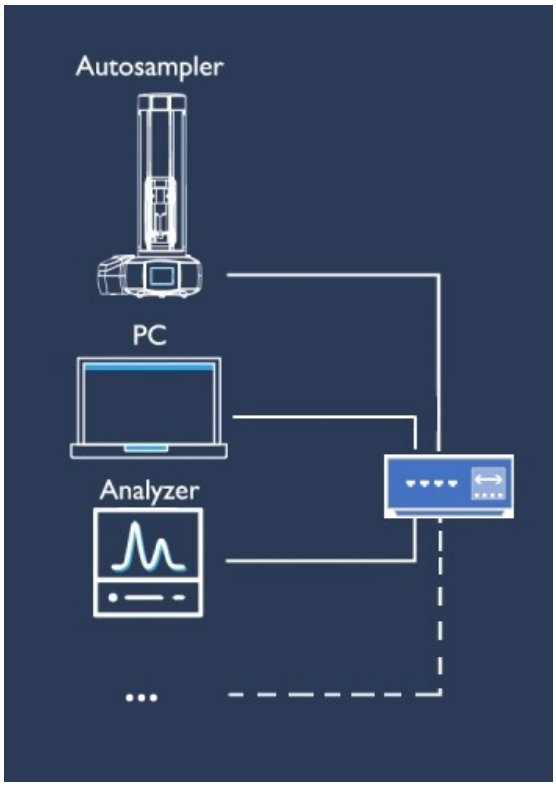
This option is only available with HTA Autosampler Manager, using the **Method** development tab. For the detailed explanation of this option, please refer to the HTA Autosampler Manager online help.

### 4.1.24 Possible Ethernet configurations

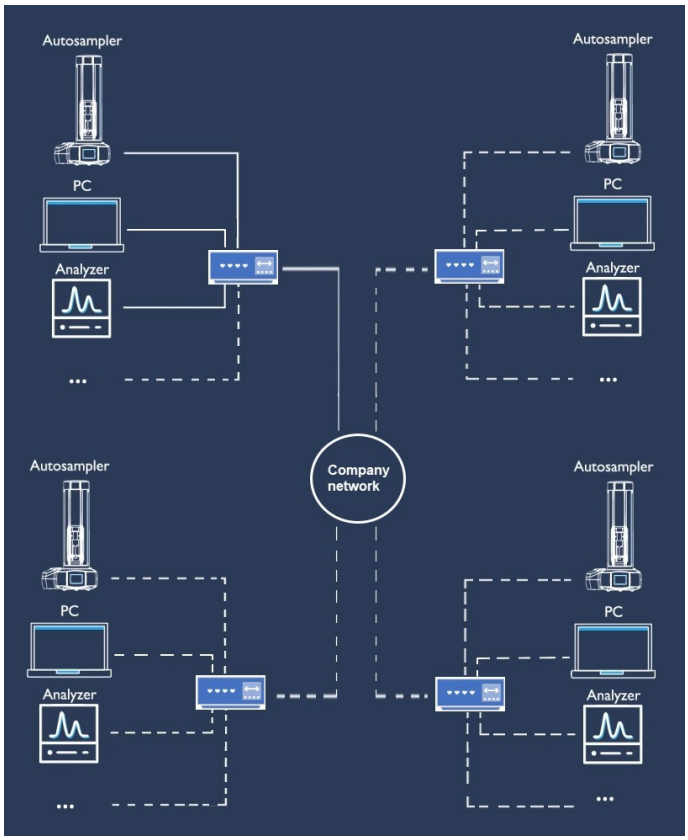
Autosampler directly connected to the PC:




Autosampler connected to a LAN:




Autosampler connected to a wide LAN:


Autosampler
Autosampler
PC
PC
Analyzer
Analyzer
...
...
Company network
Autosampler
Autosampler
PC
PC
Analyzer
Analyzer
...
...

## 4.2 How to operate the autosampler

### 4.2.1 By autosampler touch screen

There are two ways to have access to the autosampler touch screen: by using the on-board touch screen display or by using the Virtual Screen, accessible by HTA Monitor.

Both ways allow to perform the same operation.

### By autosampler touch screen: all samples are processed in the same way

It will just be necessary to load the samples on the autosampler and then press the **START** button on the CDS and on the autosampler touch screen. No further programming/action is required.

| | |
|---|---|
| **Additional requirement** | None |
| **Suggested if** | The daily routine analysis is always constant (e.g. routine laboratories, manufacturing control laboratories, etc.) and what changes is just the number of samples to be injected. |
| **Intended use** | When the user needs during daily routine are just to choose how many samples to inject, and therefore:<br>○ The autosampler method is always the same;<br>○ The following autosampler sequence parameters for HS injections are always the same:<br>▪ Tray type<br>▪ Injection mode<br>○ The following autosampler sequence parameters for Liquid injections are always the same:<br>▪ Tray type<br>▪ Cycle(s)<br>▪ Prewash solvent<br>▪ Postwash solvent<br>▪ Injection mode<br>○ The following autosampler sequence parameters for SPME injections are always the same:<br>▪ Tray type<br>▪ Injection mode |

### By autosampler touch screen: you are required to process samples in different ways

Once the programming is done (when the parameters for the specific batch of injections have been set), the user must start the sample list on the CDS and on the autosampler touch screen.

| | |
|---|---|
| **Additional requirement** | None |
| **Suggested if** | The user must change method and/or sequence more often, due to the variety of the analysis that must be done (e.g. research laboratories, demonstration laboratories, etc.). |
| **Intended use** | When the user must change often the autosampler main parameters (for example, to perform different injection with different injected volume, or executing washes from |

| | |
|---|---|
| | different solvent vials, or use different incubation time or temperatures), the user can easily have access to the complete set of autosampler parameter to program it according to his needs. |

### 4.2.2 By HTA Autosampler Manager

## By HTA Autosampler Manager: Standard license

Once the programming is done (when the parameters for the specific batch of injections have been set), the user must start the sample list on the CDS and on the HTA Autosampler Manager software.

| | |
|---|---|
| **Additional requirement** | Purchase 1.90.499 - HTA Autosampler Manager (Standard license) |
| **Suggested if** | ○ The user wants to back up files about autosampler functioning (e.g. method files, setup files, report, etc.)<br>○ the user wants to generate report about the autosampler operations<br>○ the user wants to use multi-language user interface<br>○ the user does not need to work in compliance to CFR 21 part 11 |
| **Intended use** | When the user needs one of the above features, the HTA Autosampler Manager software is the best option to control the autosampler. |

## By HTA Autosampler Manager – CFR 21 part 11 version

Once the programming is done (when the parameters for the specific batch of injections have been set and the modifications have been tracked and confirmed, the user must start the sample list on the CDS and on the HTA Autosampler Manager software.

| | |
|---|---|
| **Additional requirement** | Purchase 1.90.499 - HTA Autosampler Manager (Standard license) and 1.90.503 - Upgrade to CFR 21 Part 11 for HTA Autosampler Manager |
| **Suggested if** | ○ The user wants to back up files about autosampler functioning (e.g. method files, setup files, report, etc.)<br>○ the user wants to generate report about the autosampler operations<br>○ the user wants to use multi-language user interface<br>○ the user needs to work in compliance to CFR 21 part 11 |
| **Intended use** | When the user wants to use the HTA Autosampler Manager features and to work according to CFR 21 part 11 compliance, the HTA Autosampler Manager with CFR 21 part 11 license is the best option to control the autosampler. |

### 4.2.3 By CDS through HTA software integration

The CDS will be used to start the sample list on the analyzer and to start the same sample list on the autosampler.

| | |
|---|---|
| **Applicable on:** | • Agilent<br>○ ChemStation GC revision B.04.03-SP1[87] or higher<br>○ MassHunter GC/MS revisions B.06 or higher<br>○ MSD ChemStation E.00, E.01, E.02 or higher<br>○ OpenLAB CDS ChemStation Edit. revision C<br>○ OpenLAB CDS - EzChrom Edition for GC<br>• Shimadzu<br>○ GCsolution<br>○ GCMSsolution<br>○ LabSolutions LC/GC<br>○ LabSolutions LCMS<br>○ LCsolution<br>○ LCMSsolution<br>• SSI<br>○ EzChrom Elite<br>• Thermo<br>○ Chromquest |
| **Additional requirement** | Purchase 1.90.499 - HTA Autosampler Manager (Standard license) |
| **Intended use** | The method/sequence must be programmed on the autosampler by using HTA Autosampler Manager. This is typically done at autosampler installation or when a change in the method/sequence is required. Then, the sample list is started directly from the CDS |

### 4.2.4 By CDS through HTA software connectors

| | |
|---|---|
| **Applicable on** | • Agilent<br>○ OpenLAB CDS ChemStation Edit. revision C<br>○ OpenLAB CDS<br>• Scion<br>○ Compass CDS<br>The list of the CDS which are supported by advanced integration is continuously increasing: contact your Customer Representative to check if your CDS has been recently supported. |
| **Additional requirement** | • 1.90.465 - Driver for 28x0T autosampler: Agilent OpenLAB CDS ChemStation for GC rev. C<br>• 1.90.456 - Driver for 28x0T autosampler: Agilent OpenLab CDS 2<br>• 1.90.455 - Driver for 28x0T autosampler: ICF (for Scion Compass CDS release 4.1 or higher). It requires two additional licenses:<br>○ PN 4141003 CompassCDS RC.Net control driver<br>○ PN 4141004 CompassCDS ICF driver<br>Contact your CDS Representative to get updated information regarding the required license to add HTA driver. |

| | |
|---|---|
| **Intended use** | The CDS will be used to program the method(s) on the autosampler and start the sample list on the autosampler: the whole daily routine will be processed by using just the CDS. |

### 4.2.5 By CDS through third party integration

Some of the most popular multi-vendor CDS offer the possibility to control the HTA autosamplers by special control modules. Check with your CDS Representative if the multi-vendor CDS you are using provides control module for HTA autosamplers.

| | |
|---|---|
| **Additional requirement** | CDS may require an additional license. |
| **Intended use** | Contact your CDS Representative. |

## 4.3 Basic data about syringes

### 4.3.1 Syringe kit for Headspace technique

| Name | Characteristic |
|---|---|
| Kit for 2,5ml syringe | Standard syringe kit. See 'Syringes for Headspace technique' on page 402. |
| Kit for 1ml syringe | Syringe kit for specific syringe code. See 'Syringes for Headspace technique' on page 402. |

### 4.3.2 Syringe volume for Liquid technique

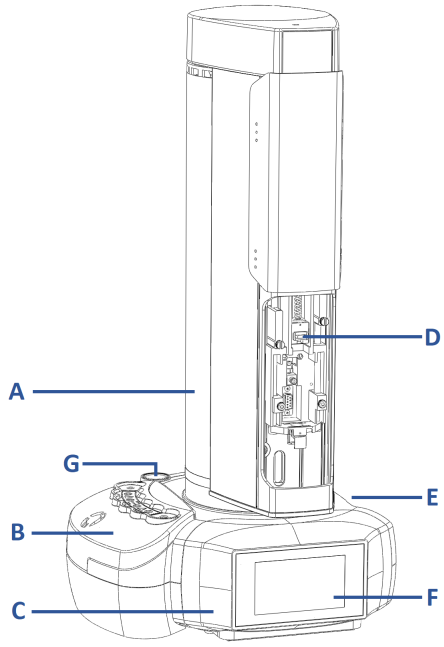
The following table shows the suggested syringe according to the desired injection volume range.

| Injection volume range | Suggested syringe |
|---|---|
| 0.5–5 µl | 10 µl |
| 0.2–1 µl | 5 µl |
| 0.01–0.3 µl | 0.5 µl |

For other ranges, consider that the injection volume must be between the 10% and 90% of the syringe nominal volume.

## 4.4 Structures

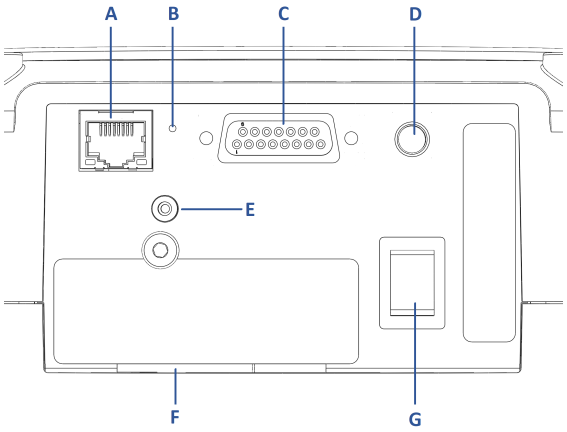
### 4.4.1 Autosampler front structure




| Part | Name | Function |
|---|---|---|
| **A** | Turret | Move the syringe. |
| **B** | Oven | Heat and shake the vials. |
| **C** | Tray | Hold the standard rack with the sample vials. |
| **D** | Syringe location | Hold and move the syringe. |
| **E** | Injection area | Free space to inject the sample in the injector/s. |
| **F** | Touch screen | Interact with the autosampler. |
| **G** | (For Headspace) Syringe integrity tool location | Hold the syringe integrity tool. |
| | (For Liquid) Waste vial location | Hold the waste vial. |
| | (For SPME) Wash vial location | Hold the wash vial. |

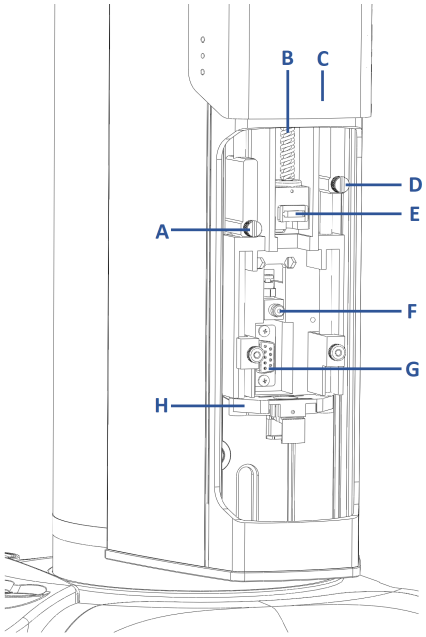
### 4.4.2 Autosampler rear structure

Connection panel:

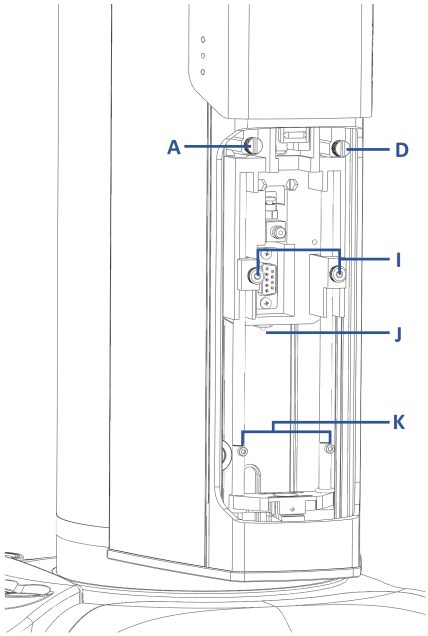



| Part | Name | Function |
|---|---|---|
| **A** | Ethernet port | Connect the autosampler to the network. |
| **B** | Service Ethernet reset | Only for Customer Representative. |
| **C** | Interface cable connector | Connect the autosampler to the analyzer. |
| **D** | Power supply socket | Connect to the power source.<br>  |
| **E** | Gas connector | Allow to purge the syringe. |
| **F** | Service Emergency release | Only for Customer Representative. |
| **G** | Power switch | Switch the autosampler on and off. |

### 4.4.3 Syringe location structure



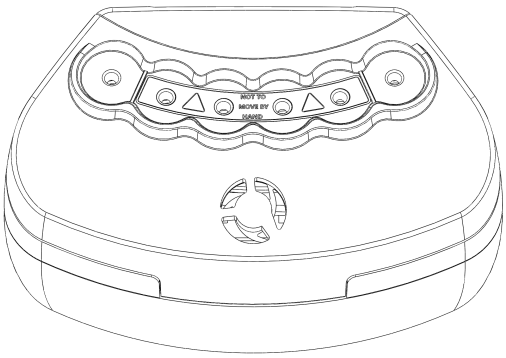

**Shipping position**

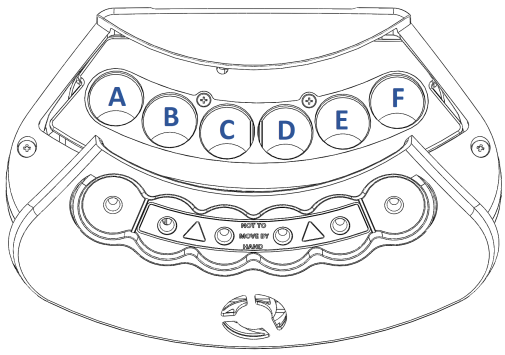



**Operating position**

| Part | Name | Function |
|---|---|---|
| **A** | Safety lock | Lock the vial locator during shipment. |
| **B** | Trolley | Move the syringe plunger. |
| **C** | Sliding lid | Protect the syringe location. |
| **D** | Needle height regulator | Allow to regulate the needle height according to the syringe in use. |
| **E** | Plunger locker | Lock the syringe plunger in the trolley. |
| **F** | Syringe purge connector | Allow to purge the syringe. |
| **G** | Syringe electrical connection | Allow to heat the syringe. |
| **H** | Vial locator | Allow to transport the vial and find the injector. |
| **I** | Finger nuts | Allow to fix the syringe. |
| **J** | LED | Illuminate the needle. |
| **K** | Screws for vial locator | Allow to fix the removable vial locator. |

### 4.4.4 Oven structure

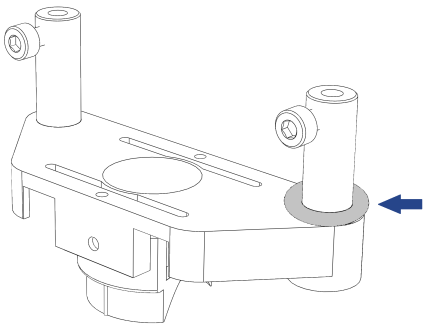





| Part | Function |
|---|---|
| A | Holes for:<br>• sample vials (Headspace and SPME mode) and, if required, grey spacers<br>• black spacers and solvent vials (Liquid mode) |
| B | |
| C | |
| D | |
| E | |
| F | |

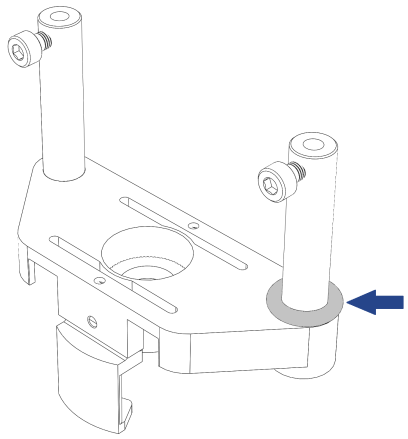
### 4.4.5 Vial locators

**For Liquid technique:**



| O-ring colour | For... |
|---|---|
| (green) | Liquid technique |

**For Headspace and SPME technique:**



| O-ring colour | For... |
|---|---|
| (red) | Headspace technique |
| (blue) | Headspace technique and SPME for standard fibers technique |
| (yellow) | SPME for 1.1 fibers / 1.5 fibers technique |

## 4.5 Oven location

### 4.5.1 Position of oven

The oven is positioned to the left or right side of the autosampler, depending on the analyzer. The correct position of the oven for your autosampler is indicated in the Configuration side field of the product paper.

***Note:*** *This manual and the illustrations contained therein have been realized with the oven on the left side of the autosampler, seen from the front.*

### 4.5.2 Oven positions

The autosampler identifies each oven position with the letter of the position it occupies in the oven location.

### 4.5.3 Solvent vials

The autosampler identifies each solvent vial with the letter of the position it occupies in the oven location.

# 5. Installation

## 5.1 Before proceeding

Before install the autosampler:

- Ensure to have correctly installed the mounting kit following the relevant instruction manual.
- If this is the first installation of the autosampler, follow the next paragraph, otherwise see 'Re-installation in Headspace mode' on page 110, 'Re-installation in Liquid mode' on page 111 or 'Re-installation in SPME mode' on page 112.

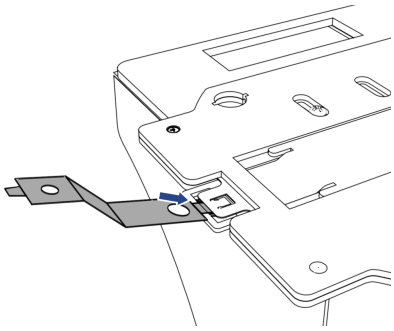
## 5.2 Autosampler installation

***NOTICE:*** *Do not move the turret by hand.*

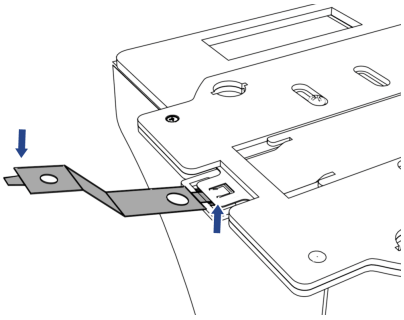
### 5.2.1 Open the locking hook

**CAUTION** Sharp metal parts. Do not open the locking hook by hand.

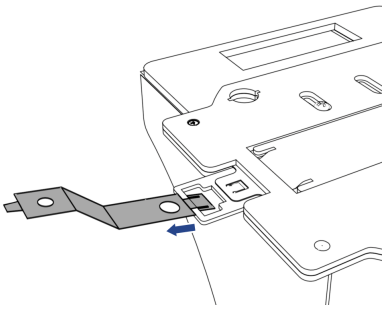
1. Insert the syringe pointer in the locking hook.



2. Push down the handle of the syringe pointer so that the other end lifts.



3. Pull the syringe pointer until the locking hook opens.

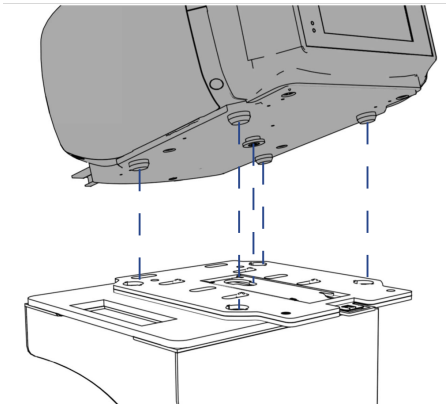


### 5.2.2 Install the autosampler

1. Ensure the locking hook is open. Otherwise, open it.
2. Lift the autosampler by hand. For details, see 'Lift the autosampler' on page 24.

**CAUTION** Heavy product. Lift the autosampler carefully and using both hands.

3. Place the autosampler on the mounting plate so that the four feet and the central part of the autosampler perfectly fit into the four support holes and into the central hole of the mounting plate respectively.



4. To lock the autosampler, close the locking hook.

### 5.2.3 Connect the autosampler

**CAUTION** To avoid damaging the equipment and compromising its safety, only use the interface cable, power cord and power supply provided with the autosampler.

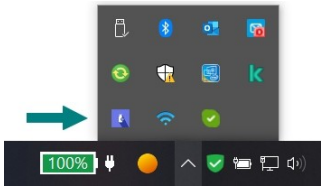
1. Ensure the power switch is to off.
2. If present, insert the interface cable provided with the mounting kit in the autosampler and in the analyzer. For details, see 'Autosampler rear structure' on page 53.
3. Connect the power cord to the power supply.
4. Insert the power supply plug in the power supply socket of the autosampler.
5. Connect the power cord to the wall socket.
6. Connect the Ethernet cable to the autosampler and to the PC or wall jack/switch.
7. Connect the purge gas line at the purge connector, max pressure: 2 bar (29psi or 200kPa).

### 5.2.4 Start the autosampler

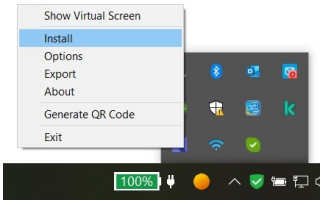
1. Press the autosampler power switch to switch the autosampler on.

### 5.2.5 Install HTA Monitor

1. Ensure the Ethernet cable is connected.
2. Download the **HTA_Monitor.exe** following the instructions included in the packaging.
3. Double click **HTA_Monitor.exe** and authorize the device modification.
   ***Note:*** *In case you want to use the HTA Monitor software from any user of the PC, it is necessary to choose "Install for all users".*
4. Select the desired language and click **OK**: the **Setup - HTAMonitor** window appears.
5. Click **Next**, accept the agreement and click **Next**.
6. To choose a different installation folder, click **Browse...**. Otherwise, click **Next** > **Next**.

7. To confirm the automatic search of the software updates, select **Next**.
8. Click **Install**: the software installation begins.
9. Click **Finish**:  appears in the taskbar and a popup opens.
10. If after the installation appears a Windows Firewall message asking on which network you want to work:

| If... | Then... |
|---|---|
| **Private** is selected | click on **Allow access**. |
| **Public** is selected | select also **Private** and then click on **Allow access**. |

11. Right click 

and click **Install**: the **HTA Monitor** window opens.
12. To confirm the sharing of useful technical data with HTA, select **Yes**.
13. Click **Add new...**: the installation wizard appears.
    ***Note:*** *You can connect the autosampler only to one PC at the time.*
    ***Note:*** *Close all the application that can communicate with the autosampler (i.e. HTA Autosampler Manager, third party software,...) during this procedure.*
14. Follow the wizard instructions to install the autosampler on HTA Monitor.
15. If the autosampler IP is not unique in the network, follow the wizard instructions to assign a new IP to the autosampler. Contact your network administrator if necessary.

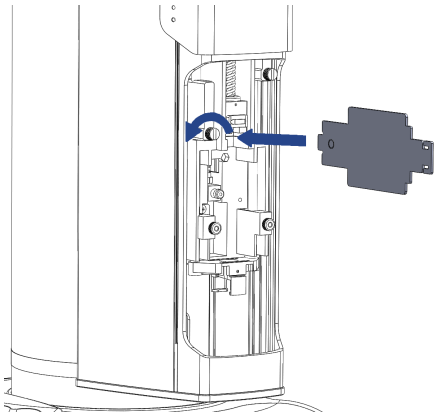
### 5.2.6 Open the HTA Monitor virtual screen

In the taskbar, right click and click **Show Virtual Screen**: the virtual screen opens.

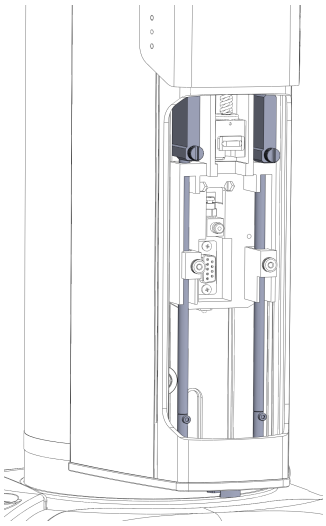
### 5.2.7 Prepare the syringe location

***NOTICE:*** *Do not move the turret by hand.*

1. If this is the first installation, the **Move the left block from the shipping position to the operating position as described in user manual** page appears. Unlock the safety lock proceeding with the next step.
2. Raise the sliding lid above the syringe location.
3. Put your finger below the vial locator: it will be necessary to sustain the vial locator in the following points of this procedure.
4. Take the syringe pointer and use its edge to loosen the safety lock.



5. With your finger, guide the right block down until it rests on the sledge. Remove your finger from below the vial locator.

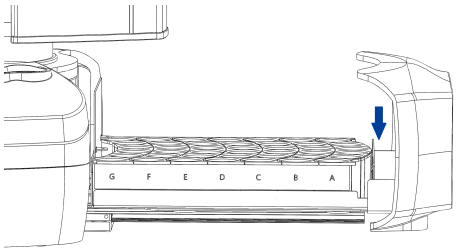


6. To lock the syringe location in position, screw the left block 2-3 mm above the needle height regulator level using the syringe pointer.
7. Lower the sliding lid.
8. If this is the first installation, select **Continue**.

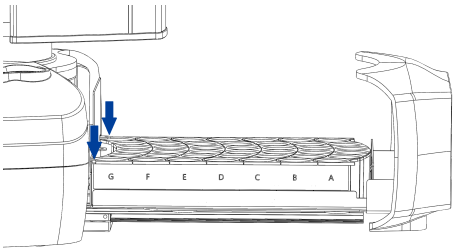
## 5.3 Sample rack installation

### 5.3.1 Insert the sample standard rack in the autosampler tray

1. Insert the front side of sample rack.

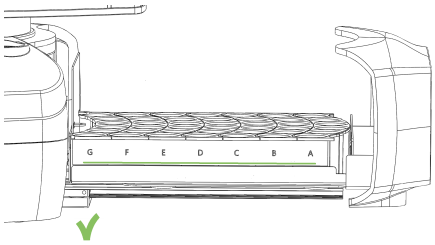


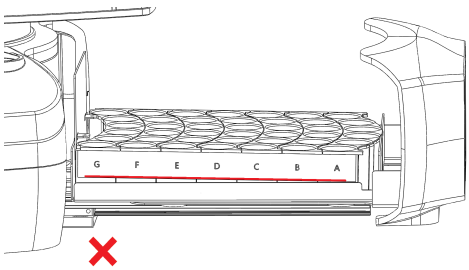

2. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.




3. If this is the first installation, select **Continue**: the autosampler tray closes and the screen displays the autosampler model and the firmware version.

### 5.3.2 Rack correct positioning



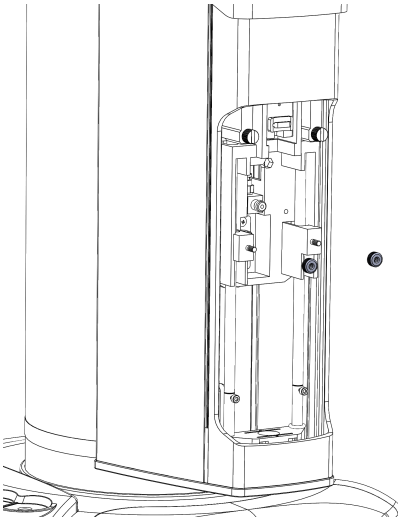



## 5.4 Install the headspace syringe

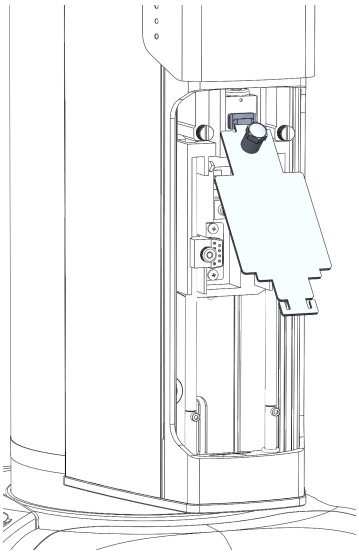
1. When the screen displays the **Remove and install new syringe** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the syringe installation without moving the turret | proceed to point 2. |

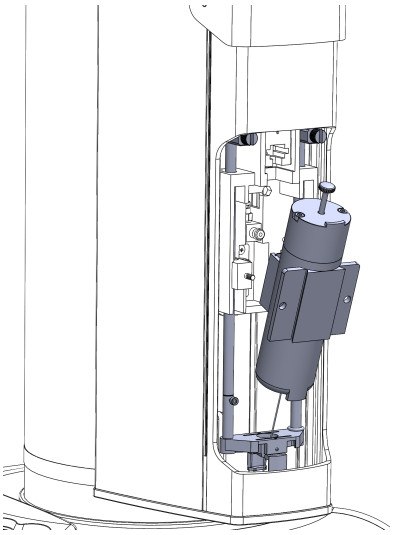
2. Raise the sliding lid and unscrew the two finger nuts.



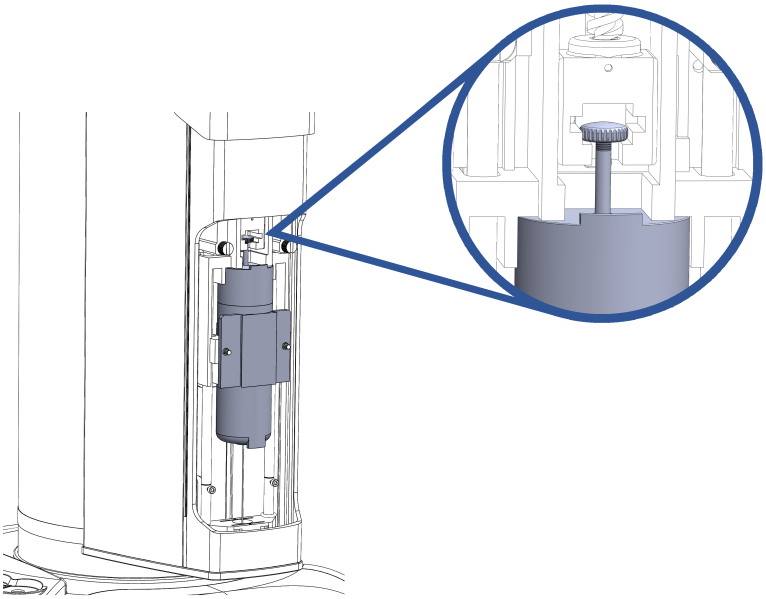
3. Take the syringe pointer, insert its edge in the plunger locker and pull it out.



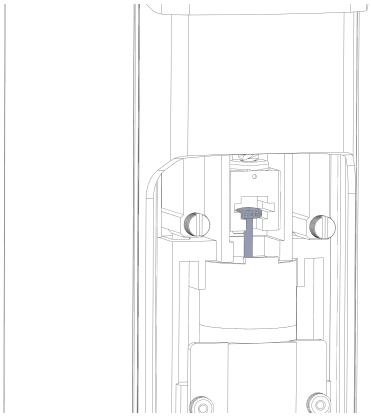
4. Take the syringe.
5. Push the vial locator up and insert the syringe needle in the central hole of the vial locator.



6. Insert the syringe body in the syringe holder and the plunger in the syringe plunger holder.

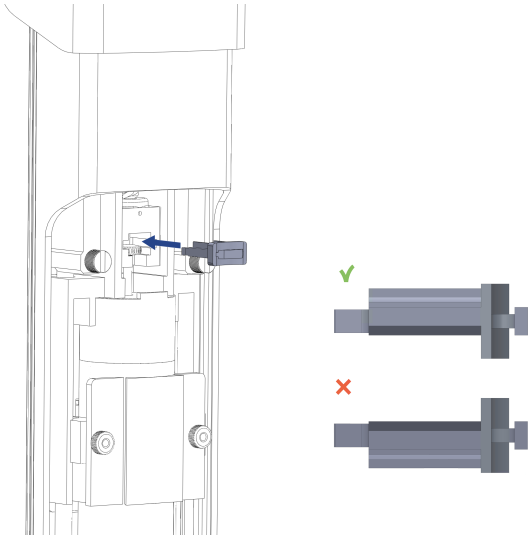


7. Lower the syringe plunger until it rests on the syringe plunger holder.



8. Screw the two finger nuts.

9. Insert the plunger locker with the knurled side upward in the syringe plunger holder.



10. Lower the sliding lid.
11. Select **Continue**: the **Select syringe Volume** page appears.
12. Choose the syringe volume and select **Save**: the automatic alignment procedure starts.

## 5.5 Install the tray

1. At the end of the alignment procedure, select **Continue**.
2. Set the depth below the septum where the needle must be positioned to aspirate the sample and select **Continue** > **Save** > **Continue**.
   ***Note:*** *If you set the sample depth to 0 mm (the minimum value), the needle tip will be just below the septum. If you set the sample depth to 25 mm (the maximum value), the needle tip will be 25 mm below the septum.*

## 5.6 Select the analyzer

1. Select the analyzer to be used and then **OK** to confirm.
2. Select the number of injectors to be used and then **OK** to confirm and **Load**.
3. Select **Continue.**

## 5.7 Align the injectors

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

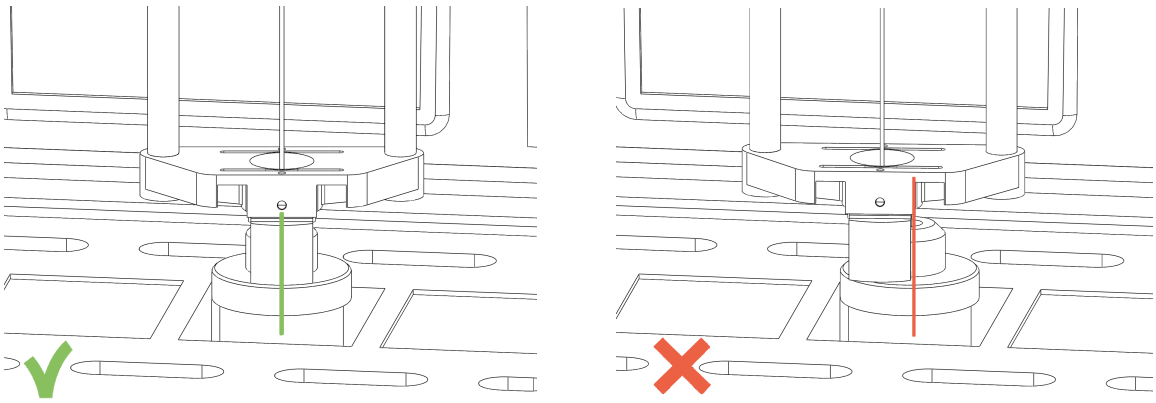
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

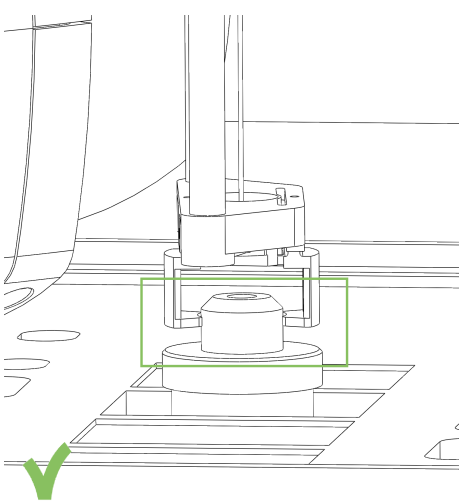
   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

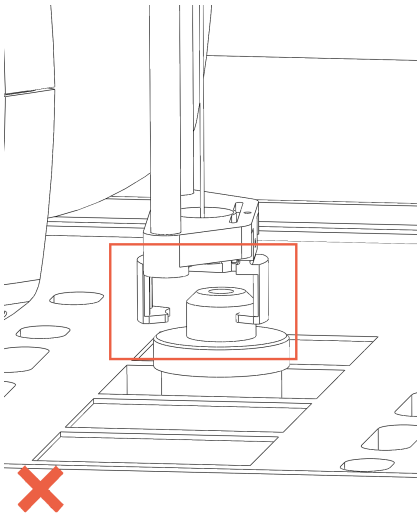
7. Repeat from step 2 to 7.

### 5.7.1 Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.







## 5.8 Set the position of the vials - The Touch and Plunger Zero procedure

1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case syringe integrity tool is available, insert it in its position.
3. Select **Continue**: the vial locator touches the syringe integrity tool, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
4. Remove the vial from oven and press **Continue**.
5. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

## 5.9 Set the communication with the analyzer

*Run menu > Settings > Setup > Configuration > Input Output*

1. Set **Ready On** and **Start On** as specified in the Mounting kit manual.
2. Select **Exit**: the **Configuration** menu appears.

## 5.10 Test the communication with the analyzer

1. Ensure the autosampler and the analyzer are switched on and the interface cable is properly connected.
2. In the **Run** menu select **Settings** > **Setup** > **Manual Operation**.
3. Set the analyzer to be not ready to receive the injection and check that the **Ready** value on the screen is **Off**.
4. Set the analyzer to be ready to receive the injection and check that the **Ready** value on the screen is **On**.
5. Select  to select **Start**.
6. Select **OK** and check that the **Ready** value on the screen goes to **Off** and that analyzer starts the analysis.

## 5.11 Set the autosampler in Headspace mode

1. Choose how do you want to operate the autosampler. See 'How to operate the autosampler' on page 46 for details.
2. Do what follows:

| If you want to operate the autosampler... | Then... |
|---|---|
| by autosampler touch screen: all samples are processed in the same way | Set the method and the sequence selecting **A.1** as **First Sample** and **G.6** as **Last Sample**. See 'Set the method and sequence' on page 126. |
| by autosampler touch screen: you are required to process samples in different ways | 1. *Run menu > Settings > Setup > Configuration > Run*<br>2. Select **User Interface** and set the parameter to **Normal**. |
| by HTA Autosampler Manager | Install HTA Autosampler Manager and connect the autosampler. Full license is required. See 'HTA Autosampler Manager installation' on page 76. |
| by HTA Autosampler Manager – CFR 21 part 11 version | Install HTA Autosampler Manager and connect the autosampler. Full license and CFR 21 part 11 license are required. See 'HTA Autosampler Manager installation' on page 76. |
| by CDS through HTA software integration | 1. See 'HTA Autosampler Manager installation' on page 76. Full license is required.<br>2. Perform the setup and preliminary operations on your CDS to connect with the autosampler. For further details, see your CDS documentation and HTA Autosampler Manager help. |
| by CDS through HTA software connectors | 1. See 'Install HTA Autosampler Manager' on page 76.<br>2. *Run menu > Settings > Setup > Configuration > Activation*<br>3. Select the feature indicated in the Password for Optional Features purchased and select **OK**.<br>4. Select **Full** and insert the password indicated in the Password for Optional Features purchased.<br>5. *Run menu > Settings > Setup > Configuration > Run*<br>6. Select **Protocol version** and set the parameter to **-**.<br>7. Perform the setup and preliminary operations on your CDS to connect with the autosampler. For further details, see your CDS documentation and HTA Autosampler Manager help.<br><br>Dedicated feature is required. |
| by CDS through third party integration | Perform the setup and preliminary operations on your third party integration software to connect with the autosampler. See your third party software documentation for further details. |

# 5.12 HTA Autosampler Manager installation

## 5.12.1 Install HTA Autosampler Manager

1. Ensure the Ethernet cable is connected.
2. Download the **HTA_Autosampler_Manager.exe** following the instruction included in the packaging.
3. Double click **HTA_Autosampler_Manager.exe** and authorize the device modification.
4. Select the desired language of the installer and click **OK**: the **Setup - HTA Autosampler Manager** window appears.
5. Accept the agreement and click **Next**.
6. To choose a different installation folder, click **Browse...**. Otherwise, click **Next**.
7. Do what follows:

| If you have... | Then... | And... |
|---|---|---|
| the standard version of HTA Autosampler Manager (trial or full) | select **Standard version** | click **Next** > **Next** > **Next** > **Install**. |
| the CFR 21 Part 11 version of HTA Autosampler Manager | select **CFR 21 Part 11 version** | |

8. Click **Next,** automatically USB driver installation procedure start, in case of Windows 10 or Windows 8 this procedure could fail, ignore the status information reported at the end of the procedure then click **Finish** > **Finish: START - HTA Autosampler Manager** opens and  appears in the taskbar.
9. To proceed, see 'Connect HTA Autosampler Manager to the autosampler' on page 76.

## 5.12.2 Connect HTA Autosampler Manager to the autosampler

1. Do what follows:

| If you have... | Then... |
|---|---|
| the standard version of HTA Autosampler Manager (trial or full) | Proceed with step 2. |
| the CFR 21 Part 11 version of HTA Autosampler Manager | 1. Click **Install** > **Licenses** > **Add...**: the CFR 21 Part 11 Licenses wizard appears.<br>2. Follow the wizard instructions. When required, insert the CFR 21 Part 11 activation key of your license.<br>3. Click **Install** > **Users** > **Add...**: the CFR 21 Part 11 Users wizard appears.<br>4. Follow the wizard instructions adding at least one Administrator user.<br>5. Proceed with step 2. |

2. In **START - HTA Autosampler Manager**, to add the autosampler in use to the **Instruments** list click **Install** > **Add new**: the Instrument wizard appears.
3. Follow the wizard instructions. When required, insert the Instrument activation key of your license (trial or full).
4. If the online activation fails, for example because the Internet connection is missing, select **Activate offline** > **I need a license key** > **Next**, then choose the way to get the license key you need (**By your**

**smartphone** is the fastest and recommended option). When you receive the license key, repeat the entire operation but take care to select **I have a license key** and to insert the license key just received.

5. If the autosampler is connected to a LAN, ensure the default connection parameters of the autosampler are not in conflict with other devices.
6. If the autosampler is connected to a wide LAN, provide the default connection parameters of the autosampler to your network administrator to ensure they are not in conflict with other devices.
7. If the **Connection troubleshooting** windows appears, do what follows:

| If your autosampler is... | Then... |
|---|---|
| directly connected to the PC | 1. Open the **Control Panel** of the PC and click **Network and Internet** > **Network and Sharing Center** > **Change adapter settings**.<br>2. Right click **Local Area Connection** > **Properties** > **Internet Protocol Version 4 (TCP/IPv4)** > **Properties**.<br>3. Select **Use the following IP address** and insert what follows:<br>**IP address**: 192.168.0.208<br>**Subnet mask**: 255.255.0.0<br>**Default gateway**: 192.168.0.1<br>4. Click **OK** > **Close**.<br>5. In the **Connection troubleshooting** windows select **Proceed** to retry the autosampler connection.<br>6. Follow the wizard instructions to complete the installation. |
| connected to a LAN or a WLAN | 1. Ask your network administrator for new IP address, Subnet mask and Gateway parameters.<br>2. Select **Modify network configuration of autosampler** and click **Proceed**.<br>3. In **Ethernet** insert the new parameters provided by your network administrator and click **Next**.<br>4. Restart the autosampler and wait until it is in standby, then click **Next**.<br>5. Follow the wizard instructions to complete the installation. |

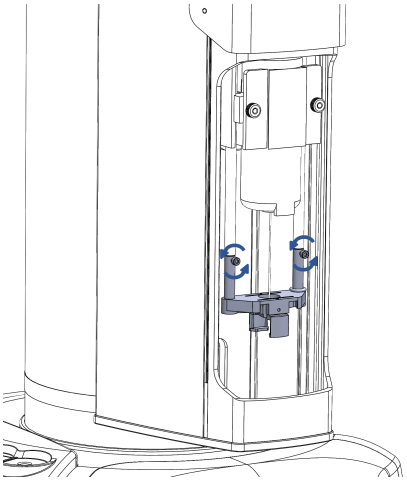
7. Click **Run**, select the desired autosampler and click **Open**: HTA Autosampler Manager connects to the autosampler.

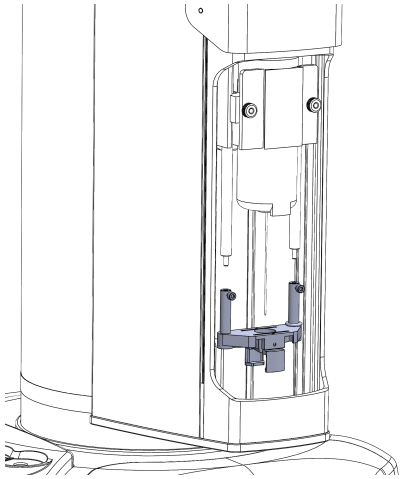
# 5.13 Change to Liquid mode

## 5.13.1 Get out of Headspace mode

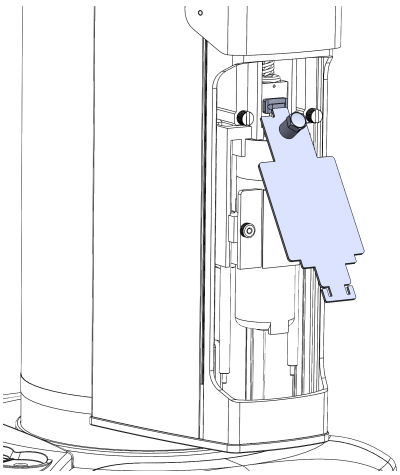
*Run menu > Change Mode*

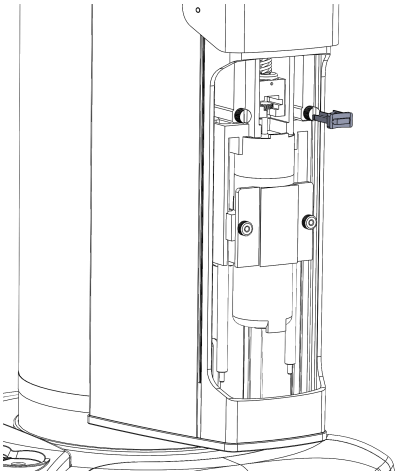
1. Select **Liquid Mode** and select **Continue**.
2. Lift the sliding lid.
3. Remove the vial locator.





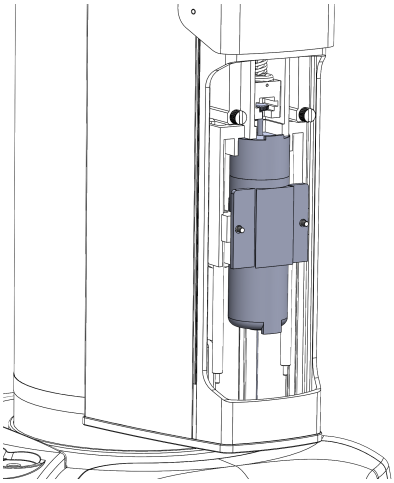
4. Select **Continue**.
5. Take the syringe pointer, insert its edge in the plunger locker and pull it out.

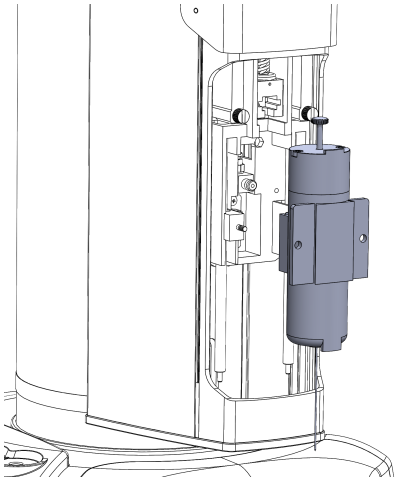




6. Unscrew the two finger nuts.

7. Remove the syringe warmer assembly.

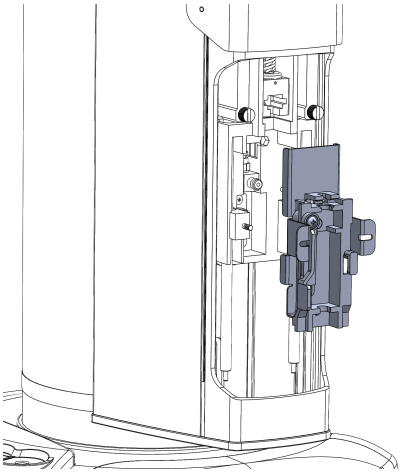


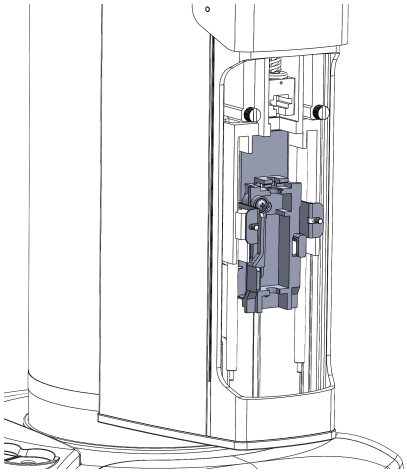


8. Select **Continue**.

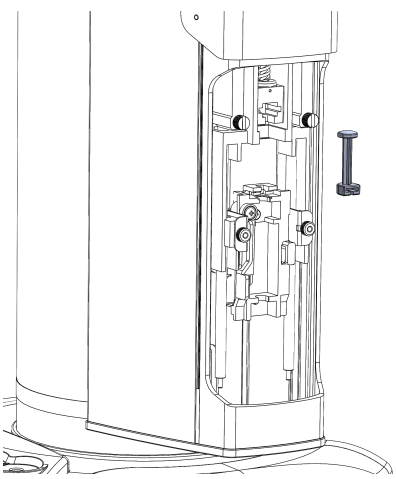
### 5.13.2 Get into Liquid mode

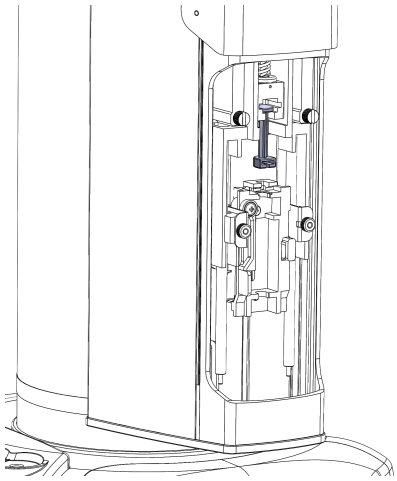
1. Select the Syringe volume and select **Save**.
2. If necessary, raise the sliding lid and remove the two finger nuts.
3. Install the syringe holder.



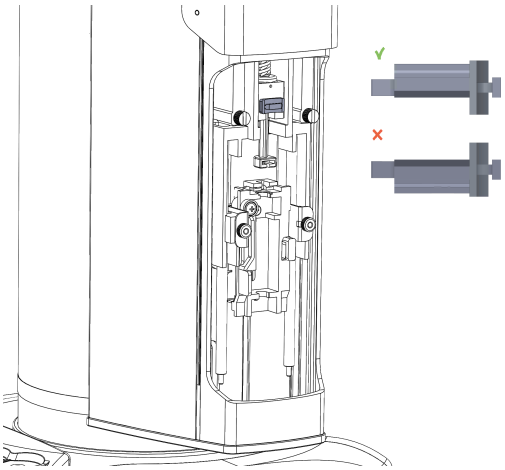


4. Fix completely the two finger nuts.
5. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
6. Insert the plunger extension in the plunger holder, taking care to keep frontwards the side with the hole for the syringe plunger.





7. Insert the plunger locker.

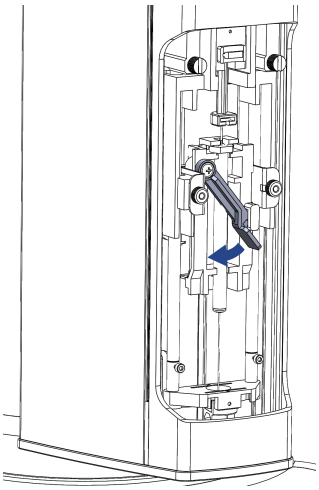


## Install the syringe

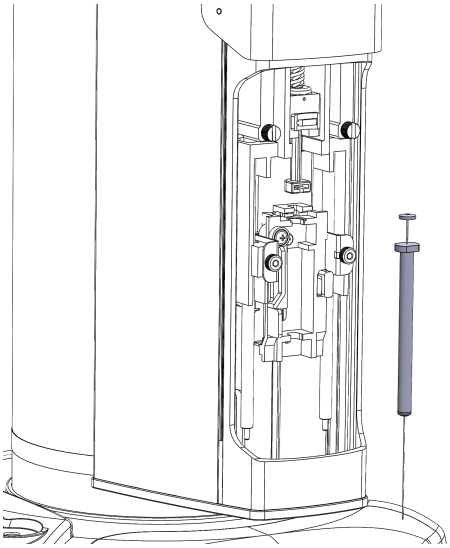
1. When the screen displays the **Remove and install new syringe** page, do what follows:

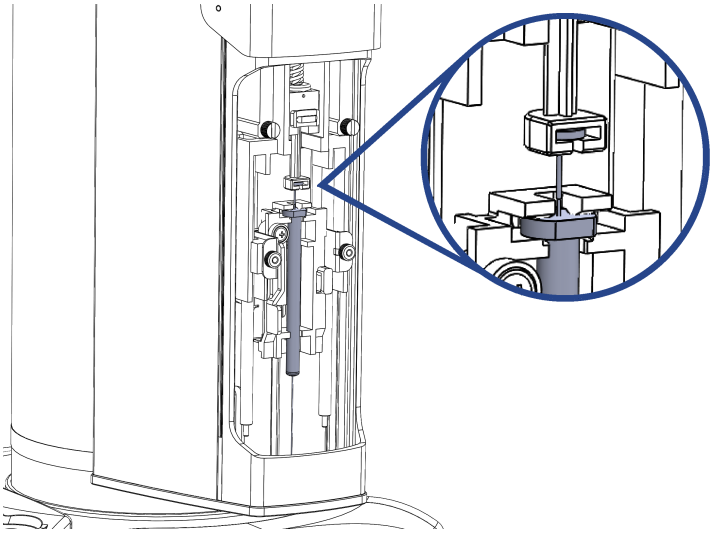
| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the syringe installation without moving the turret | proceed to point 2. |

2. Open the syringe locker.

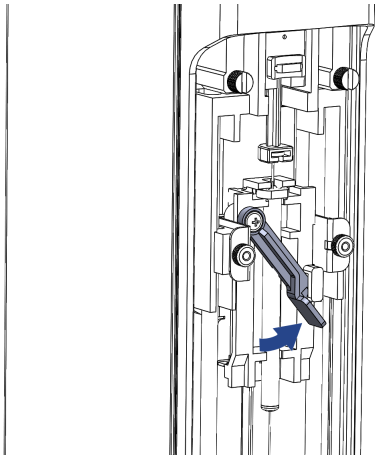


3. Take the syringe.
4. Insert the syringe body in the syringe holder and the plunger in the plunger extension.

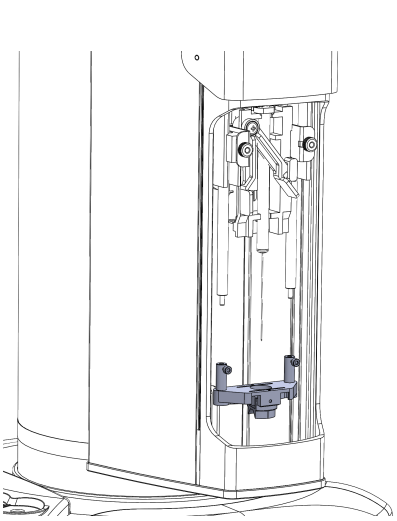


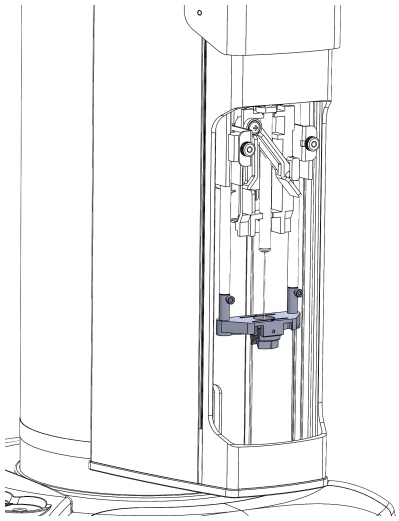


5. Close the syringe locker.

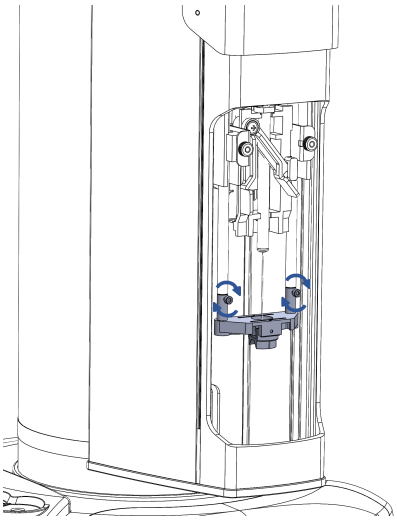


6. Select **Continue**: the **Select syringe Volume [µl]** page appears.
7. Choose the syringe volume and select **Save**: the automatic alignment procedure starts.
8. Wait for the automatic positing.
9. Install the vial locator for Liquid technique (green o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.

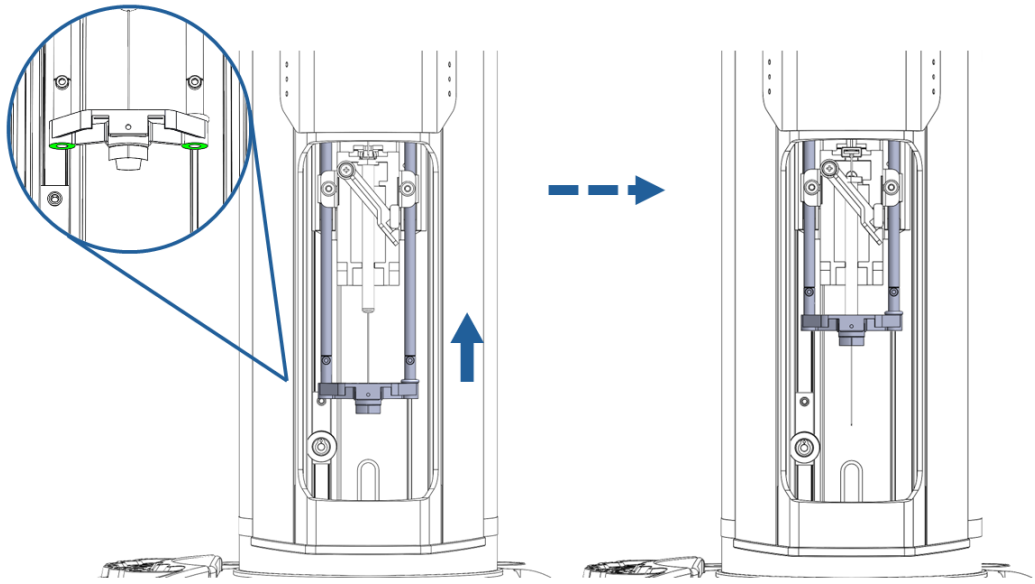




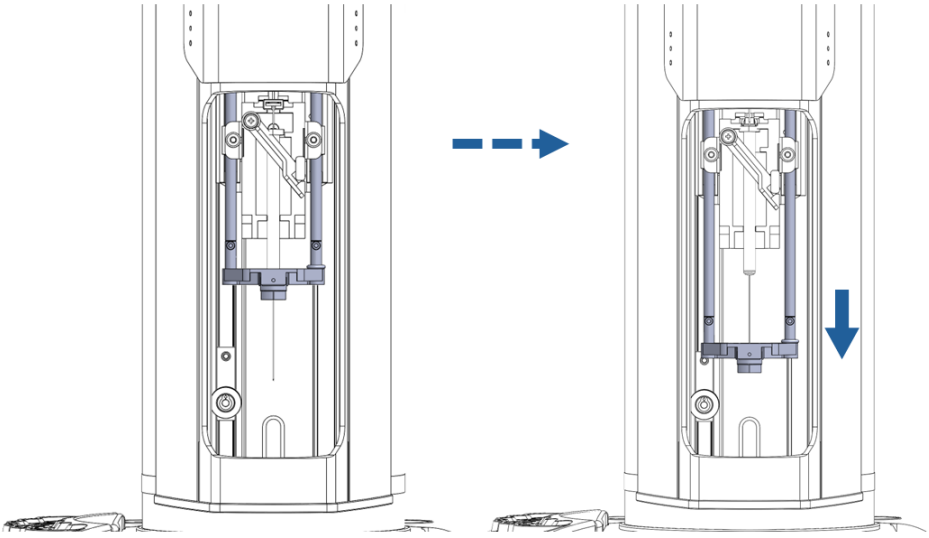
10. Fasten completely the two fixing screws, taking care to have the small bars completely inside the vial locator bars.



11. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the syringe.



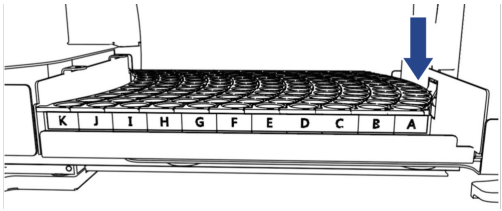
12. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.



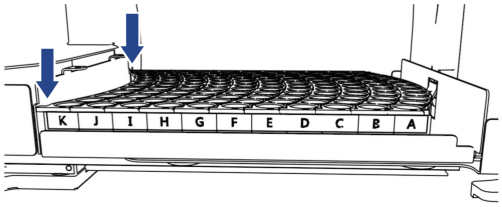
13. Lower the sliding lid.
14. Press **Continue**.

## Insert the sample standard rack in the autosampler tray

1. Insert the front side of sample rack.

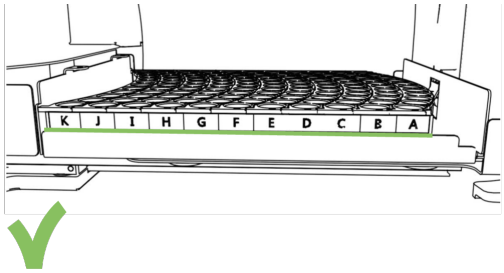


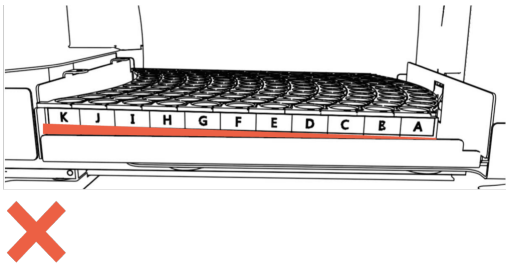

2. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.




3. If this is the first installation, select **Continue**: the autosampler tray closes and the screen displays the autosampler model and the firmware version.

## Rack correct positioning




## Install the tray

1. At the end of the alignment procedure, select **Continue**.
2. Select **OK**.
3. If necessary, modify the vial type, then select **Continue**.
4. Set the depth below the septum where the needle must be positioned to aspirate the sample and select **Continue** > **Save** > **Continue**.
   ***Note:*** *If you set the sample depth to 0 mm (the minimum value), the needle tip will be just below the septum. If you set the sample depth to 32 mm (the maximum value), the needle tip will be close to the vial bottom.*
   ***Note:*** *The autosampler shows automatically the vial depth used the last time that the autosampler has been used in Liquid mode.*

## Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

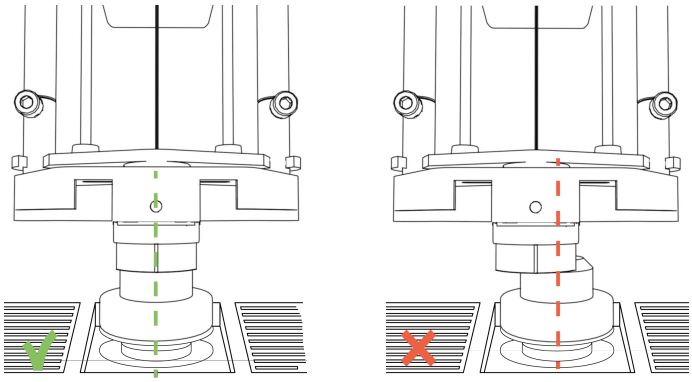
| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

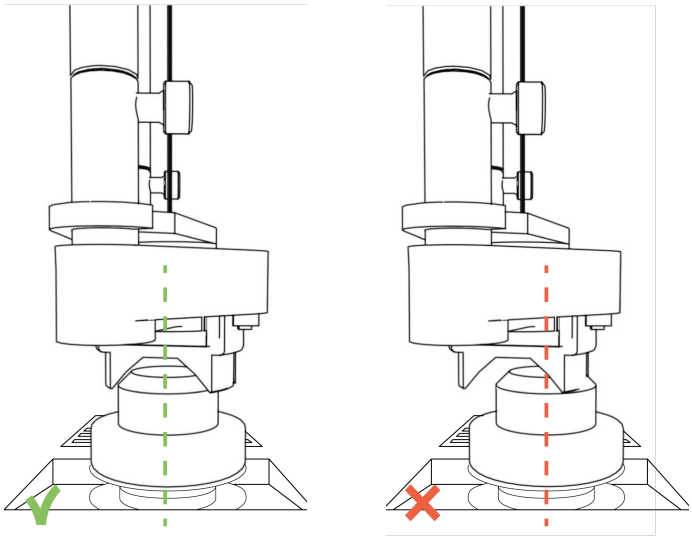
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.
7. Repeat from step 2 to 7.

## Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.





## Set the position of the vials - The Touch and Plunger Zero procedure

1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a sample vial with cap in position A6 of the standard rack, a black spacer and a solvent vial in position C of the oven and ensure the waste vial is in its proper position.
3. Select **Continue**: the vial locator touches the waste vial, the sample vial, the solvent vial and the injector adapter to memorize their positions.
4. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

## 5.14 Set the autosampler in Liquid mode

1. Choose how do you want to operate the autosampler. See 'How to operate the autosampler' on page 46 for details.
2. Do what follows:

| If you want to operate the autosampler... | Then... |
|---|---|
| by autosampler touch screen: all samples are processed in the same way | Set the method and the sequence selecting **A.1** as **First Sample** and **K.11** as **Last Sample**. See 'Set the method and sequence' on page 168. |
| by autosampler touch screen: you are required to process samples in different ways | 1. *Run menu > Settings > Setup > Configuration > Run*<br>2. Select **User Interface** and set the parameter to **Normal**. |
| by HTA Autosampler Manager | Install HTA Autosampler Manager and connect the autosampler. Full license is required. See 'HTA Autosampler Manager installation' on page 76. |
| by HTA Autosampler Manager – CFR 21 part 11 version | Install HTA Autosampler Manager and connect the autosampler. Full license and CFR 21 part 11 license are required. See 'HTA Autosampler Manager installation' on page 76. |
| by CDS through HTA software integration | 1. See 'HTA Autosampler Manager installation' on page 76. Full license is required.<br>2. Perform the setup and preliminary operations on your CDS to connect with the autosampler. For further details, see your CDS documentation and HTA Autosampler Manager help. |
| by CDS through HTA software connectors | 1. See 'Install HTA Autosampler Manager' on page 76.<br>2. *Run menu > Settings > Setup > Configuration > Activation*<br>3. Select the feature indicated in the Password for Optional Features purchased and select **OK**.<br>4. Select **Full** and insert the password indicated in the Password for Optional Features purchased.<br>5. *Run menu > Settings > Setup > Configuration > Run*<br>6. Select **Protocol version** and set the parameter to **-**.<br>7. Perform the setup and preliminary operations on your CDS to connect with the autosampler. For further details, see your CDS documentation and HTA Autosampler Manager help.<br><br>Dedicated feature is required. |
| by CDS through third party integration | Perform the setup and preliminary operations on your third party integration software to connect with the autosampler. See your third party software documentation for further details. |

## 5.15 Enable the SPME feature for standard fibers

*Run menu > Settings > Setup > Configuration > Activation*

1. Select the feature number 1 and select **OK**.
2. Select **FULL**.
3. Insert the code you find in the envelope of the SPME kit - standard fibers and press **OK**.

## 5.16 Enable the SPME feature for 1.1 / 1.5 fibers

*Run menu > Settings > Setup > Configuration > Activation*

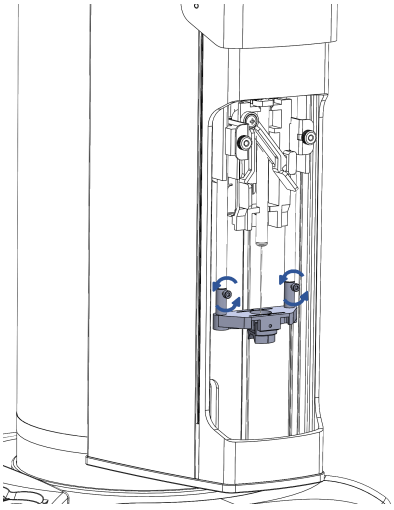
1. Select the feature number 9 and select **OK**.
2. Select **FULL**.
3. Insert the code you find in the envelope of the SPME kit - 1.1 fibers / 1.5 fibers and press **OK**.

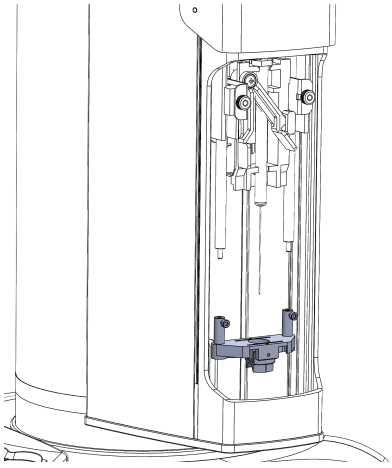
# 5.17 Change to SPME mode

## 5.17.1 Get out of Liquid mode

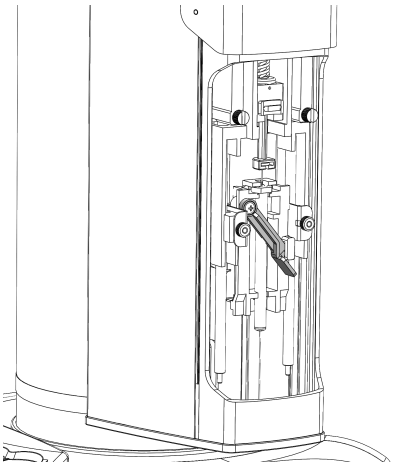
*Run menu > Change Mode*

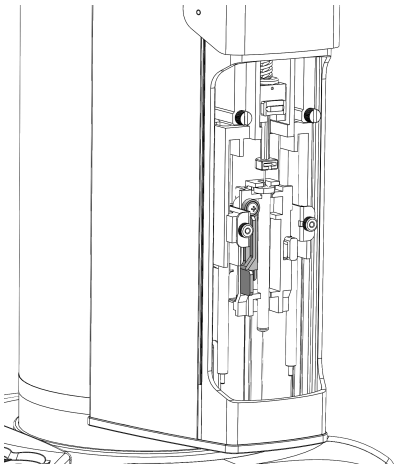
1. Select **SPME mode** and select **Continue**.
2. Wait for the automatic positioning.
3. Remove the two fixing screws to remove the vial locator.

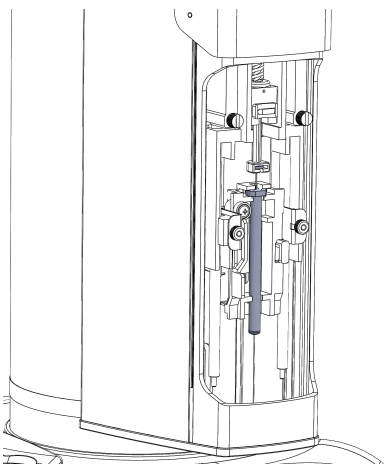


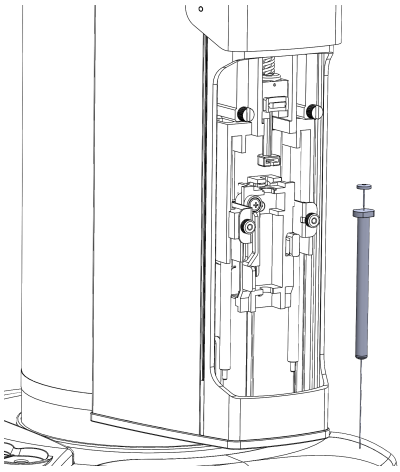


4. Select **Continue**.
5. Wait for the automatic positioning, open the locker and remove the syringe.

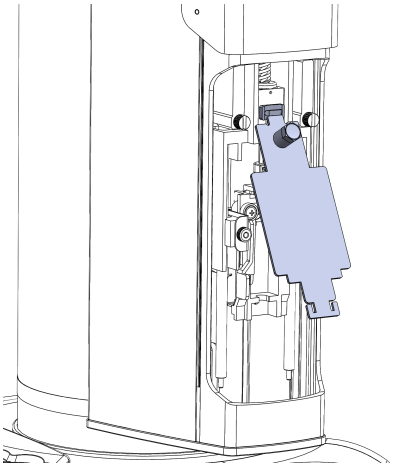


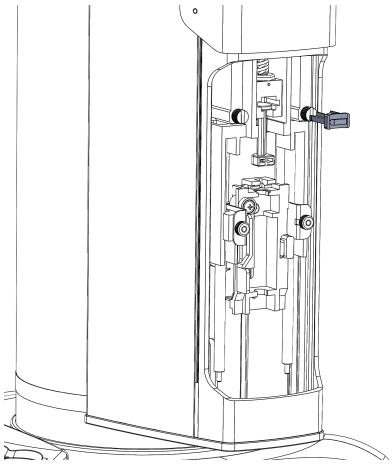




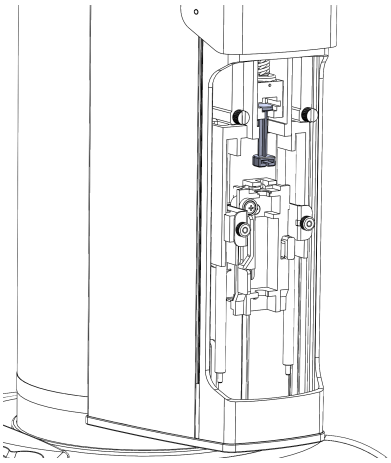


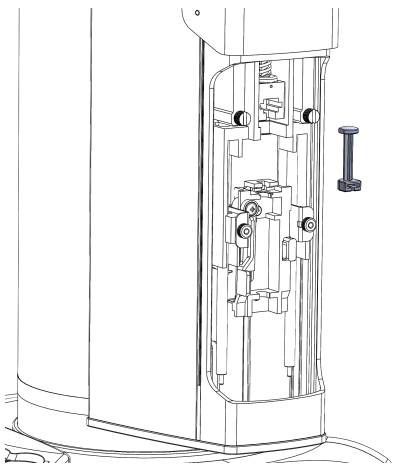
6. Take the syringe pointer, insert its edge in the plunger locker and pull it out.



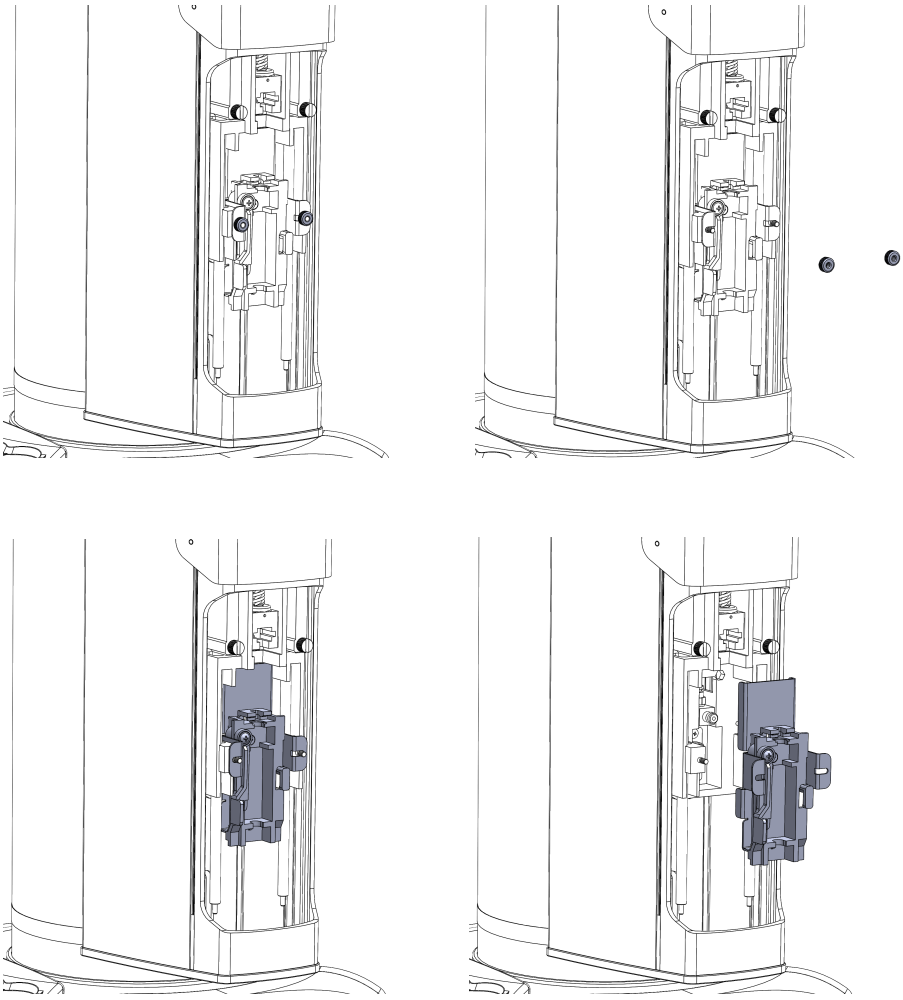


7. Remove the plunger extension.





8. Unscrew the two fixing nuts and remove the syringe holder.



9. Select **Continue**.

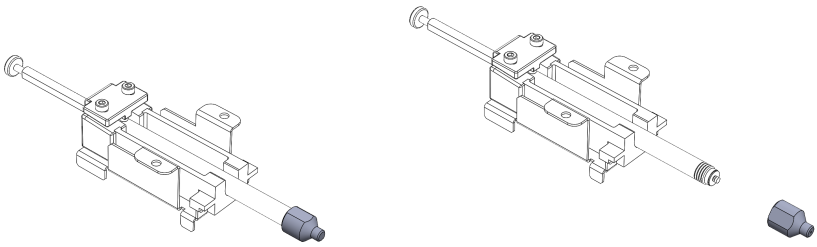
## 5.17.2 Get into SPME mode (fiber)

1. Select the **Type** of fiber you are going to use.
2. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

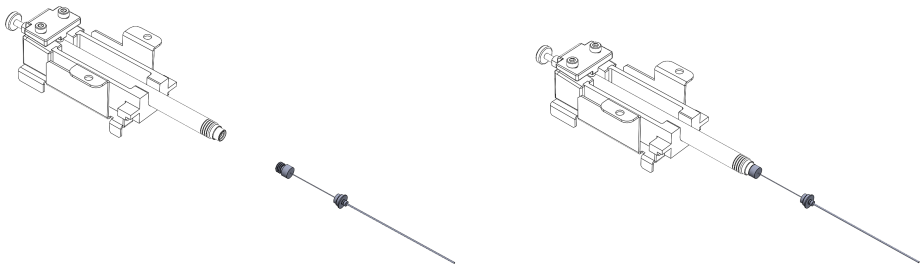
| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the fiber holder installation without moving the turret | proceed to point 3. |

3. Wait for the automatic positioning.

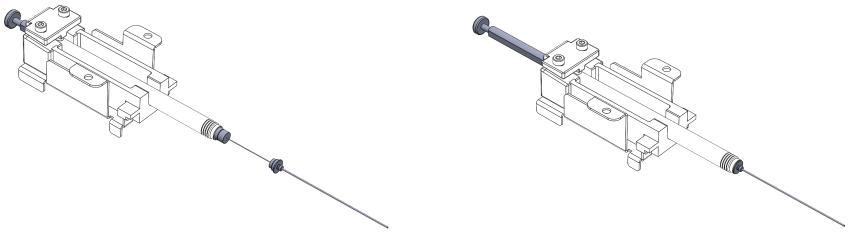
4. Unscrew the fiber guide and remove it.



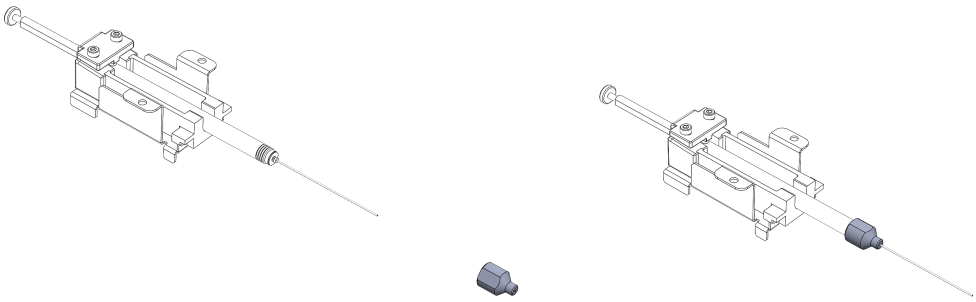
5. Screw the fiber fixing point to the fiber holder plunger.



6. Lift up the fiber holder plunger until the fiber is completely inside the fiber holder.

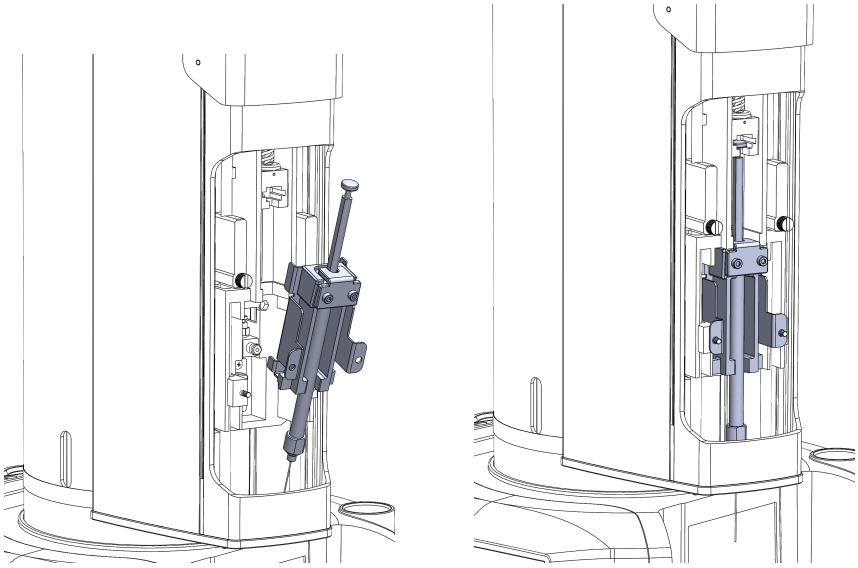


7. Insert the fiber guide along the fiber and fix it at the fiber holder.

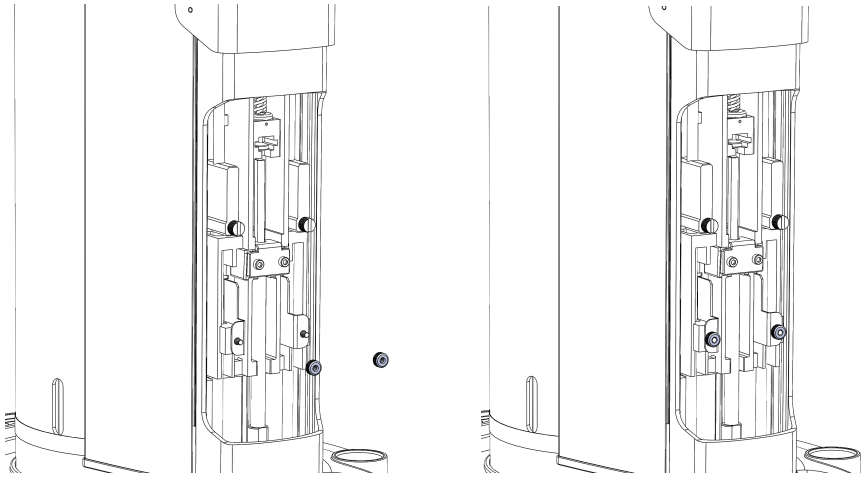


***Note:*** *Take care to use the standard fiber guide in case of standard fiber or the sealted tip guide in case of sealed tip.*

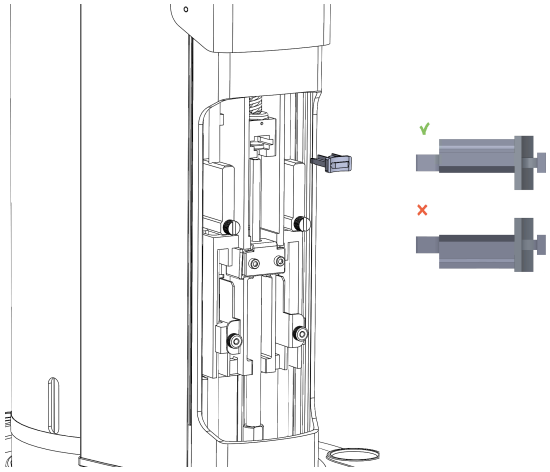
8. Install the fiber holder.



9. Fix completely the two finger nuts.

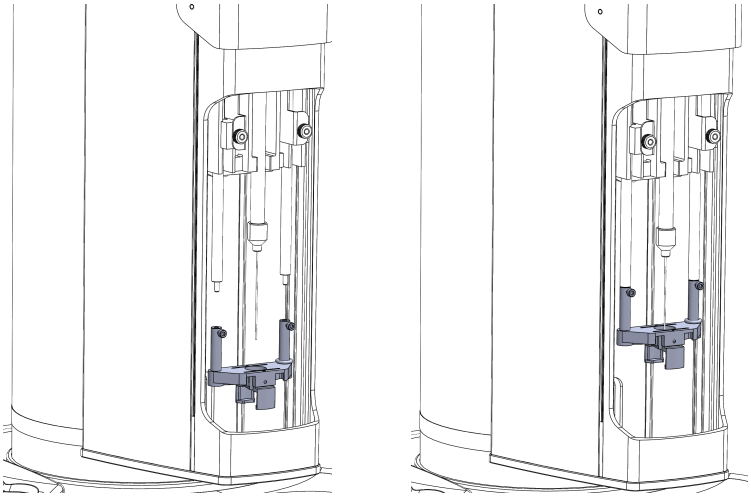


10. Insert the plunger locker.

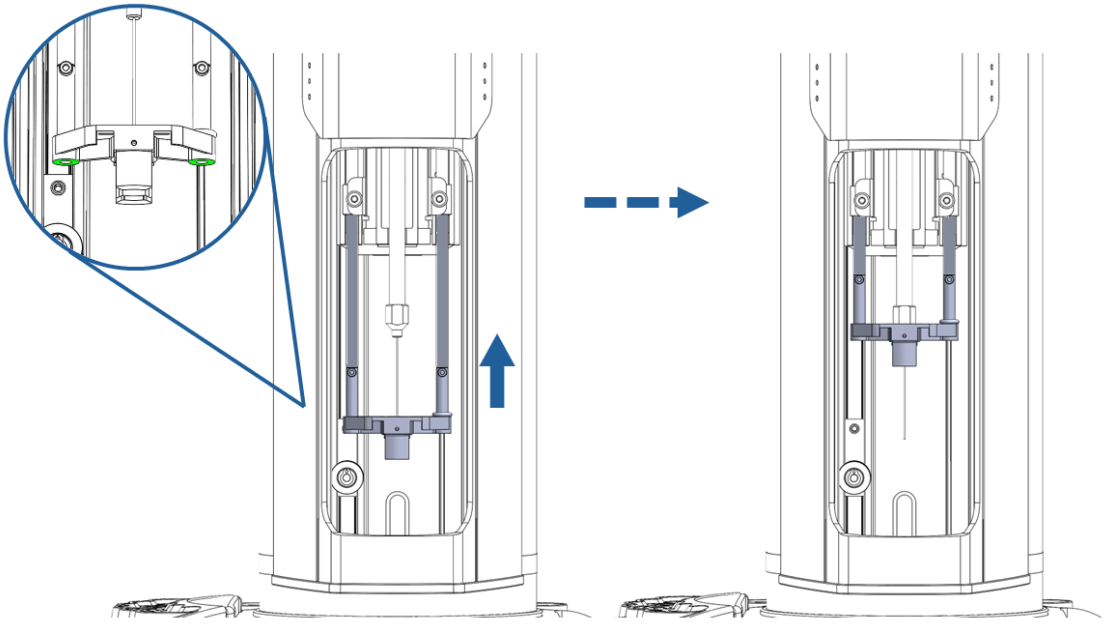


11. Install the vial locator for Headspace and SPME standard fibers technique (blue o-ring): see 'Vial locators' on page 55. Take care to let the needle tip to enter the central hole on the vial locator and

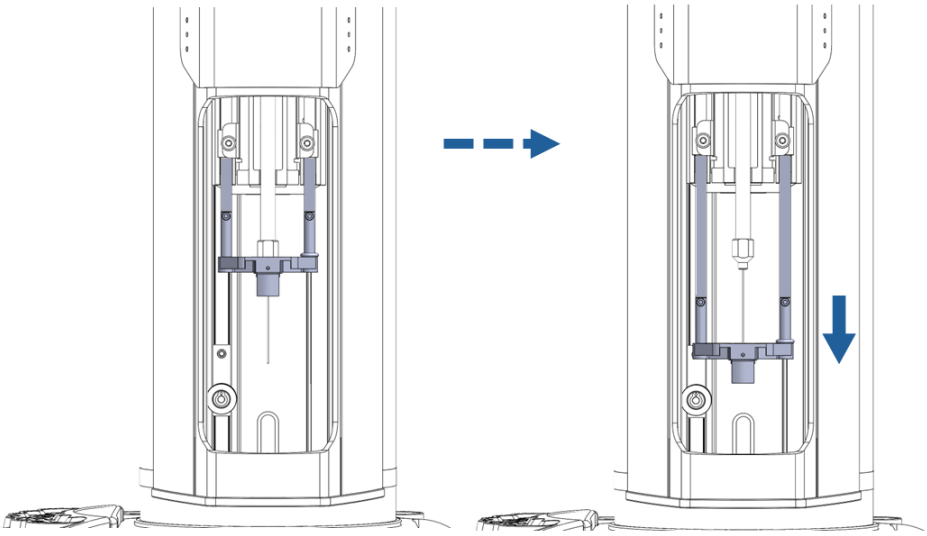
to insert the two bars along the two long bars and then select **Continue**.



12. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the fiber.

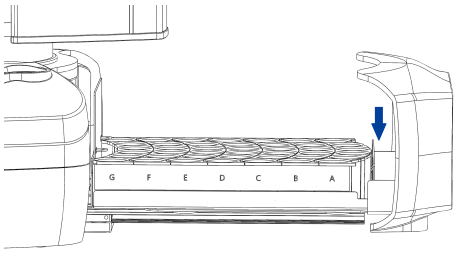


13. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.

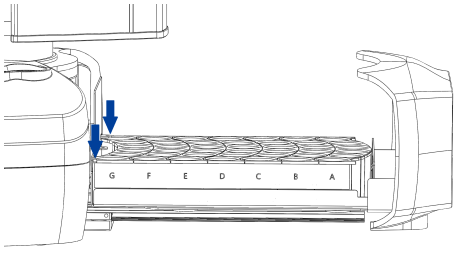


## Insert the sample standard rack in the autosampler tray

1. Remove the sample vials and the 121 positions sample rack.
2. Insert the front side of the 42 positions sample rack.

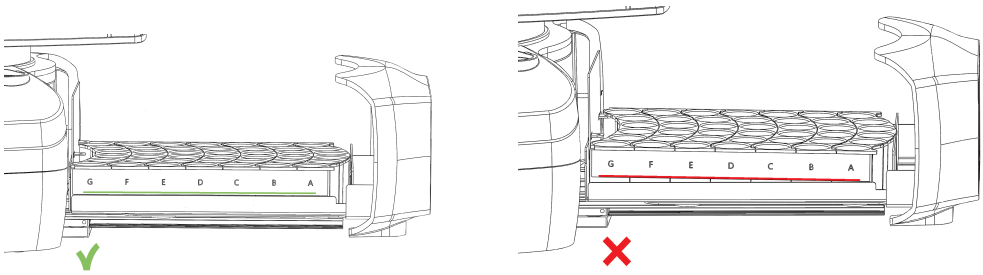



3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.




4. If this is the first installation, select **Continue**: the autosampler tray closes and the screen displays the autosampler model and the firmware version.

## Rack correct positioning




## Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.
2. Do what follows:

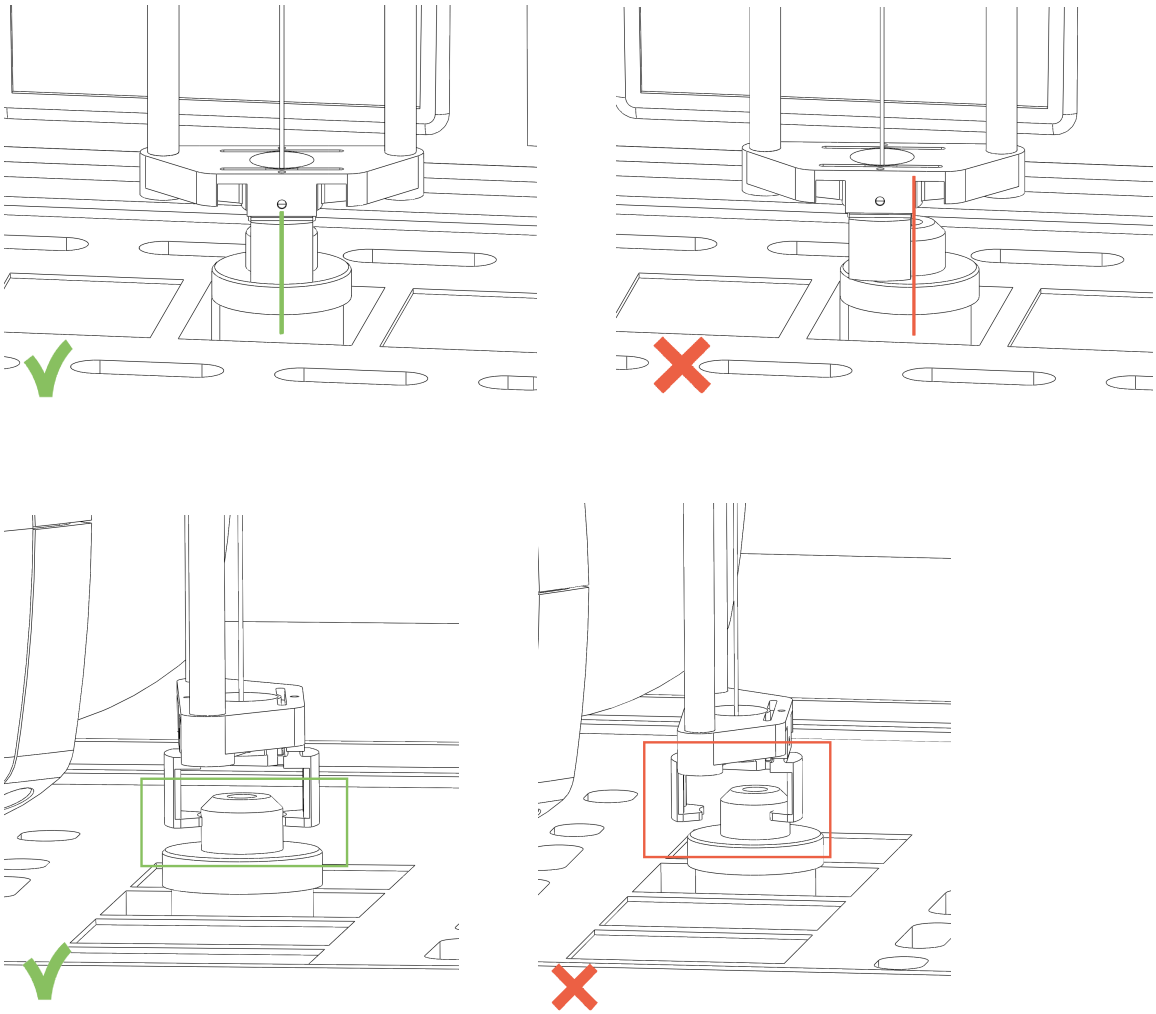
| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.
7. Repeat from step 2 to 7.

## Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.



## Set the position of the vials - The Touch and Plunger Zero procedure

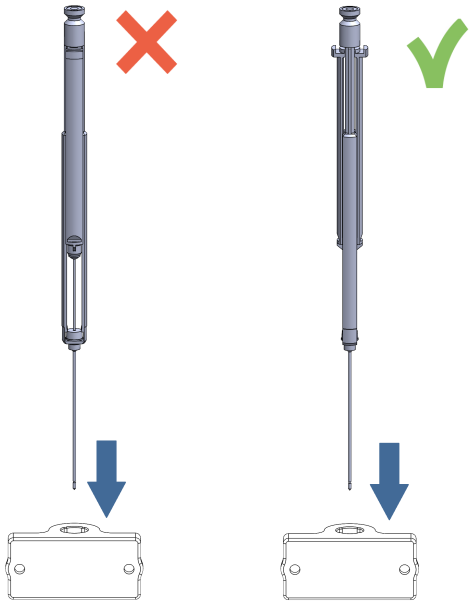
1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case wash vial is used, insert it in its position.
3. Select **Continue**: the vial locator touches the wash vial, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
4. Remove the vial from oven and press **Continue**.
5. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

### 5.17.3 Get into SPME mode (sealed tip)

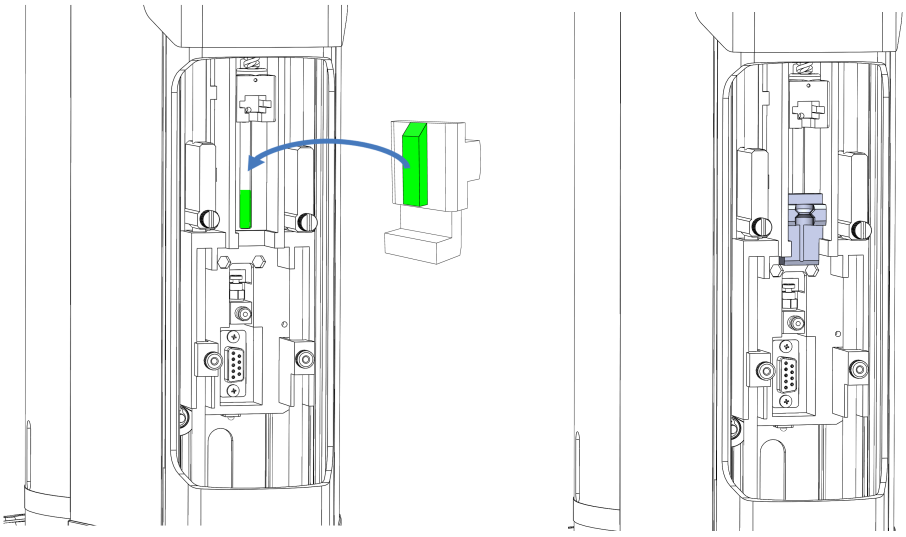
1. Select the **Type** of sealed tip you are going to use.
2. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the fiber holder installation without moving the turret | proceed to point 3. |

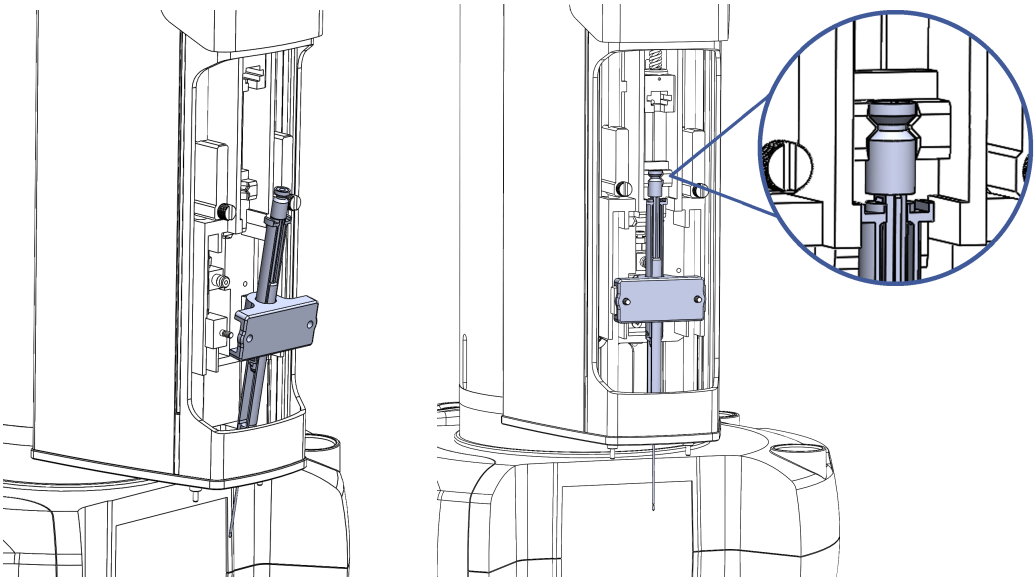
3. Wait for the automatic positioning.
4. Insert the sealed tip arrow into the sealed tip holder.



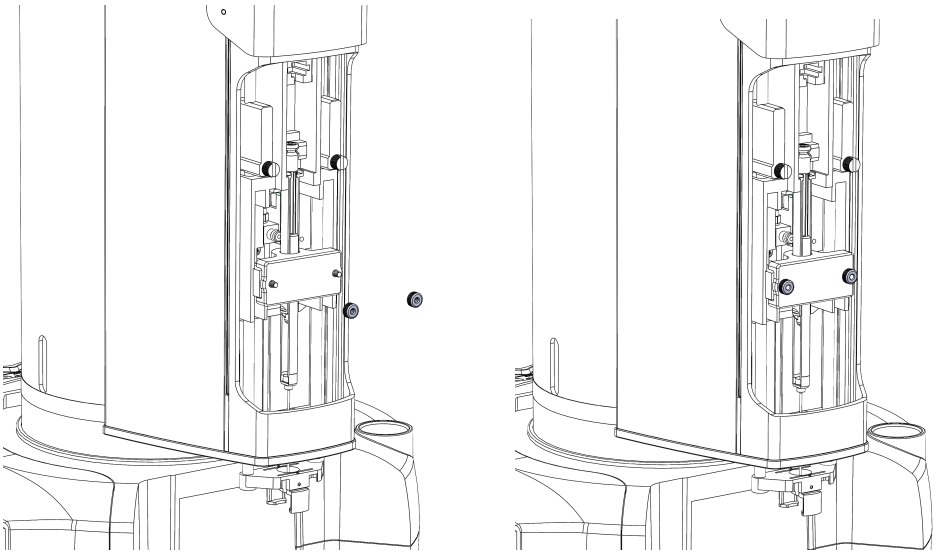
5. Insert the sealed tip spacer in the position shown in the following pictures.



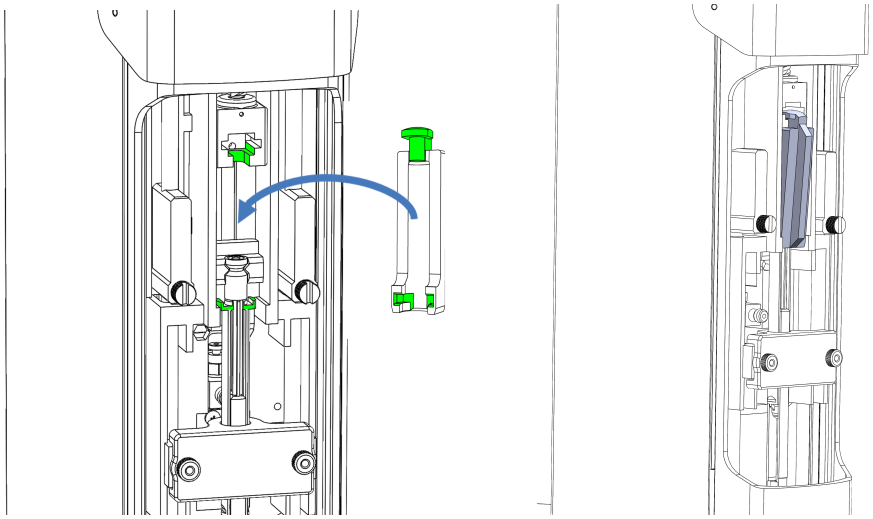
6. Install the fiber holder.



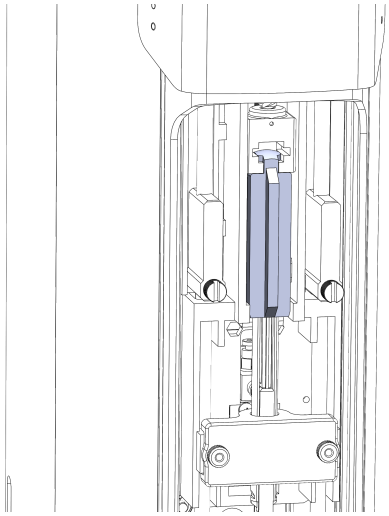
7. Fix completely the two finger nuts.



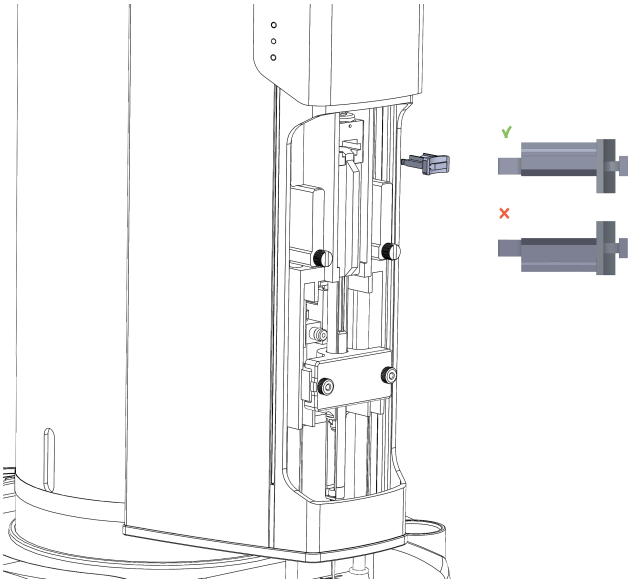
8. Insert the plunger extension.



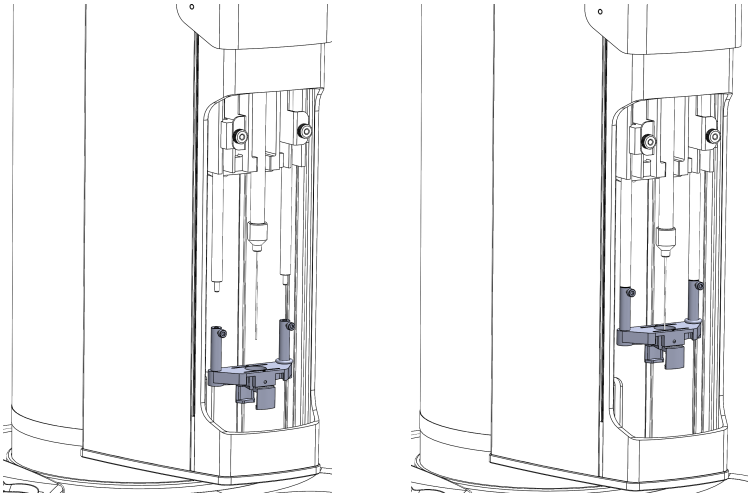
9. Lower the plunger extension until it rests on the plunger holder.



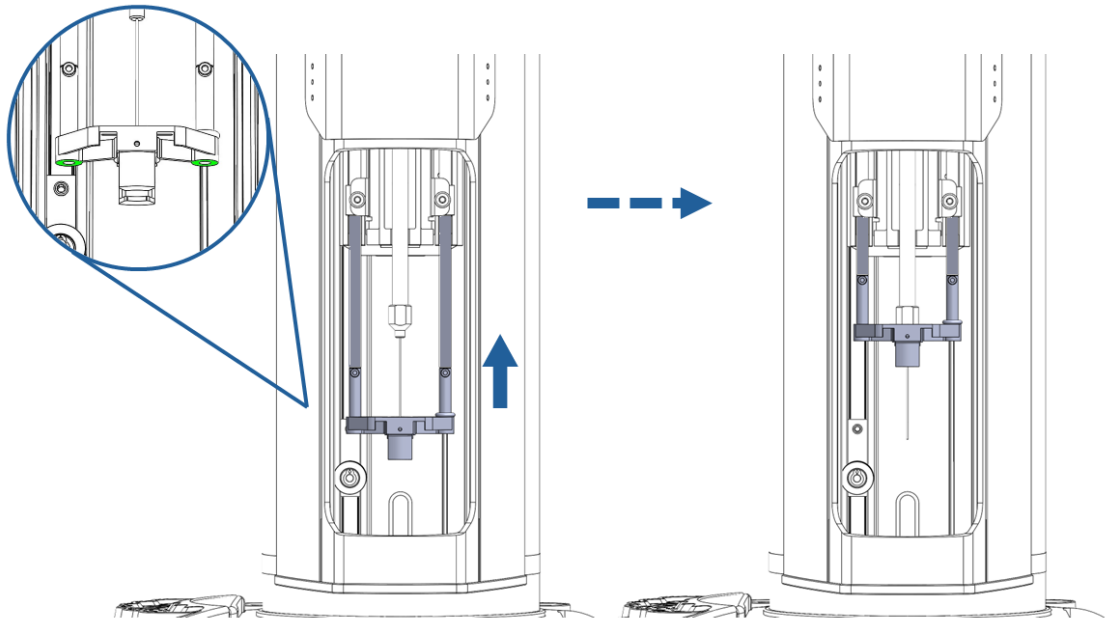
10. Insert the plunger locker.



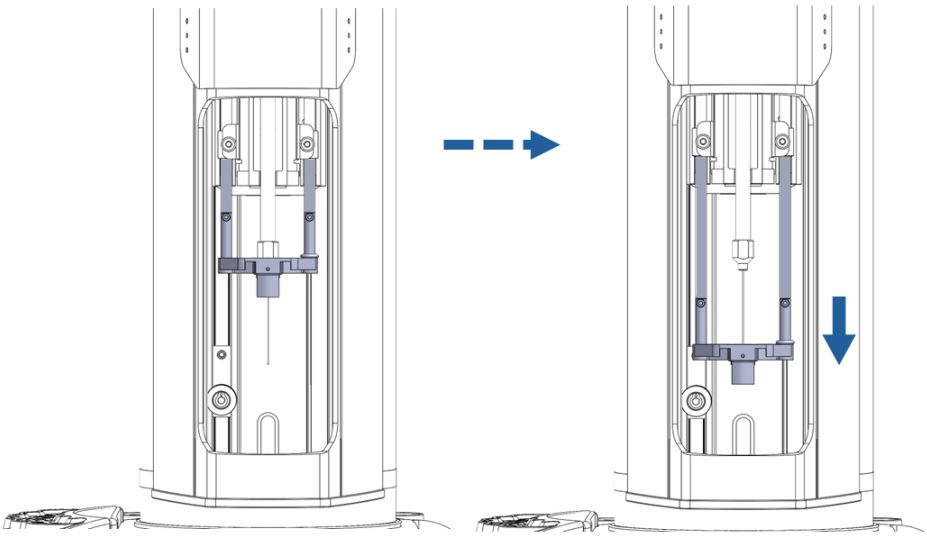
11. Install the vial locator for SPME for 1.1 fibers / 1.5 fibers technique (yellow o-ring): see 'Vial locators' on page 55. Take care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars and then select **Continue**.



12. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the fiber.

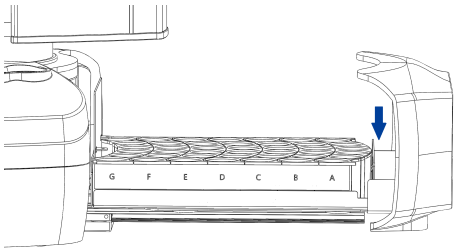


13. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.

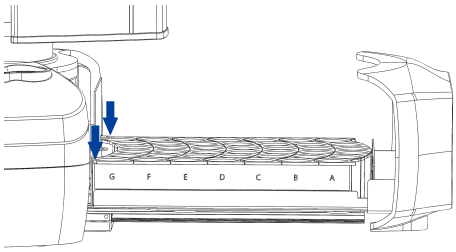


## Insert the sample standard rack in the autosampler tray

1. Remove the sample vials and the 121 positions sample rack.
2. Insert the front side of the 42 positions sample rack.

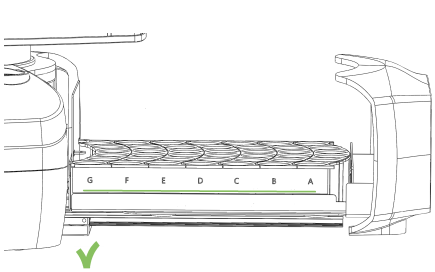


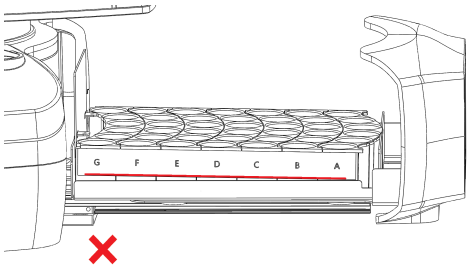

3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.




4. If this is the first installation, select **Continue**: the autosampler tray closes and the screen displays the autosampler model and the firmware version.

## Rack correct positioning




## Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial

locator touches a known part of the autosampler and then the front injector adapter.

**CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

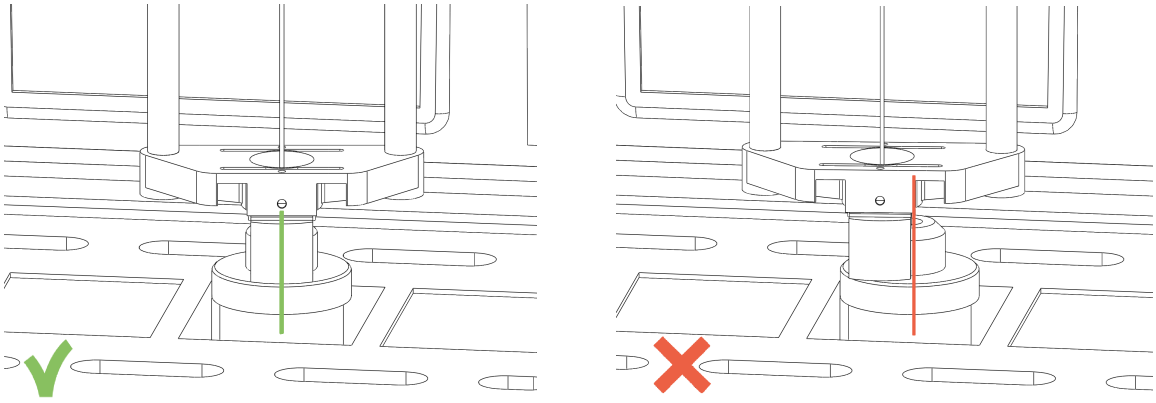
| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

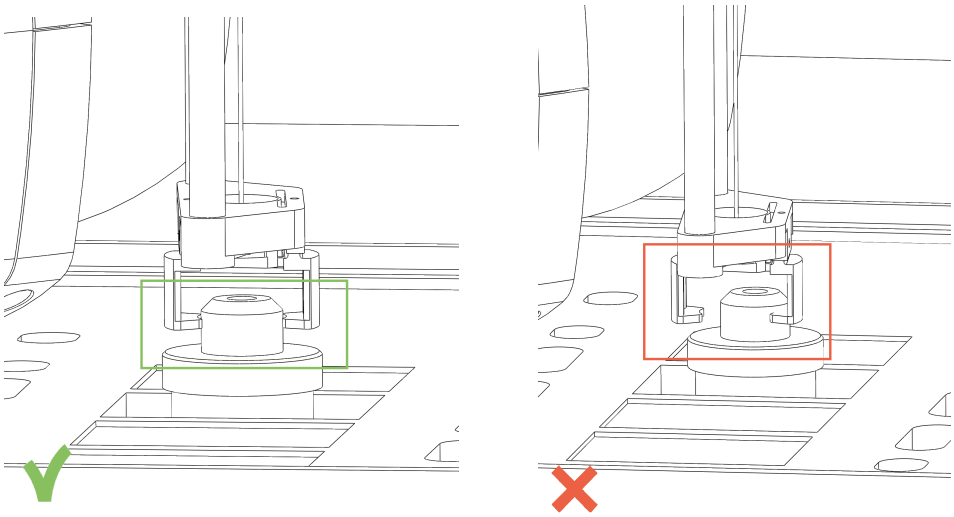
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.
7. Repeat from step 2 to 7.

## Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.





## Set the position of the vials - The Touch and Plunger Zero procedure

1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case wash vial is used, insert it in its position.
3. Select **Continue**: the vial locator touches the wash vial, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
4. Remove the vial from oven and press **Continue**.
5. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

## 5.18 Set the autosampler in SPME mode

1. Choose how do you want to operate the autosampler. See 'How to operate the autosampler' on page 46 for details.
2. Do what follows:

| If you want to operate the autosampler... | Then... |
|---|---|
| by autosampler touch screen: all samples are processed in the same way | Set the method and the sequence selecting **A.1** as **First Sample** and **G.6** as **Last Sample**. See 'Set the method and sequence' on page 205. |
| by autosampler touch screen: you are required to process samples in different ways | 1. *Run menu > Settings > Setup > Configuration > Run*<br>2. Select **User Interface** and set the parameter to **Normal**. |
| by HTA Autosampler Manager | Install HTA Autosampler Manager and connect the autosampler. Full license is required. See 'HTA Autosampler Manager installation' on page 76. |
| by HTA Autosampler Manager – CFR 21 part 11 version | Install HTA Autosampler Manager and connect the autosampler. Full license and CFR 21 part 11 license are required. See 'HTA Autosampler Manager installation' on page 76. |
| by CDS through HTA software integration | 1. See 'HTA Autosampler Manager installation' on page 76. Full license is required.<br>2. Perform the setup and preliminary operations on your CDS to connect with the autosampler. For further details, see your CDS documentation and HTA Autosampler Manager help. |
| by CDS through third party integration | Perform the setup and preliminary operations on your third party integration software to connect with the autosampler. See your third party software documentation for further details. |

## 5.19 Accessories installation

### External pressure regulator (optional)

This accessory is used to regulate the pressure of the gas used for the syringe flushing (e.g. Nitrogen). The regulator input pressure must be lower than 10 bar (145 psi or 1000 kPa).

1. Set the pressure regulator output at 2 bar maximum (29 psi or 200 kPa).
2. Insert the pressure regulator between the gas source and the gas inlet of the autosampler in order to regulate the inlet pressure.
3. Connect the 1/8" tube coming out from the regulator to the gas inlet 1/8" located on the rear panel of the autosampler.
4. Connect the other end of the regulator to the gas source.

### Swagelok Adapter

1. Unscrew the Rapid fitting terminal using an Hexagon key (2mm).
2. Put the O.R. on the new fitting.
3. Screw the fitting and the washer on the female adapter using an open-end wrench (8mm).

### System integrity tool for Headspace technique

1. Remove the upper part of the Syringe integrity tool.
2. Insert the septum in the lower part of the Syringe integrity tool.
3. Screw by hands the upper part of the Syringe integrity tool to the lower part.
4. Place the Syringe integrity tool in its proper location.
5. Set the position of the vial. For more details, see 'Set the position of the vials - The Touch and Plunger Zero procedure' on page 72.

## 5.20 Re-installation or setup after a long downtime in Headspace mode

This procedure must be followed if:
- the autosampler has not been used for a long time;
- the autosampler must be installed on the same analyzer where it was previously installed;
- the autosampler must be installed on a different analyzer.

<table>
<tr><th>Step</th><th>Installation task</th><th>Procedure</th></tr>
<tr><td>1</td><td>Start the autosampler</td><td>See 'Start the autosampler' on page 61.</td></tr>
<tr><td>2</td><td>Prepare the syringe location</td><td><table><tr><th>If...</th><th>Then...</th></tr><tr><td>the autosampler is in shipping position</td><td>See 'Prepare the syringe location' on page 62.</td></tr><tr><td>the autosampler is in operating position</td><td>Proceed with the next step.</td></tr></table></td></tr>
<tr><td>3</td><td>Sample rack installation</td><td>  Run menu > Load Sample Tray<br>Insert the sample standard rack in the autosampler tray.<br>See 'Sample rack installation' on page 64.</td></tr>
<tr><td>4</td><td>Install the syringe</td><td>See 'Syringe management' on page 131.</td></tr>
<tr><td>5</td><td>Install the tray</td><td>  Run menu > Settings > Setup > Alignment > Tray Install<br>See 'Racks management' on page 130.</td></tr>
<tr><td>6</td><td>Select the analyzer</td><td>  Run menu > Settings > Setup > Alignment > Analyzer Default<br>See 'Select the analyzer' on page 69.</td></tr>
<tr><td>7</td><td>Align the injectors</td><td>  Run menu > Settings > Setup > Alignment<br>See 'Align the injectors' on page 70.</td></tr>
<tr><td>8</td><td>Set the position of the vials - The Touch and Plunger Zero procedure</td><td>  Run menu > Settings > Setup > Alignment<br>See 'Set the position of the vials - The Touch and Plunger Zero procedure' on page 121.</td></tr>
<tr><td>9</td><td>HTA Monitor installation</td><td>See 'Install HTA Monitor' on page 61.</td></tr>
<tr><td>10</td><td>Set the communication with the analyzer</td><td>See 'Set the communcation with the analyzer' on page 73.</td></tr>
<tr><td>11</td><td>Test the communication with the analyzer</td><td>See 'Test the communcation with the analyzer' on page 74.</td></tr>
<tr><td>12</td><td>Set the autosampler</td><td>See 'Set the autosampler' on page 75.</td></tr>
</table>

## 5.21 Re-installation or setup after a long downtime in Liquid mode

This procedure must be followed if:
- the autosampler has not been used for a long time;
- the autosampler must be installed on the same analyzer where it was previously installed;
- the autosampler must be installed on a different analyzer.

| Step | Installation task | Procedure |
|---|---|---|
| 1 | Start the autosampler | See 'Start the autosampler' on page 61. |
| 2 | Prepare the syringe location | **If...** / **Then...**<br>the autosampler is in shipping position → See 'Prepare the syringe location' on page 62.<br>the autosampler is in operating position → Proceed with the next step. |
| 3 | Sample rack installation | *Run menu > Load Sample Tray*<br>Insert the sample standard rack in the autosampler tray.<br>See 'Sample rack installation' on page 157. |
| 4 | Install the syringe | See 'Syringe management' on page 173. |
| 5 | Install the tray | *Run menu > Settings > Setup > Alignment > Tray Install*<br>See 'Racks management' on page 172. |
| 6 | Select the analyzer | *Run menu > Settings > Setup > Alignment > Analyzer Default*<br>See 'Select the analyzer' on page 69. |
| 7 | Align the injectors | *Run menu > Settings > Setup > Alignment*<br>See 'Align the injectors' on page 70. |
| 8 | Set the position of the vials - The Touch and Plunger Zero procedure | *Run menu > Settings > Setup > Alignment*<br>See 'Set the position of the vials - The Touch and Plunger Zero procedure' on page 159. |
| 9 | HTA Monitor installation | See 'Install HTA Monitor' on page 61. |
| 10 | Set the communication with the analyzer | See 'Set the communcation with the analyzer' on page 73. |
| 12 | Test the communication with the analyzer | See 'Test the communcation with the analyzer' on page 74. |
| 12 | Set the autosampler | See 'Set the autosampler' on page 88. |

## 5.22 Re-installation or setup after a long downtime in SPME mode

This procedure must be followed if:
- the autosampler has not been used for a long time;
- the autosampler must be installed on the same analyzer where it was previously installed;
- the autosampler must be installed on a different analyzer.

| Step | Installation task | Procedure |
|---|---|---|
| 1 | Start the autosampler | See 'Start the autosampler' on page 61. |
| 2 | Prepare the syringe location | **If...** / **Then...**<br>the autosampler is in shipping position → See 'Prepare the syringe location' on page 62.<br>the autosampler is in operating position → Proceed with the next step. |
| 3 | Sample rack installation | *Run menu > Load Sample Tray*<br>Insert the sample standard rack in the autosampler tray.<br>See 'Sample rack installation' on page 64. |
| 4 | Install the fiber | See 'Fiber management' on page 210. |
| 5 | Install the tray | *Run menu > Settings > Setup > Alignment > Tray Install*<br>See 'Racks management' on page 209. |
| 6 | Select the analyzer | *Run menu > Settings > Setup > Alignment > Analyzer Default*<br>See 'Select the analyzer' on page 69. |
| 7 | Align the injectors | *Run menu > Settings > Setup > Alignment*<br>See 'Align the injectors' on page 70. |
| 8 | Set the position of the vials - The Touch and Plunger Zero procedure | *Run menu > Settings > Setup > Alignment*<br>See 'Set the position of the vials - The Touch and Plunger Zero procedure' on page 193. |
| 9 | HTA Monitor installation | See 'Install HTA Monitor' on page 61. |
| 10 | Set the communication with the analyzer | See 'Set the communcation with the analyzer' on page 73. |
| 11 | Test the communication with the analyzer | See 'Test the communcation with the analyzer' on page 74. |
| 12 | Set the autosampler | See 'Set the autosampler' on page 108. |

## 5.23 Enable the temporary feature

*Run menu > Settings > Setup > Configuration > Activation*

1. Select the desired feature and select **OK**.
2. Select **Temporary**: a random number appears.
3. Do what follows:

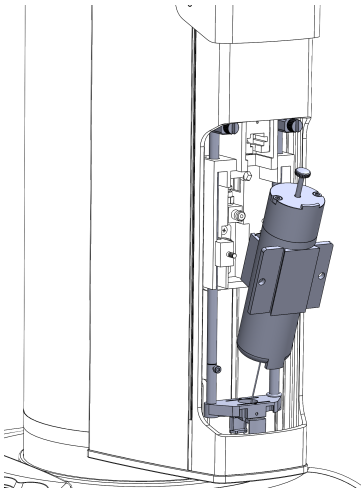
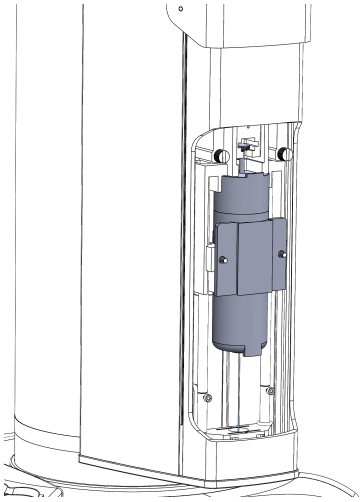
| If... | Then... |
|---|---|
| you do not have the temporary activation key | 1. Send the random number to your Customer representative to obtain the key for the temporary activation.<br>2. While waiting for the temporary activation key, select **Continue** > **Cancel**. |
| you have the temporary activation key | 1. Select **ACTIVATE**.<br>2. Insert the received temporary activation key.<br>3. Read the instructions on the HTA Autosampler Manager help to correctly use the feature. |

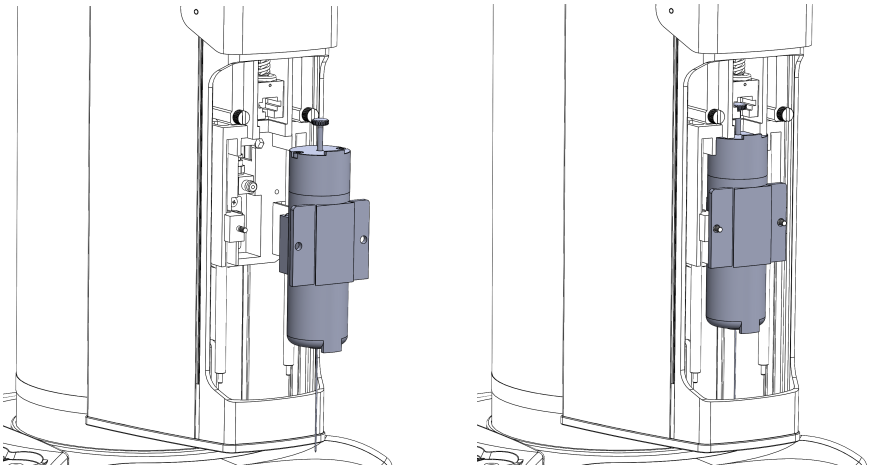
# 6. Use in Headspace mode

## 6.1 Get into Headspace mode

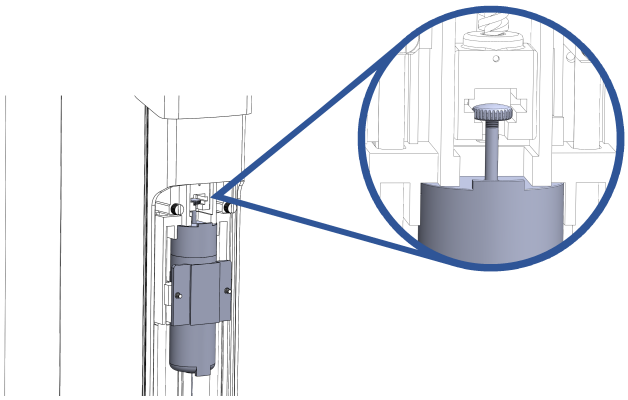
To get into Headspace mode, you need first to get out of the mode you are currently using: therefore, please follow the 'Get out of Liquid mode' on page 184 or 'Get out of SPME mode' on page 237.

1. Select the syringe volume and select **Save**.
2. Wait for the automatic positioning and install the complete HS syringe warmer.

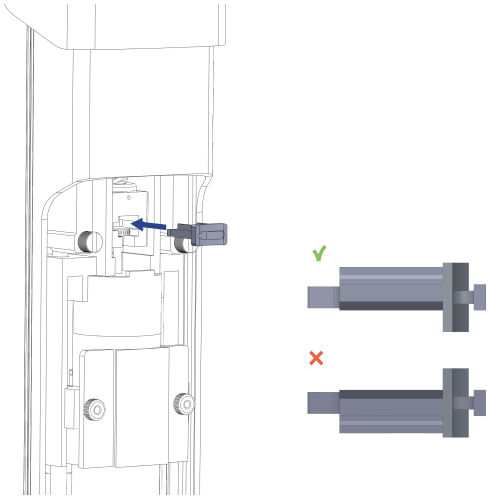
| If the vial locator is... | Then... |
|---|---|
| already mounted | 1. Push the vial locator up and insert the syringe needle in the central hole of the vial locator.<br>  <br>2. Insert the syringe body in the syringe holder and the plunger in the syringe plunger holder.<br>  |
| not mounted | Insert the syringe body in the syringe holder and the plunger in the syringe plunger holder. |

| If the vial locator is... | Then... |
| --- | --- |
| |  |

3. Lower the syringe plunger until it rests on the syringe plunger holder.

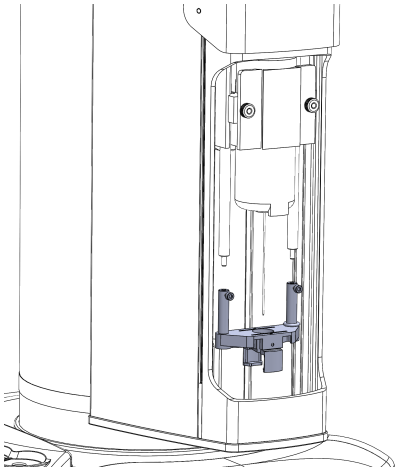
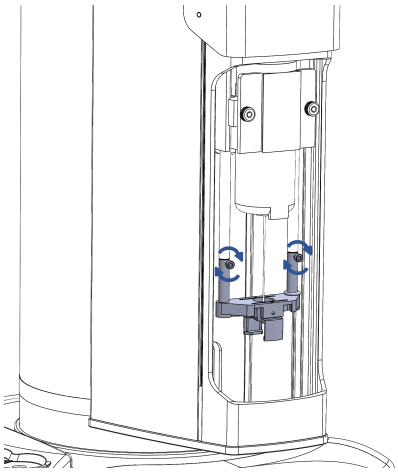


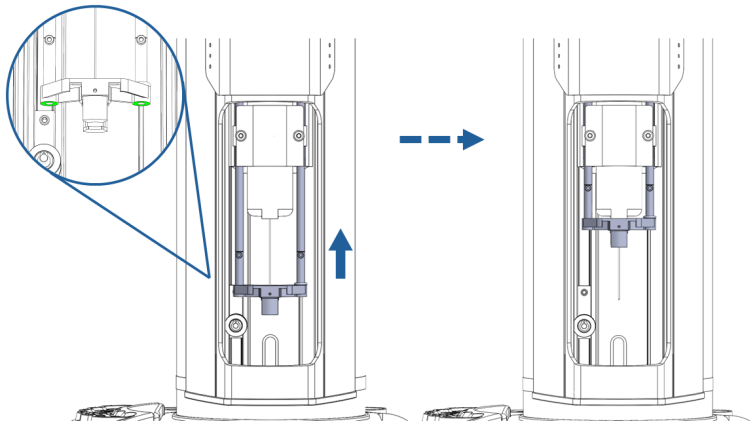
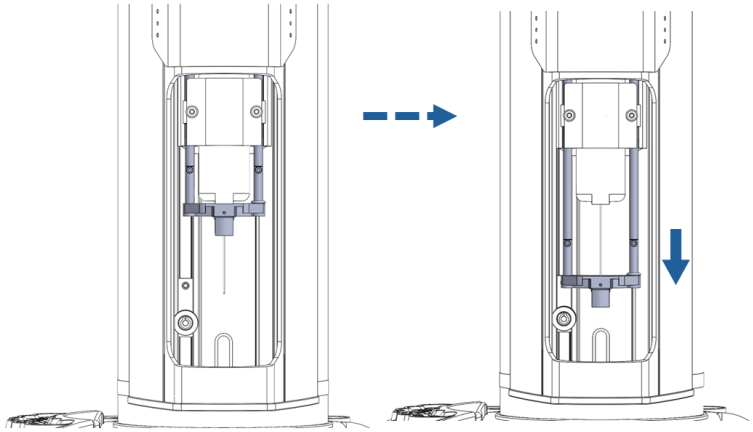
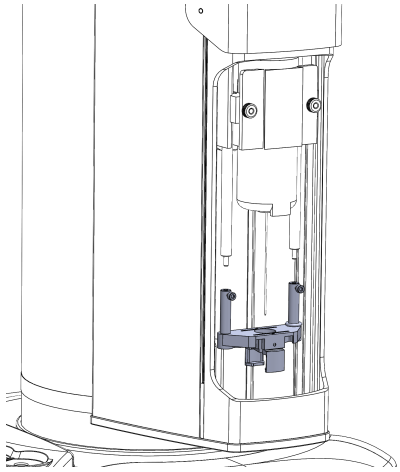
4. Fix the finger nuts.
5. Insert the plunger locker with the knurled side upward in the syringe plunger holder.

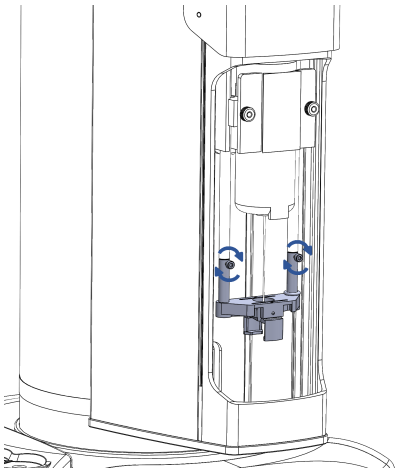
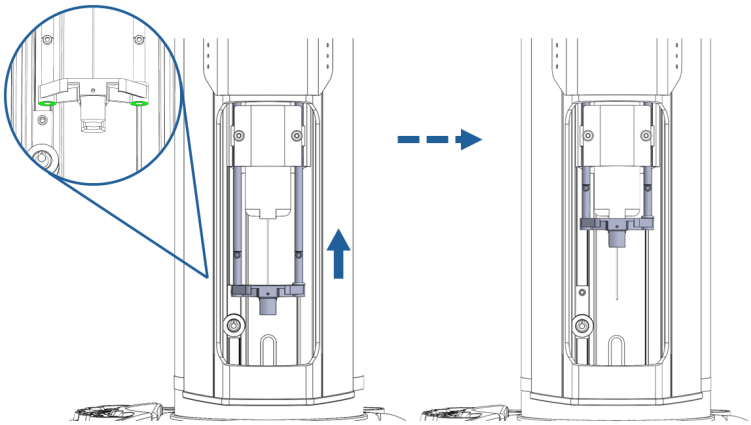
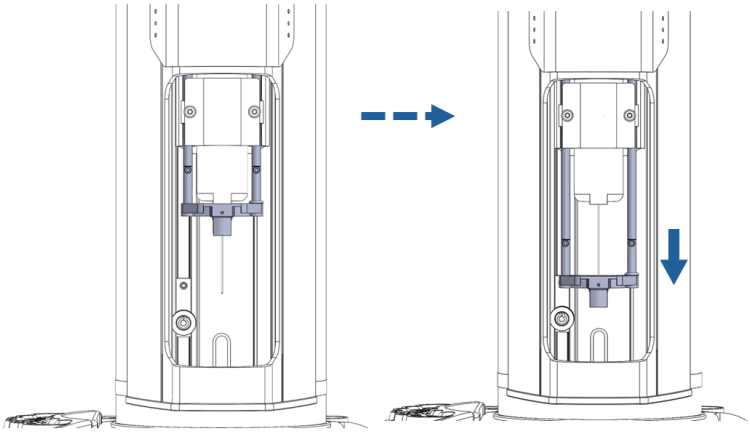


6. Select **Continue**.

7.

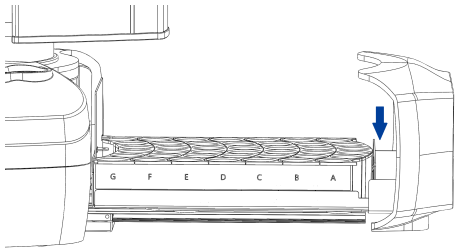
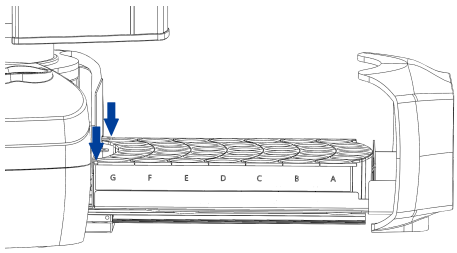
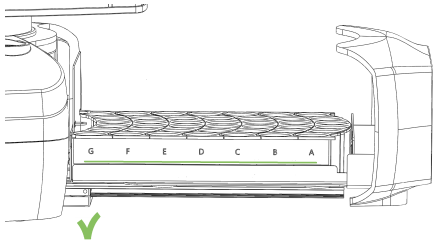
| If... | Then... |
|---|---|
| the autosampler asks to mount the vial locator and you are provided with the vial locator for Headspace and SPME standard fibers technique (blue o-ring: see 'Vial locators' on page 55) | 1. Install the vial locator for Headspace and SPME standard fibers technique (blue o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.<br>***Note:*** *Both the blue o-ring vial locator and the red o-ring vial locator can be used in Headspace technique. See 'Vial locators' on page 55.*<br>  <br>2. Fasten completely the two fixing screws, taking care to have the small bars completely inside the vial locator bars.<br>  <br>3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the syringe. |

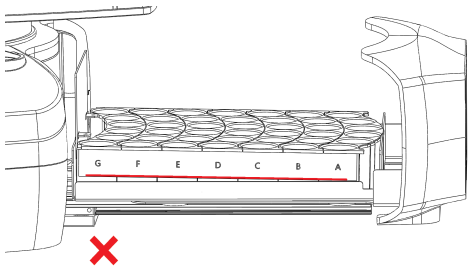
| If... | Then... |
|---|---|
| |  <br>4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.<br>  <br>5. Press **Continue**. |
| the autosampler asks to mount the vial locator and you are not provided with the vial locator for Headspace and SPME standard fibers technique (blue o-ring: see 'Vial locators' on page 55) | 1. Install the vial locator for Headspace technique (red o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.<br>  |

| If... | Then... |
|---|---|
| | 2. Fasten completely the two fixing screws, taking care to have the small bars completely inside the vial locator bars.<br>  <br>3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the syringe.<br>  <br>4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.<br>  |

| If... | Then... |
|---|---|
| | 5. Press **Continue**. |
| the autosampler asks to remove the sample vials | proceed to point 8. |

8.

| If the autosampler asks to... | Then... |
|---|---|
| remove the sample vials and the 121 positions rack is installed | proceed to sample rack installation:<br>1. Remove the sample vials and the 121 positions sample rack.<br>2. Insert the front side of sample rack.<br>  <br>3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.<br>  <br>4. Check that rack is correctly positioned.<br>  |

| If the autosampler asks to... | Then... |
|---|---|
| |  |
| remove the sample vials and the 42 positions rack is installed | remove the sample vials. |

### 6.1.1 Install the tray

1. Select **Continue**.
2. Set the depth below the septum where the needle must be positioned to aspirate the sample and select **Continue** > **Save** > **Continue**.
   ***Note:*** *If you set the sample depth to 0 mm (the minimum value), the needle tip will be just below the septum. If you set the sample depth to 25 mm (the maximum value), the needle tip will be 25 mm below the septum.*

***Note:*** *The autosampler shows automatically the vial depth used the last time that the autosampler has been used in Headspace mode.*

### 6.1.2 Set the position of the vials - The Touch and Plunger Zero procedure

1. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case syringe integrity tool is available, insert it in its position.
2. Select **Continue**: the vial locator touches the syringe integrity tool, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
3. Remove the vial from oven and press **Continue**.

## 6.2 Prepare the sample vials

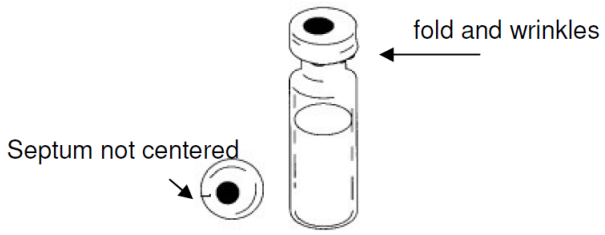
### 6.2.1 Basic information on sample vials

- Vials must be approved for Headspace techniques;
- Rounded end;
- Clear or amber glass (amber glass is suitable for light sensitive samples). For more details see 'Sample vial specifications' on page 395.

### 6.2.2 Close a sample vial with a crimp cap

You must have a crimper available. Fit the septum on the cap and then:

1. Clean the inside surfaces of the crimper jaws.
2. Place the crimp cap over the top of the vial.
3. Hold the vial and place the crimper on top of it. Squeeze the handle until it touches the adjuster screw.
   ***Note:*** *Following picture shows a not correct crimping.*




4. Check each vial for proper crimping:
   - Check the aluminum cap is not folded or wrinkled.
   - The cap should be tight and not easy to move or rotate.
   - If either of the above problems occur crimp the cap again. Regulate the crimper to adjusting the tightness if needed.
   - Check that each cap has a flat septum and that it is centered over the top of the vial:

| If... | Then... |
|---|---|
| the septum is not flat | remove the cap, turn the crimper adjusting screw and try again. |
| the cap is not centered | remove the cap and make sure the new cap is flat on the top of the vial before the crimp operation. |

## 6.3 Operating Modes

### 6.3.1 Operate by autosampler touch screen

<table>
<tr><th>To...</th><th>Then...</th></tr>
<tr><td>Set the method and sequence</td><td>Do what follows:<table><tr><th>If...</th><th>Then...</th></tr><tr><td>all samples are processed in the same way</td><td>you don't need to change method and sequence at each run</td></tr><tr><td>you are required to process samples in different way</td><td>see 'Set the method and sequence' on page 126.</td></tr></table></td></tr>
<tr><td>Run sample(s) - Before proceeding</td><td>See 'Run sample(s) - Before proceeding' on page 127.</td></tr>
<tr><td>Run sample(s) - Start a sequence</td><td>See 'Run sample(s) - Start a sequence' on page 127.</td></tr>
<tr><td>Run sample(s) - Stop a sequence</td><td>See 'Run sample(s) - Stop a sequence' on page 128.</td></tr>
<tr><td>Run sample(s) - Process a single sample</td><td><table><tr><th>If...</th><th>Then...</th></tr><tr><td>all samples are processed in the same way</td><td>see 'Run sample(s) - Start a sequence' on page 127.</td></tr><tr><td>you are required to process samples in different way</td><td>see 'Run sample(s) - Process a single sample' on page 127.</td></tr></table></td></tr>
<tr><td>Perform additional syringe purge</td><td>See 'Perform additional syringe purges' on page 128.</td></tr>
<tr><td>Modify the autosampler general settings</td><td>See 'Modify the autosampler general settings' on page 128.</td></tr>
<tr><td>Manage racks</td><td>See 'Racks management' on page 130.</td></tr>
</table>

### 6.3.2 Operate by HTA Autosampler Manager

| To... | Then... |
|---|---|
| Set the method and sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 127. |
| Run sample(s) - Start a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Stop a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Process a single sample | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Single Injection** topic. |
| Perform additional syringe purge | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Purge** topic. |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see |

| To... | Then... |
|---|---|
| | the help by pressing **F1**.<br>See in particular **Setup** topic. |
| Manage racks | See 'Racks management' on page 130. |

### 6.3.3 Operate by CDS through HTA software integration

| To... | Then... | |
|---|---|---|
| Set the method and sequence | **If you want to work from...** | **Then...** |
| | touch screen | see 'Set the method and sequence' on page 126. |
| | HTA Autosampler Manager | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | 'Run sample(s) - Before proceeding' on page 127 | |
| Run sample(s) - Start a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Stop a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Set a priority | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. | |
| Run sample(s) - Process a single sample | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Perform additional syringe purge | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. | |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Setup** topics. | |
| Manage racks | See 'Racks management' on page 130. | |

### 6.3.4 Operate by CDS through HTA software connectors

| To... | Then... |
|---|---|
| Set the method and sequence | Use your CDS.<br>Check the installation and usage guide of the driver. |
| Run sample(s) - Before proceeding | Check the installation and usage guide of the driver. |
| Run sample(s) - Start a sequence | Use your CDS.<br>Check the installation and usage guide of the driver. |

| To... | Then... |
|---|---|
| Run sample(s) - Stop a sequence | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver. |
| Run sample(s) - Process a single sample | If supported by your CDS, use your CDS.<br>Check the installation and usage guide of the driver. |
| Perform additional syringe purge | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver. |
| Modify the autosampler general settings | **If...** / **Then...**<br>supported by your CDS → Use your CDS.<br>not supported by your CDS → see 'Modify the autosampler general settings' on page 128.<br>Check the installation and usage guide of the driver. |
| Manage racks | See 'Racks management' on page 130. |

### 6.3.5 Operate by CDS through third party integration

| To... | Then... |
|---|---|
| Set the method and sequence | Use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 127. |
| Run sample(s) - Start a sequence | Use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Stop a sequence | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Process a single sample | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Perform additional syringe purge | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Modify the autosampler general settings | **If...** / **Then...**<br>supported by your third party software → Use your third party software. See your third party software documentation for further details.<br>not supported by your third party software → see 'Modify the autosampler general settings' on page 128. |
| Manage racks | See 'Racks management' on page 130. |

## 6.4 Set the method and sequence

### 6.4.1 Modify a method

*Run menu > Settings > Methods*

1. Select the desired method and then **OK** to confirm.
2. Select **General** and, if necessary, modify the parameters. Press **Exit**.
3. If desired, modify the remaining parameters.
4. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.
5. To proceed, see 'Set a sequence' on page 126.

### 6.4.2 Set a sequence

*Run menu > Settings > Sequences*

1. Select the first step and **OK** to open it.
2. Set the step parameters as desired.
3. Select **Exit** to exit from the first step menu.
4. To add a new sequence step, select **Settings** > **Sequences** > **Tools** > **OK** > **Add new** > **Continue** > **Exit** and set the parameters of the new step as desired.
5. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.

### 6.4.3 Restore the default parameters of a method

*Run menu > Settings > Methods > Tools*

1. Select **Restore Default** and select the method to be modified.
2. Select **Continue**.
3. Select **Load** to confirm.
4. Select **Continue**.

### 6.4.4 Copy the parameters of a method to another method

*Run menu > Settings > Methods > Tools*

1. Select **Copy Methods**.
2. Select the source method and the destination method.
3. Select **Copy** to confirm.
4. Select **Continue**.

## 6.5 Start the Run

### 6.5.1 Run sample(s) - Before proceeding

Before starting the run:

- Ensure to have correctly prepared the sample vials and the sample list in the analyzer software.
- Ensure methods and, if desired, sequences, have already been set.
- Verify that the parameter values of the desired method are correct

To modify a method or set a sequence, see 'Set the method and sequence' on page 126.

### 6.5.2 Run sample(s) - Start a sequence

This procedure is useful when there are many sample vials to be processed.

*Run menu > Load Sample Tray*

1. Insert the sample vials in the tray.
2. Select **Close**.
3. Start the sample list on the analyzer software.
4. In the **Run** menu select **Start**: the autosampler starts the sequence and the summary page appears.
5. At the end of the run, select **Continue**: the **Run** menu appears.

### 6.5.3 Run sample(s) - Process a single sample

This procedure is useful when there is only one sample vial to be processed or to perform some test.
***Note:*** *This procedure is applicable only if the parameter* ***User Interface*** *has been set to* ***Standard****.*

*Run menu > Load Sample Tray*

1. Insert the sample vial in the tray.
2. Start the sample list on the analyzer software.
3. In the Standard version of the Run menu select **Single Injection**.
4. Set the parameters as desired.
5. Select **Start**: the autosampler starts the single injection and the summary page appears.

## 6.6 Run management

### 6.6.1 Perform additional syringe purge

*Run menu > Syringe Purge*

1. Set **Flush time** and **Purge temperature**.
2. Set the desired parameters and select **Start**: the autosampler performs the defined additional purge.

### 6.6.2 Run sample(s) - Stop a sequence

1. Select **Stop**: the autosampler pauses.
2. Do what follows:

| If you want... | Then... |
|---|---|
| to put the autosampler into standby | select **Abort**: the autosampler washes the syringe and goes into standby. |
| to stop the autosampler | select **Terminate Current**: the autosampler stops when the operations on the current sample vial end. |
| to continue the sequence | select **Resume**. |

### 6.6.3 Modify the autosampler general settings

*Run menu > Settings > Setup > Configuration*

Select the desired parameters and modify them. For details, see 'Configuration' on page 257.

## 6.7 Sequences management

### 6.7.1 Add a sequence step copying from another one

*Run menu > Settings > Sequences > Tools*

1. Select **Copy as new** and select the step to copy from.
2. Select **Copy**.
3. Select **Continue**.

### 6.7.2 Reorder sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Reorder**.
2. Select the step to move and select **OK**.
3. Select the target position where you want to move the step and select **Move**.
4. Select **Continue**.

### 6.7.3 Remove sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Remove Step**.
2. Select the step to remove and select **OK**.
3. Select **Continue**.

## 6.8 Racks management

### 6.8.1 Set the characteristics of the rack to be used

This procedure adds, to the list of the available racks to be used, a rack with a different vial type than the previous one.

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Add New** and select **OK**.
2. Select the vial type, the vial depth and press **Continue**.
3. The new list item appears.
4. Select **Exit** > **Exit**.

### 6.8.2 Choose the type of rack to be used

*Run menu > Settings > Tray Type*

1. Select the desired type of rack and select **OK** > **Mount** to confirm: the tray opens.
2. Follow the screen instructions to place the required sample vial, then select **Continue**: the vial locator touches the sample vial.
3. Select **Continue**.

### 6.8.3 Remove a rack from the list

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Remove** and select **OK**.
2. Select the tray to be removed and select **Remove**.
3. Select **Continue** > **Exit** > **Exit**.

# 6.9 Syringe management

## 6.9.1 Workflow for replacing the syringe glass and plunger

For replacing the syringe, follow these procedures in the stated order:

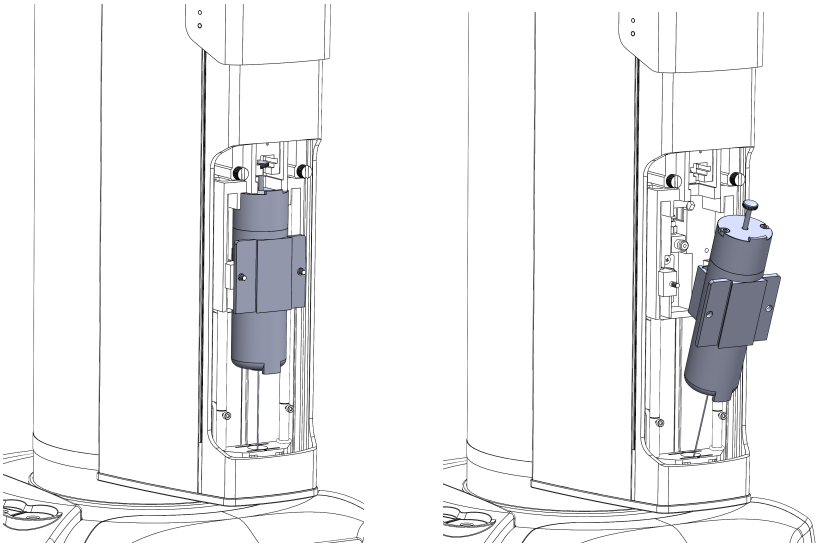
1. 'Remove the syringe warmer' on page 131.
2. 'Remove the syringe plunger' on page 132.
3. 'Install the syringe plunger' on page 133.
4. 'Remove the syringe glass' on page 133.
5. 'Inspect the syringe before installation' on page 134.
6. 'Install the syringe glass' on page 135.
7. 'Install the syringe warmer' on page 136.

Each procedure is described in detail below.

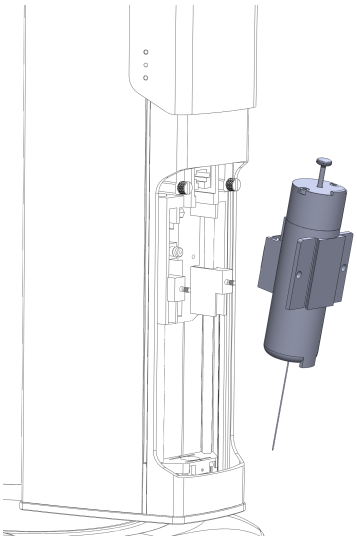
## 6.9.2 Remove the syringe warmer

*Run menu > Settings > Setup > Syringe Installation*

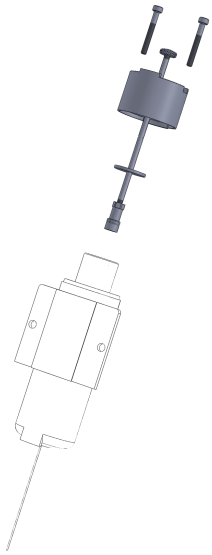
1. Raise the sliding lid and unscrew the two finger nuts.
2. Take the syringe pointer, insert its edge in the plunger locker and pull it out.
3. Pull the syringe to disconnect the gas connection and the electrical connection from the sledge.



4. Carefully remove the syringe needle from the vial locator.

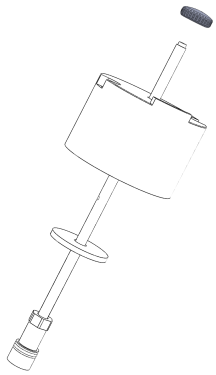


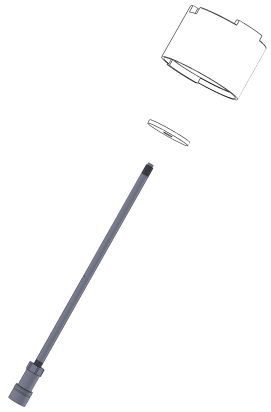
5. Remove the two screws which fix the syringe warmer top cover and remove the top cover.



### 6.9.3 Remove the syringe plunger

1. Unscrew the syringe plunger top part and remove the syringe plunger from the top cover





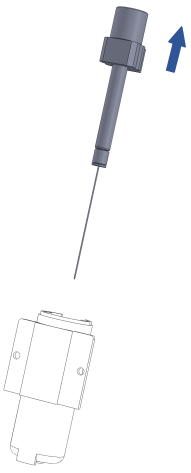
### 6.9.4 Install the syringe plunger

1. Fix the new syringe plunger in its position, taking care to insert the PTFE washer in the proper position, and fasten the syringe plunger top part firmly.
2. Fix the syringe warmer top cover at the syringe warmer, taking care not to overtight the two screws. In case it will be necessary to change also the syringe glass, skip this point and follow the next chapter 'Remove the syringe glass' on page 133.

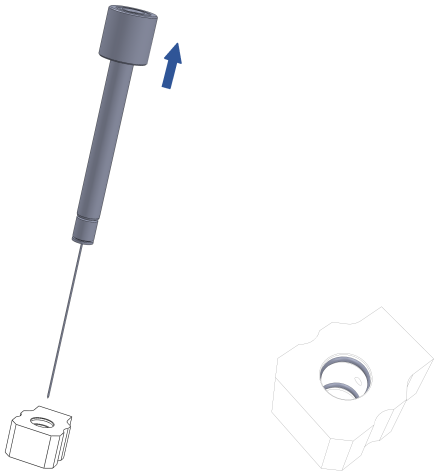
### 6.9.5 Remove the syringe glass

Syringes should be replaced according to sample throughput and sample dirtiness/matrix. To replace the syringe, it is necessary to disassemble and reassemble the syringe warmer assembly that contains the syringe.

1. Pull the gas connector to remove the syringe glass, the spacer and the aluminum spacer from the syringe warmer.



2. Holding the gas connector, pull the syringe glass to remove it.
   Note that on the gas connector there are two o-rings to avoid leaking, so it is necessary to apply some force to make them to move along the syringe glass.



3. Remove the aluminium spacer from the syringe glass.

### 6.9.6 Inspect the syringe before installation

1. Roll the syringe over a clean flat surface and observe the needle tip:

| If the needle tip... | Then... |
|---|---|
| does not move in a circle | Proceed with step 2. |
| moves in a circle | 1. Straighten the needle by bending it carefully near the connection point to the barrel.<br>  <br>2. Roll the syringe again to ensure the needle is straight. Otherwise, straighten it again and repeat. |

2. Observe the needle under a 10X magnifier:

| If ridges are... | Then... |
|---|---|
| absent | Proceed with step 3. |

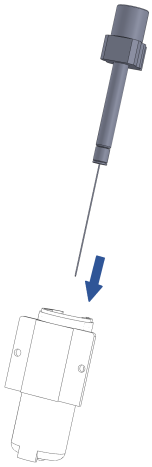
| If ridges are... | Then... |
|---|---|
| present | 1. Rub carefully the needle with a fine emery paper to remove all ridges.<br>***NOTICE:*** *Do not damage the needle tip.*<br>2. Proceed with step 3. |

3. Check the syringe plunger by sliding it up and down a few times.
4. If the syringe plunger sticks, remove and clean it using a suitable solvent. Then replace it and repeat step 3.
5. Check that the needle tip is suitable for the septa to pierce.

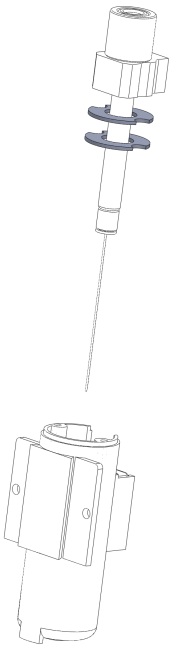
### 6.9.7 Install the syringe glass

1. Insert the new syringe glass in the aluminium spacer, taking care to keep the spacer as shown in the following picture.

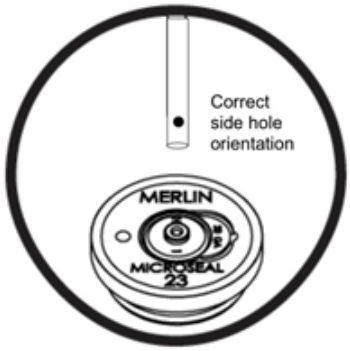
2. Insert the gas connector on the syringe glass until it touches the spacer, and insert the syringe glass into the syringe warmer taking care to let the needle tip to pass throught the hole on syringe warmer.

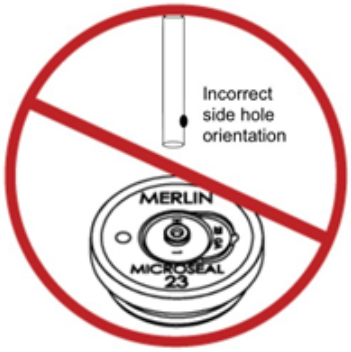


***NOTICE:*** *In case the two insulating gaskets have been removed, take care to insert them along the syringe.*



***NOTICE:*** *If you use Merlin Microseal™ septum, then take care to correctly orient the side hole of the needle. See Merlin Microseal™ documentation for further details.*



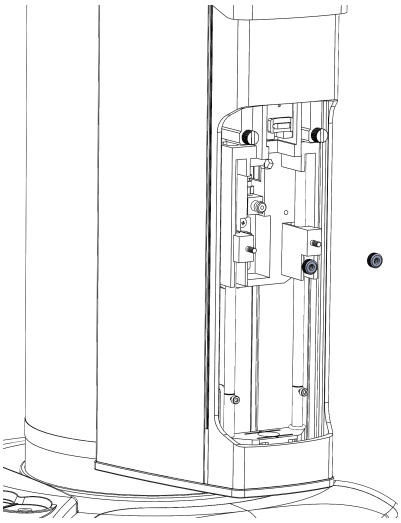

3. Fix the syringe warmer top cover at the syringe warmer, taking care not to overtight the two screw.

### 6.9.8 Install the syringe warmer

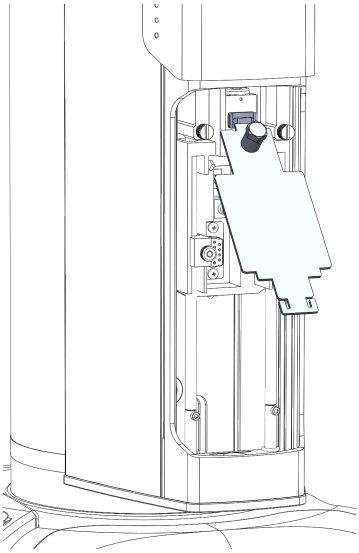
1. When the screen displays the **Remove and install new syringe** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the syringe installation without moving the turret | proceed to point 2. |

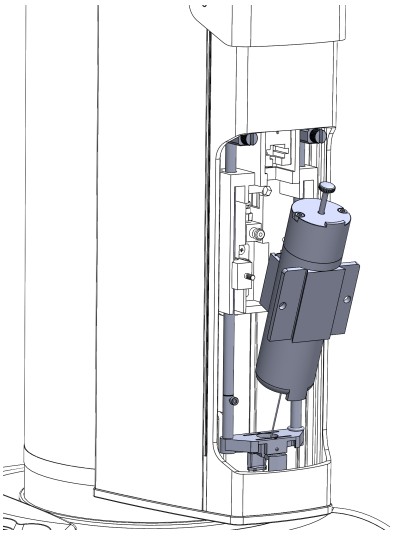
2. Raise the sliding lid and unscrew the two finger nuts.



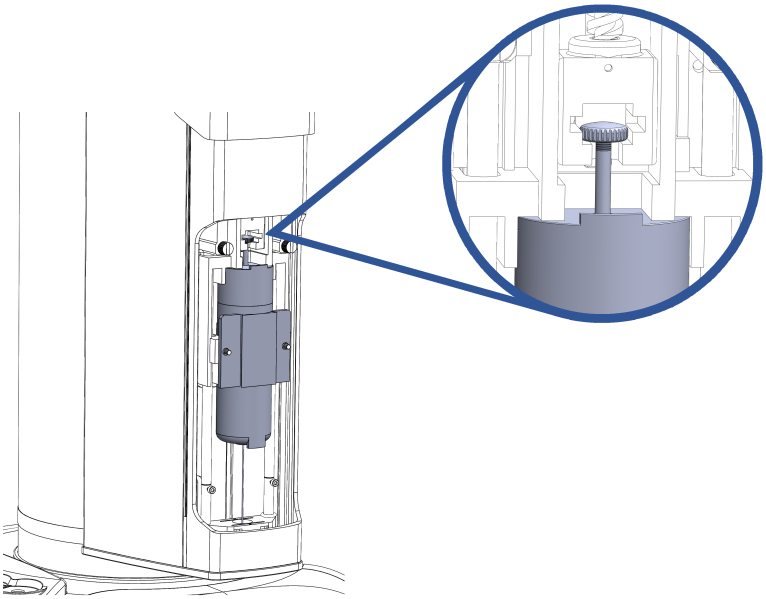
3. Take the syringe pointer, insert its edge in the plunger locker and pull it out.



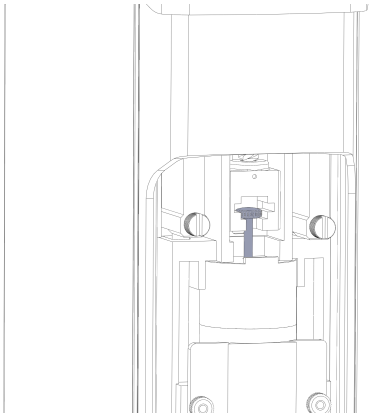
4. Take the syringe.
5. Push the vial locator up and insert the syringe needle in the central hole of the vial locator.



6. Insert the syringe body in the syringe holder and the plunger in the syringe plunger holder.

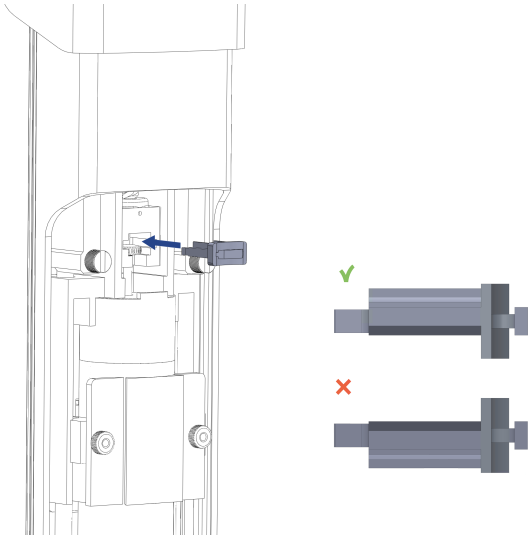


7. Lower the syringe plunger until it rests on the syringe plunger holder.



8. Screw the two finger nuts.

9. Insert the plunger locker with the knurled side upward in the syringe plunger holder.



10. Lower the sliding lid.
11. Select **Continue**: the **Select syringe Volume** page appears.
12. Choose the syringe volume and select **Save**: the automatic alignment procedure starts.

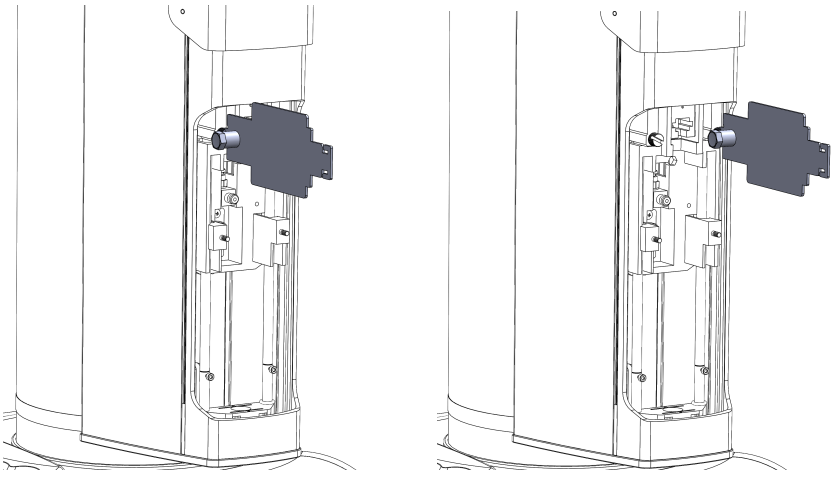
***Note:*** *The automatic conditioning procedure will start, with a count-down which shows an estimation of the time required. This procedure must be done if:*

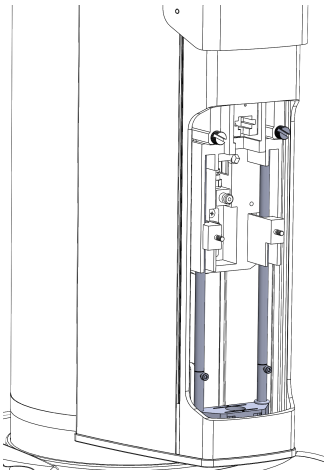
- *the syringe glass has been changed.*
- *the syringe plunger has been changed.*
- *advised from service support.*

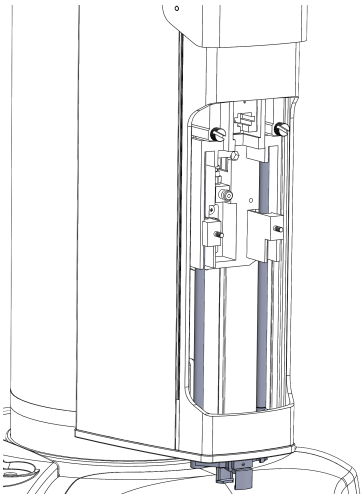
*In case of installation of a brand new instrument, it is not necessary to perform it.*

## 6.9.9 Align the vial locator to the needle tip

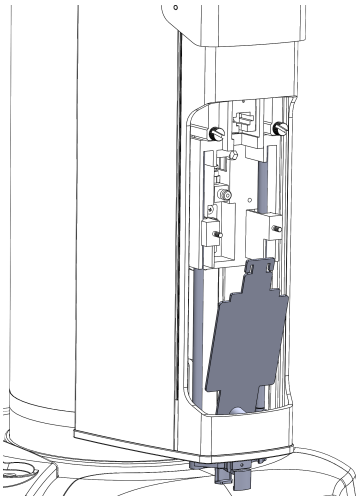
1. Remove the syringe warmer. For details, see 'Remove the syringe warmer' on page 131.
2. Unscrew the safety lock and the needle higher regulator and let the vial locator to rest on the frontal panel.

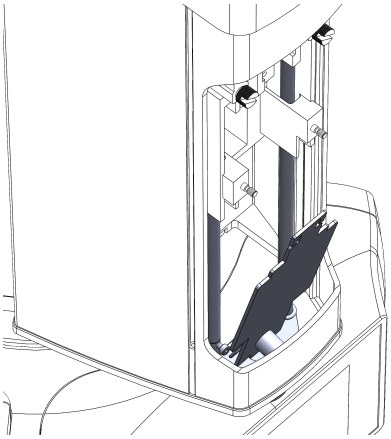


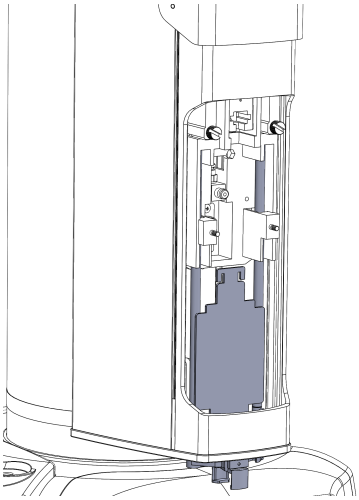




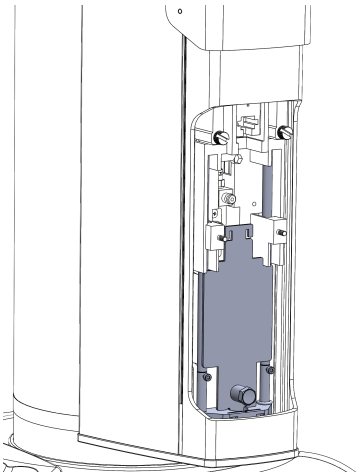
3. Insert the syringe pointer as indicated in the following pictures:



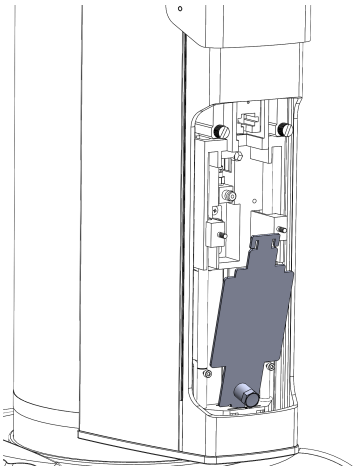




4. Lift up the vial locator until the syringe pointer is completely against the sledge.



5. Using a flat screwdriver, screw the safety lock and the needle height regulator to block the vial locator in position.
6. Remove the syringe pointer.

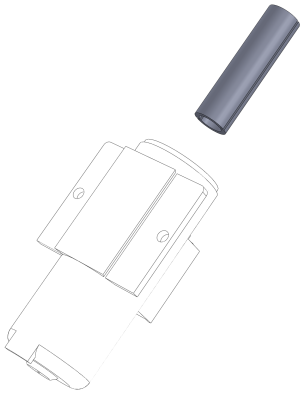


7. Install the syringe warmer.

# 6.10 Syringe kit management

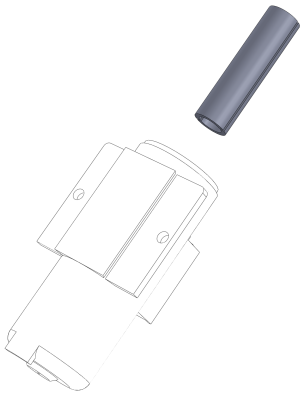
## 6.10.1 Remove the syringe kit

1. Remove the syringe warmer. See 'Remove the syringe warmer' on page 131.
2. Remove the syringe plunger. See 'Remove the syringe plunger' on page 132.
3. Remove the syringe glass. See 'Remove the syringe glass' on page 133.
4. Remove the two spacers inside the syringe warmer.



## 6.10.2 Install the syringe kit

1. Install the two spacers inside the syringe warmer.



2. Install the syringe glass. See 'Install the syringe glass' on page 135.
3. Install the syringe plunger. See 'Install the syringe plunger' on page 133.
4. Install the syringe warmer. See 'Install the syringe warmer' on page 136.

## 6.11 Obtain support in case of autosampler problems

This procedure allows to send an auto-generated email with useful technical information about autosampler.

***Note:*** *This procedure is applicable only if the parameter* ***Log*** *has been set to* ***Enable*** *or* ***Enable w/o warnings****.*

 *Run menu*

1. Select **Generate QR code**. The Generate QR code wizard appears on the PC screen.
2. Follow the wizard instructions.
3. Select **Continue.**

## 6.12 Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## 6.13 Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

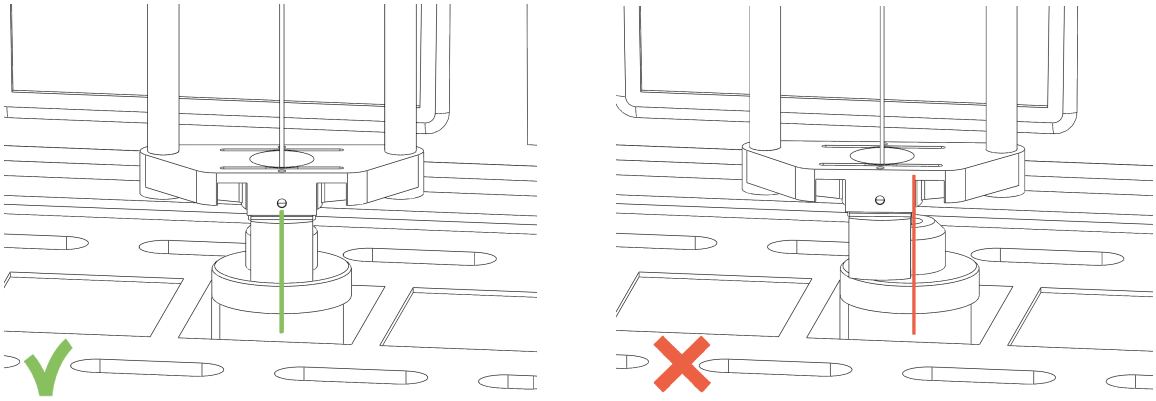
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

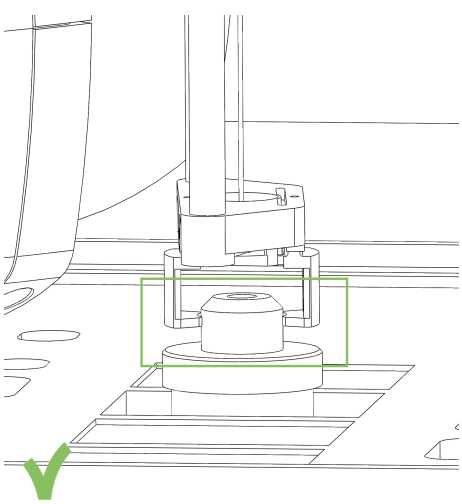
   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

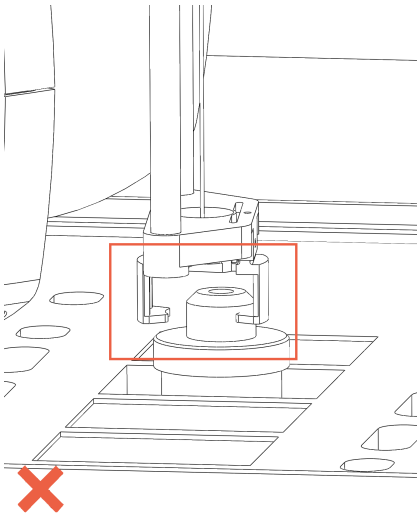
7. Repeat from step 2 to 7.

### Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.







## 6.14 Reset the position of the vial

*Run menu > Settings > Setup > Alignment*

1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case syringe integrity tool is available, insert it in its position.
3. Select **Continue**: the vial locator touches the syringe integrity tool, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
4. Remove the vial from oven and press **Continue**.
5. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

## 6.15 Get out of Headspace mode

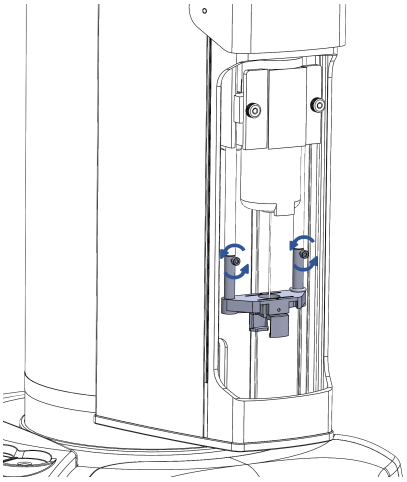
*Run menu > Change Mode*

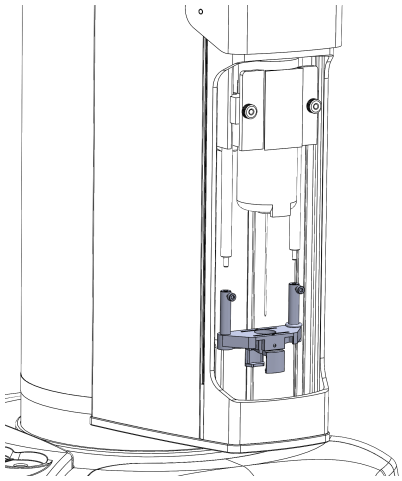
1. Select the mode you are going to use and select **Continue**.

### 6.15.1 Going to Liquid mode

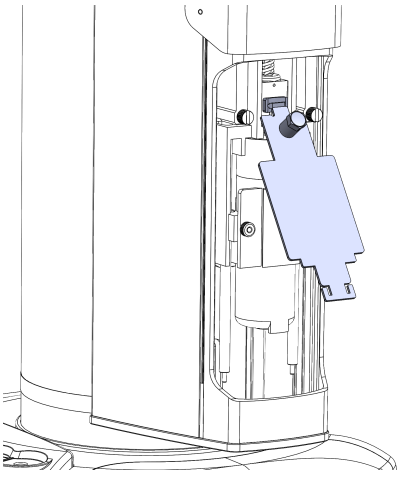
*Run menu > Change Mode > Liquid*

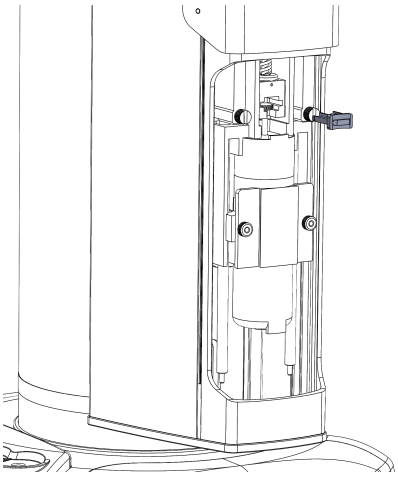
1. Lift the sliding lid.
2. Remove the vial locator.



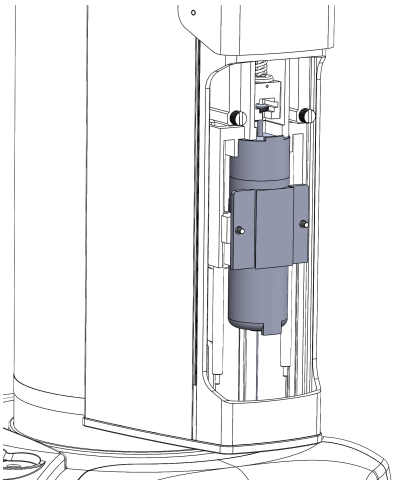


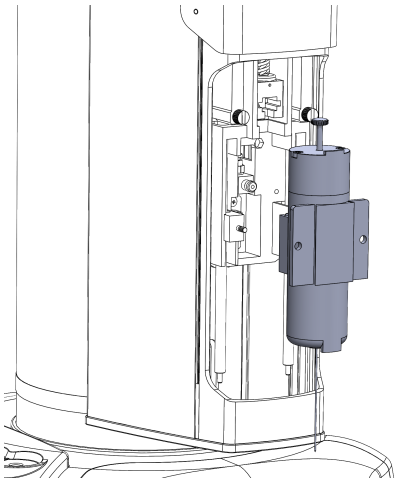
3. Select **Continue**.
4. Take the syringe pointer, insert its edge in the plunger locker and pull it out.





5. Unscrew the two finger nuts.
6. Remove the syringe warmer assembly.





7. Select **Continue**.
8. Follow the instructions of the 'Get into Liquid mode' chapter on page 153.

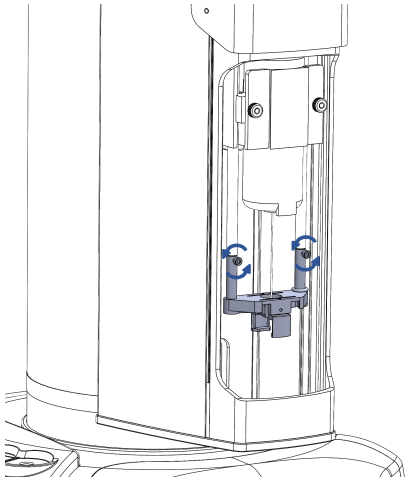
## 6.15.2 Going to SPME mode

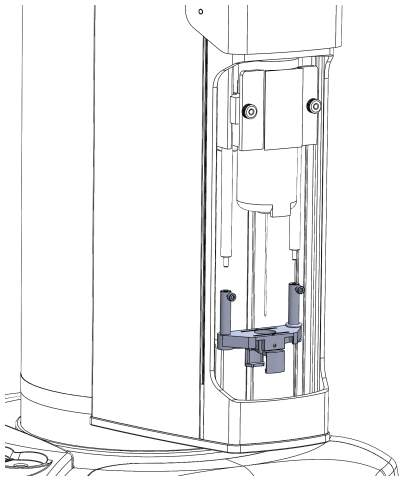
*Run menu > Change Mode > SPME*

1.

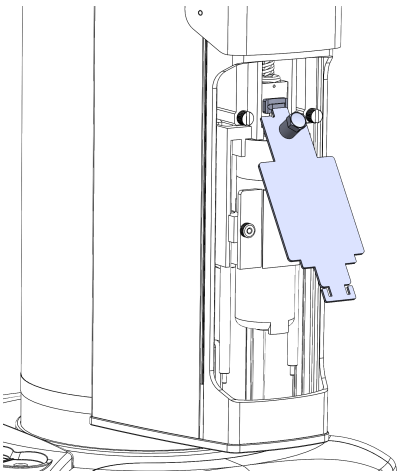
| If the autosampler... | Then... |
|---|---|
| asks Which fiber type are you going to use | choose if Sealed tip or Standard fiber. |
| asks if the installed vial locator o-ring is blue | select **Yes** or **No** and proceed to point 2. |

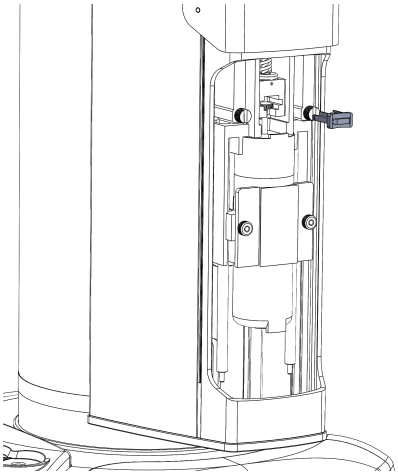
2.

| If the autosampler... | Then... |
|---|---|
| asks to Remove the vial locator | 1. Remove the two finger screws to remove vial locator.<br>  |

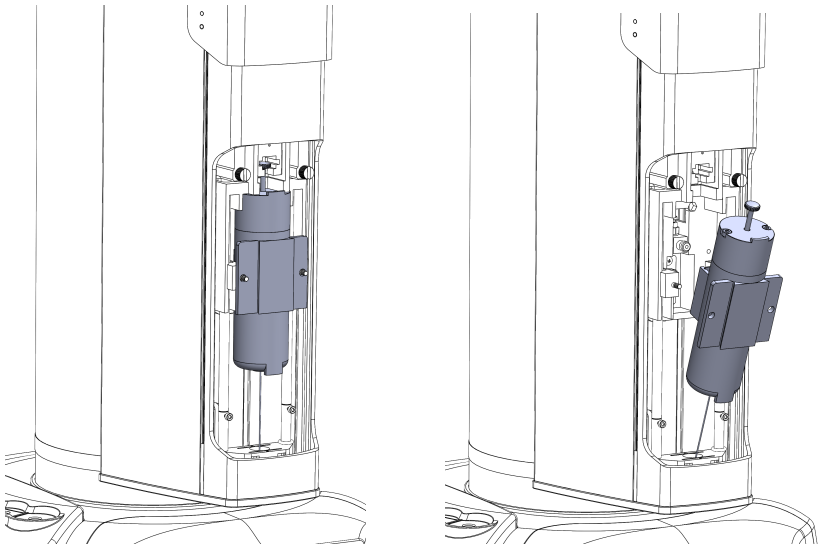
| If the autosampler... | Then... |
|---|---|
| |  <br>2. Select **Continue**. |
| asks to Remove the syringe warmer assembly | proceed to point 3. |

3. Raise the sliding lid and unscrew the two finger nuts.
4. Take the syringe pointer, insert its edge in the plunger locker and pull it out.

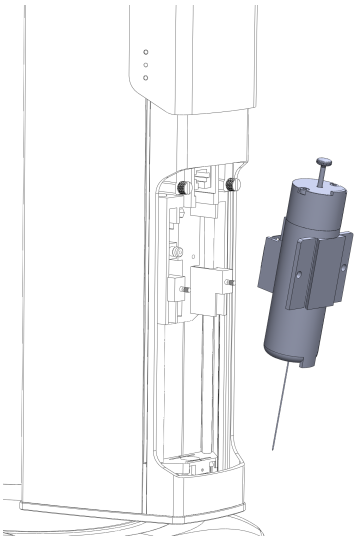




5. Pull the syringe to disconnect the gas connection and the electrical connection from the sledge.



6. Carefully remove the syringe needle from the vial locator.



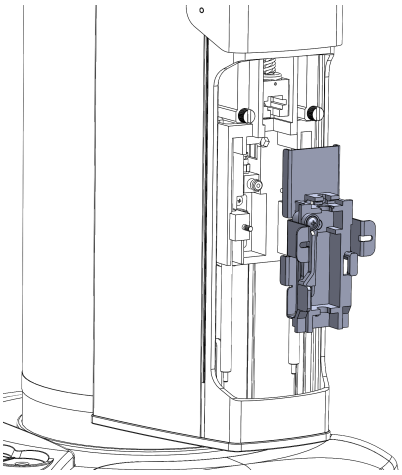
7. Select **Continue**.
8. Follow the instructions of the 'Get into SPME mode' chapter on page 93.

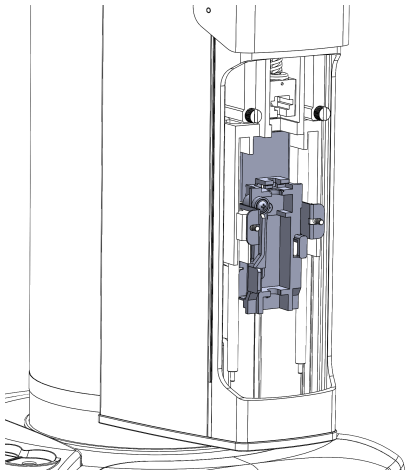
# 7. Use in Liquid mode

## 7.1 Get into Liquid mode

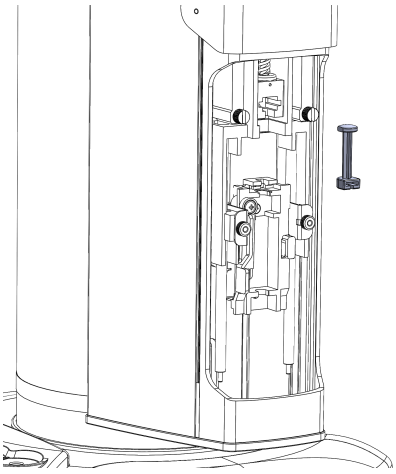
To get into Liquid mode, you need first to get out of the mode you are currently using: therefore, please follow the 'Get out of Headspace mode' on page 148 or 'Get out of SPME mode' on page 237.

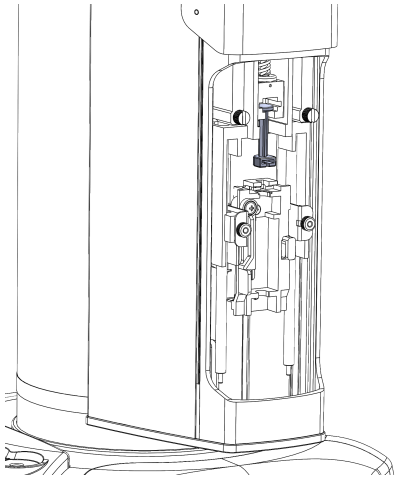
1. Select the Syringe volume and select **Save**.
2. If necessary, raise the sliding lid and remove the two finger nuts.
3. Install the syringe holder.



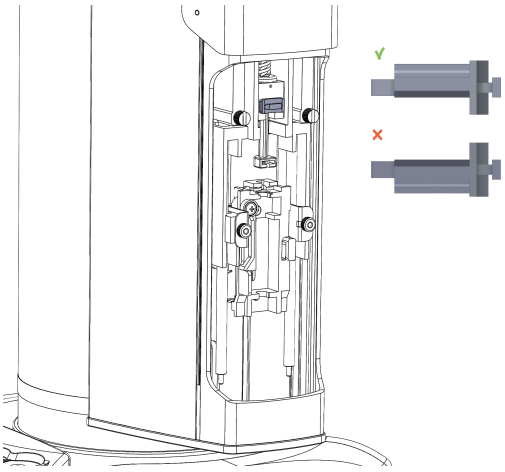


4. Fix completely the two finger nuts.
5. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
6. Insert the plunger extension in the plunger holder, taking care to keep frontwards the side with the hole for the syringe plunger.





7. Insert the plunger locker.

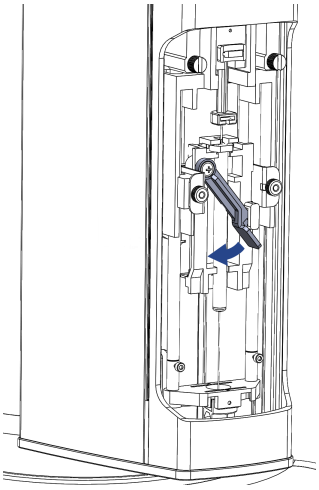


### 7.1.1 Install the syringe

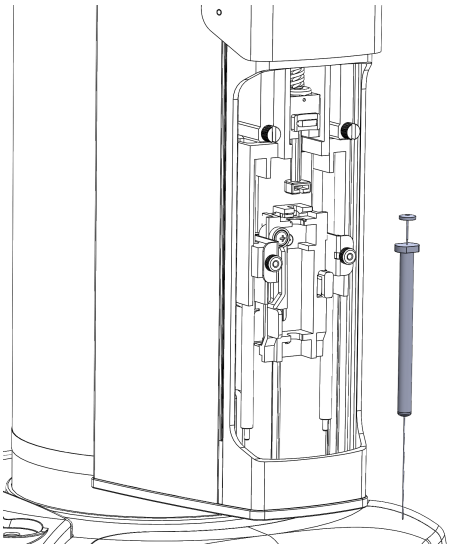
1. When the screen displays the **Remove and install new syringe** page, do what follows:

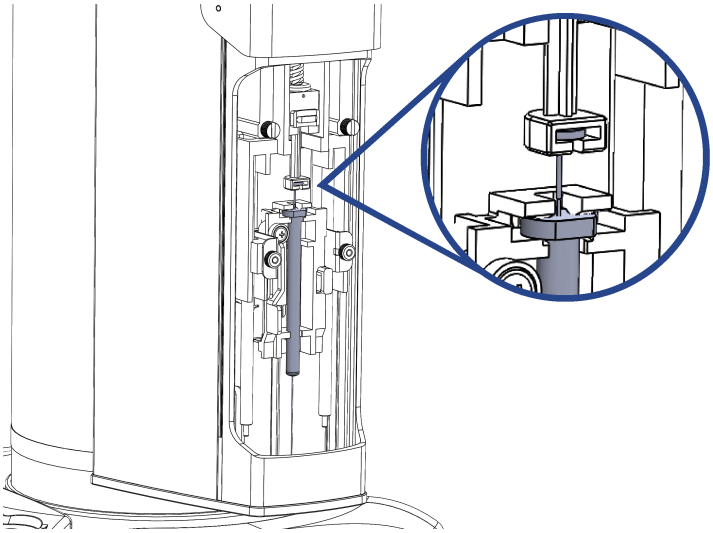
| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the syringe installation without moving the turret | proceed to point 2. |

2. Open the syringe locker.

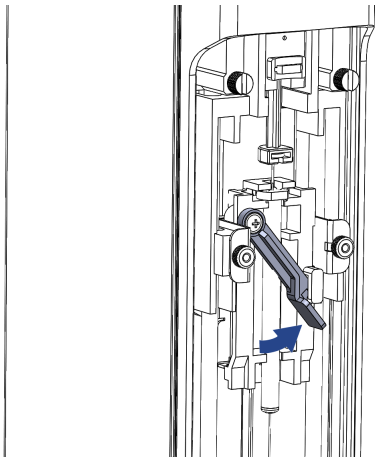


3. Take the syringe.
4. Insert the syringe body in the syringe holder and the plunger in the plunger extension.



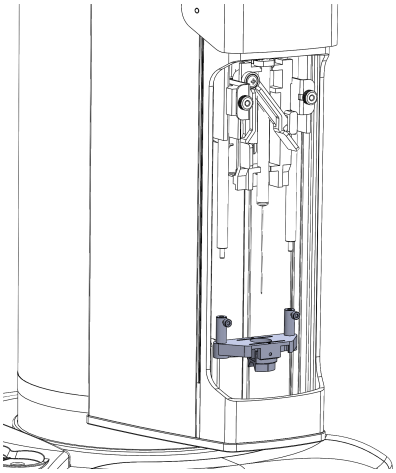


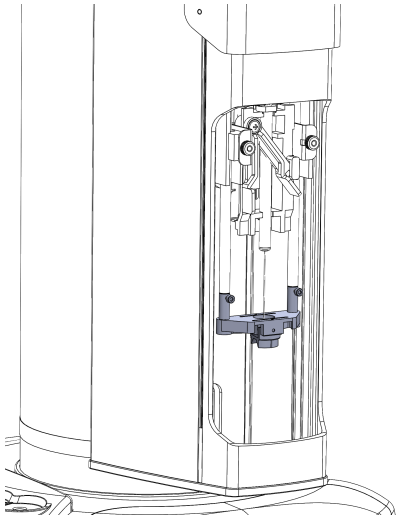
5. Close the syringe locker.



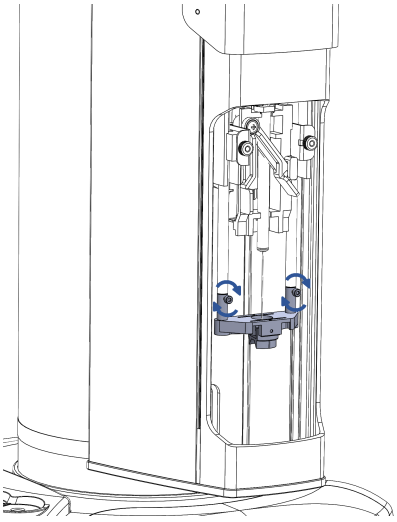
6. Select **Continue**: the **Select syringe Volume [µl]** page appears.
7. Choose the syringe volume and select **Save**: the automatic alignment procedure starts.

8. Wait for the automatic positing.
9. Install the vial locator for Liquid technique (green o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.

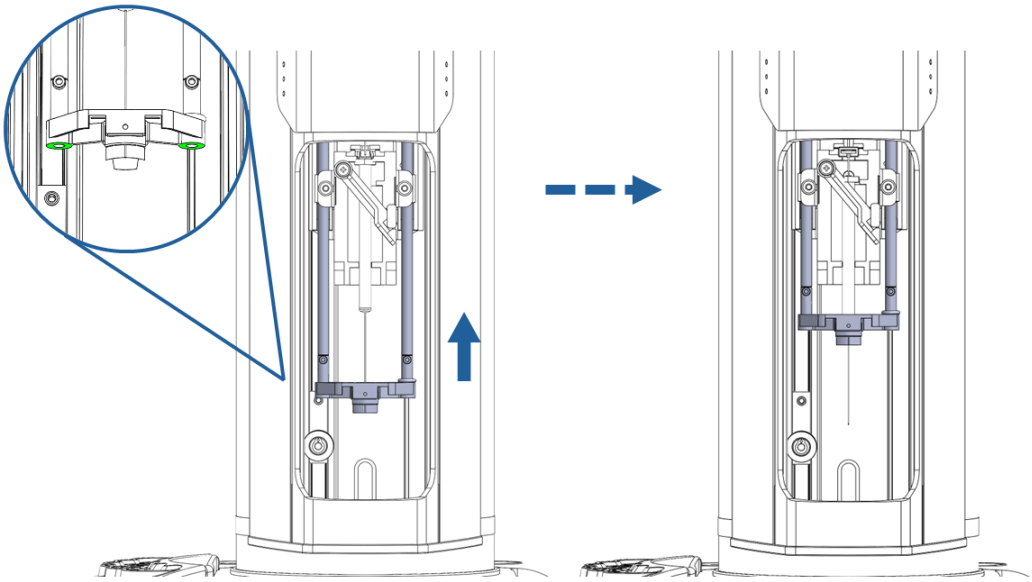




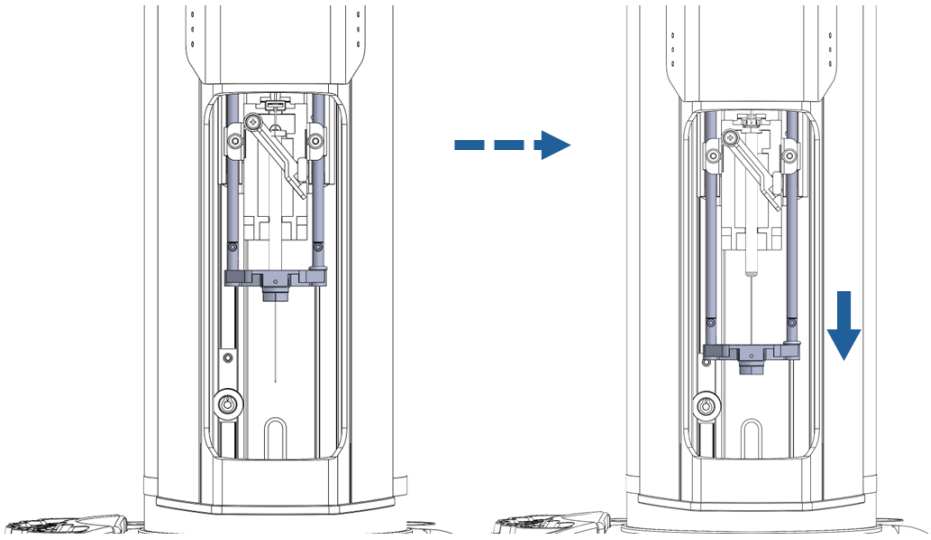
10. Fasten completely the two fixing screws, taking care to have the small bars completely inside the vial locator bars.



11. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the syringe.



12. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.

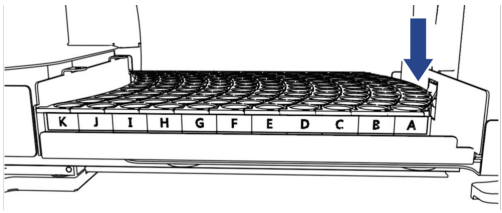


13. Lower the sliding lid.
14. Press **Continue**.

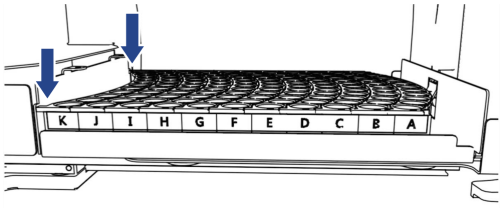
### 7.1.2 Sample rack installation

#### Insert the sample standard rack in the autosampler tray

1. Remove the sample vials and the 42 positions sample rack.
2. Insert the front side of sample rack.

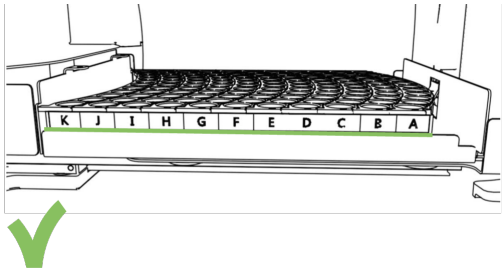


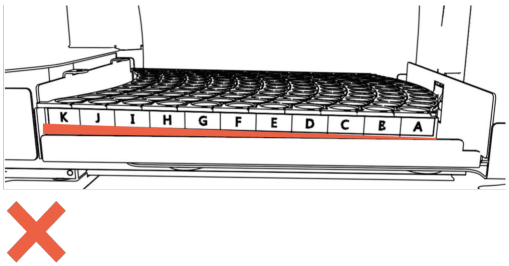

3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.




4. If this is the first installation, select **Continue**: the autosampler tray closes and the screen displays the autosampler model and the firmware version.

## Rack correct positioning




### 7.1.3 Install the tray

1. At the end of the alignment procedure, select **Continue**.
2. Select **OK**.
3. If necessary, modify the vial type, then select **Continue**.
4. Set the depth below the septum where the needle must be positioned to aspirate the sample and select **Continue** > **Save** > **Continue**.
   ***Note:*** *If you set the sample depth to 0 mm (the minimum value), the needle tip will be just below the*

*septum. If you set the sample depth to 32 mm (the maximum value), the needle tip will be close to the vial bottom.*
***Note:*** *The autosampler shows automatically the vial depth used the last time that the autosampler has been used in Liquid mode.*

### 7.1.4 Set the position of the vials - The Touch and Plunger Zero procedure

1. Insert a sample vial with cap in position A6 of the standard rack, a black spacer and a solvent vial in position C of the oven and ensure the waste vial is in its proper position.
2. Select **Continue**: the vial locator touches the waste vial, the sample vial, the solvent vial and the injector adapter to memorize their positions.

## 7.2 Prepare the solvent vials

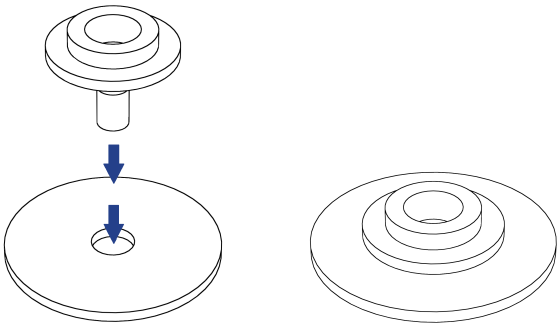
### 7.2.1 Prepare the solvent vials

*Run menu > Load Sample Tray*

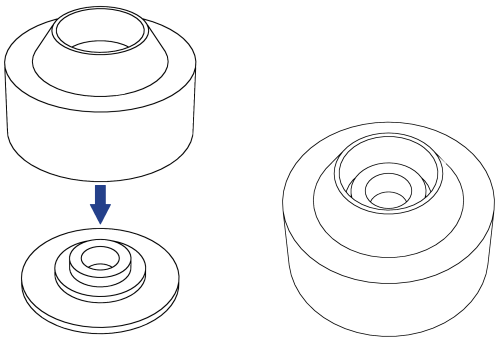
1. Take a solvent vial and fill it with the desired solvent.
2. Close the solvent vial with the cap.
3. If necessary, insert the black spacer in the desired oven position.
4. Insert the solvent vial on the black spacer.
5. Repeat for all the solvent vials required.

### 7.2.2 Prepare the solvent and waste vial caps

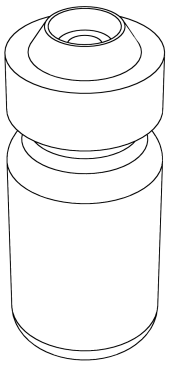
1. Remove the cap from the solvent/waste vial.
2. Remove the septum.
3. Place the insert on the white washer.



4. Insert the low maintenance septa into the cap.



5. Insert the vial in the desired location.



***Note:*** *Take care not to fill completely the solvent vial (solvent in the vial must not be in contact with any part of the septa).*

### 7.2.3 Reuse a solvent vial

1. Extract the solvent vial from its position in the autosampler with care.
2. Open the solvent vial carefully and empty it.
3. Wash the vial and the cap.
4. If necessary, change the septum.
5. Fill the vial with the desired solvent.
6. Close the solvent vial with the cap.
7. Insert the solvent vial in the desired position in the solvent and waste vial location.

### 7.2.4 Reuse the waste vial

1. Open the waste vial with care and empty it according to your laboratory instructions.
2. Wash the waste vial and its cap.
3. If necessary, change the septum.
4. Close the waste vial with the cap.
5. Insert the waste vial in the waste position.

# 7.3 Prepare the sample vials

## 7.3.1 Basic information on sample vials

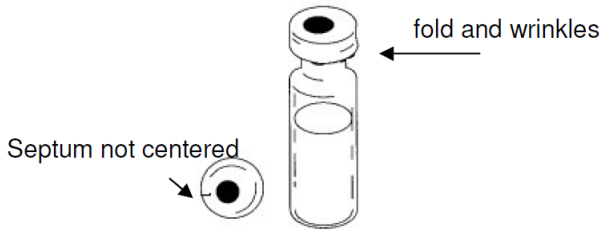
For preparing the sample vials correctly, consider what follows:

- The sample volume must be maximum half of the vial nominal volume (for example, 1 ml for a 2 ml vial and 50 µl for a 100 µl vial). The air contained in the vial avoids vacuum formation during sample aspiration.
- Large samples should be divided into different vials to obtain more reliable data.
- Once the sample vial has been closed, the septum must be flat and not twisted.
- Contaminants from the previous sample or solvent washes will have a bigger impact on a low sample volume.
- Reassess the method for preparing the sample vials if you change the vial supplier. Different vial manufacturing practices can cause variances in analytical data.
- The autosampler can also be used with clear or amber glass sample vials with snap, crimp or screw cap. Amber glass vials can be used for light-sensitive samples.

## 7.3.2 Close a sample vial with a crimp cap

You must have a crimper available. Fit the septum on the cap and then:

1. Clean the inside surfaces of the crimper jaws.
2. Place the crimp cap over the top of the vial.
3. Hold the vial and place the crimper on top of it. Squeeze the handle until it touches the adjuster screw.
   ***Note:*** *Following picture shows a not correct crimping.*




4. Check each vial for proper crimping:
   - Check the aluminum cap is not folded or wrinkled.
   - The cap should be tight and not easy to move or rotate.
   - If either of the above problems occur crimp the cap again. Regulate the crimper to adjusting the tightness if needed.
   - Check that each cap has a flat septum and that it is centered over the top of the vial:

| If... | Then... |
|---|---|
| the septum is not flat | remove the cap, turn the crimper adjusting screw and try again. |
| the cap is not centered | remove the cap and make sure the new cap is flat on the top of the vial before the crimp operation. |

# 7.4 Operating Modes

## 7.4.1 Operate by autosampler touch screen

<table>
<tr><th>To...</th><th>Then...</th></tr>
<tr><td>Set the method and sequence</td><td>Do what follows:<table><tr><th>If...</th><th>Then...</th></tr><tr><td>all samples are processed in the same way</td><td>you don't need to change method and sequence at each run</td></tr><tr><td>you are required to process samples in different way</td><td>see 'Set the method and sequence' on page 168.</td></tr></table></td></tr>
<tr><td>Run sample(s) - Before proceeding</td><td>See 'Run sample(s) - Before proceeding' on page 169.</td></tr>
<tr><td>Run sample(s) - Start a sequence</td><td>See 'Run sample(s) - Start a sequence' on page 169.</td></tr>
<tr><td>Run sample(s) - Stop a sequence</td><td>See 'Run sample(s) - Stop a sequence' on page 170.</td></tr>
<tr><td>Run sample(s) - Set a priority</td><td>See 'Run sample(s) - Set a priority' on page 170.</td></tr>
<tr><td>Run sample(s) - Process a single sample</td><td><table><tr><th>If...</th><th>Then...</th></tr><tr><td>all samples are processed in the same way</td><td>see 'Run sample(s) - Start a sequence' on page 169.</td></tr><tr><td>you are required to process samples in different way</td><td>see 'Run sample(s) - Process a single sample' on page 169.</td></tr></table></td></tr>
<tr><td>Perform additional syringe washes</td><td>See 'Perform additional syringe washes' on page 170.</td></tr>
<tr><td>Modify the autosampler general settings</td><td>See 'Modify the autosampler general settings' on page 170.</td></tr>
<tr><td>Manage racks</td><td>See 'Racks management' on page 172.</td></tr>
</table>

### 7.4.2 Operate by HTA Autosampler Manager

| To... | Then... |
|---|---|
| Set the method and sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 169. |
| Run sample(s) - Start a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Stop a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Set a priority | Not applicable. |
| Run sample(s) - Process a single sample | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Single Injection** topic. |
| Perform additional syringe washes | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Wash** topic. |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Setup** topic. |
| Manage racks | See 'Racks management' on page 172. |

### 7.4.3 Operate by CDS through HTA software integration

| To... | Then... | |
|---|---|---|
| Set the method and sequence | **If you want to work from...** | **Then...** |
| | touch screen | see 'Set the method and sequence' on page 168. |
| | HTA Autosampler Manager | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 169 | |
| Run sample(s) - Start a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Stop a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Set a priority | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. | |

| To... | Then... |
|---|---|
| Run sample(s) - Process a single sample | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. |
| Perform additional syringe washes | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Setup** topics. |
| Manage racks | See 'Racks management' on page 172. |

### 7.4.4 Operate by CDS through HTA software connectors

<table>
<tr><th>To...</th><th>Then...</th></tr>
<tr><td>Set the method and sequence</td><td>Use your CDS.<br>Check the installation and usage guide of the driver.</td></tr>
<tr><td>Run sample(s) - Before proceeding</td><td>Check the installation and usage guide of the driver.</td></tr>
<tr><td>Run sample(s) - Start a sequence</td><td>Use your CDS.<br>Check the installation and usage guide of the driver.</td></tr>
<tr><td>Run sample(s) - Stop a sequence</td><td>If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver.</td></tr>
<tr><td>Run sample(s) - Set a priority</td><td>If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver.</td></tr>
<tr><td>Run sample(s) - Process a single sample</td><td>If supported by your CDS, use your CDS.<br>Check the installation and usage guide of the driver.</td></tr>
<tr><td>Perform additional syringe washes</td><td>If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver.</td></tr>
<tr><td>Modify the autosampler general settings</td><td><table><tr><th>If...</th><th>Then...</th></tr><tr><td>supported by your CDS</td><td>Use your CDS.</td></tr><tr><td>not supported by your CDS</td><td>see 'Modify the autosampler general settings' on page 170.</td></tr></table>Check the installation and usage guide of the driver.</td></tr>
<tr><td>Manage racks</td><td>See 'Racks management' on page 172.</td></tr>
</table>

### 7.4.5 Operate by CDS through third party integration

<table>
<tr><th>To...</th><th>Then...</th></tr>
<tr><td>Set the method and sequence</td><td>Use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Run sample(s) - Before proceeding</td><td>See 'Run sample(s) - Before proceeding' on page 169.</td></tr>
<tr><td>Run sample(s) - Start a sequence</td><td>Use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Run sample(s) - Stop a sequence</td><td>If supported by your third party software, use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Run sample(s) - Set a priority</td><td>If supported by your third party software, use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Run sample(s) - Process a single sample</td><td>If supported by your third party software, use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Perform additional syringe washes</td><td>If supported by your third party software, use your third party software.<br>See your third party software documentation for further details.</td></tr>
<tr><td>Modify the autosampler general settings</td><td><table><tr><th>If...</th><th>Then...</th></tr><tr><td>supported by your third party software</td><td>Use your third party software.<br>See your third party software documentation for further details.</td></tr><tr><td>not supported by your third party software</td><td>see 'Modify the autosampler general settings' on page 170.</td></tr></table></td></tr>
<tr><td>Manage racks</td><td>See 'Racks management' on page 172.</td></tr>
</table>

# 7.5 Set the method and sequence

## 7.5.1 Modify a method

*Run menu > Settings > Methods*

1. Select the desired method and then **OK** to confirm.
2. Select **General** and, if necessary, modify the parameters. Press **Exit**.
3. If desired, modify the remaining parameters.
4. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.
5. To proceed, see 'Set a sequence' on page 168.

## 7.5.2 Set a sequence

*Run menu > Settings > Sequences*

1. Select the first step and **OK** to open it.
2. Set the step parameters as desired.
3. Select **Exit** to exit from the first step menu.
4. To add a new sequence step, select **Settings** > **Sequences** > **Tools** > **OK** > **Add new** > **Continue** > **Exit** and set the parameters of the new step as desired.
5. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.

## 7.5.3 Restore the default parameters of a method

*Run menu > Settings > Methods > Tools*

1. Select **Restore Default** and select the method to be modified.
2. Select **Continue**.
3. Select **Load** to confirm.
4. Select **Continue**.

## 7.5.4 Copy the parameters of a method to another method

*Run menu > Settings > Methods > Tools*

1. Select **Copy Methods**.
2. Select the source method and the destination method.
3. Select **Copy** to confirm.
4. Select **Continue**.

# 7.6 Start the Run

## 7.6.1 Run sample(s) - Before proceeding

Before starting the run:

- Ensure to have correctly prepared the sample vials and the sample list in the analyzer software.
- Ensure methods and, if desired, sequences, have already been set.
- Verify that the parameter values of the desired method are correct

To modify a method or set a sequence, see 'Set the method and sequence' on page 168.

## 7.6.2 Run sample(s) - Start a sequence

This procedure is useful when there are many sample vials to be processed.

*Run menu > Load Sample Tray*

1. Insert the sample vials in the tray.
2. Select **Close**.
3. Start the sample list on the analyzer software.
4. In the **Run** menu select **Start**: the autosampler starts the sequence and the summary page appears.
5. At the end of the run, select **Continue**: the **Run** menu appears.

## 7.6.3 Run sample(s) - Process a single sample

This procedure is useful when there is only one sample vial to be processed or to perform some test.
***Note:*** *This procedure is applicable only if the parameter* ***User Interface*** *has been set to* ***Standard****.*

*Run menu > Load Sample Tray*

1. Insert the sample vial in the tray.
2. Start the sample list on the analyzer software.
3. In the Standard version of the Run menu select **Single Injection**.
4. Set the parameters as desired.
5. Select **Start**: the autosampler starts the single injection and the summary page appears.

# 7.7 Run management

## 7.7.1 Perform additional syringe wash

*Run menu > Syringe Wash*

1. Set **Solvent Vial** and **Wash Volume [µl]**.
2. Set the number of desired washes and select **Start Wash**: the autosampler performs the defined additional washes.

## 7.7.2 Run sample(s) - Stop a sequence

1. Select **Stop**: the autosampler pauses.
2. Do what follows:

| If you want... | Then... |
|---|---|
| to put the autosampler into standby | select **Abort**: the autosampler washes the syringe and goes into standby. |
| to stop the autosampler | select **Terminate Current**: the autosampler stops when the operations on the current sample vial end. |
| to continue the sequence | select **Resume**. |

## 7.7.3 Run sample(s) - Set a priority

This procedure allows to process a sample vial immediately, even if an automatic run is already in process and other vials should be processed first. Using this procedure you give priority to a specific sample vial that will be processed first.

1. In the summary page select **Menu**: the **Automatic Run** menu appears.
2. Select **Priority**: the sample tray opens when the operations on the current sample vial end.
3. Insert the priority vial in the desired position.
4. Select **Continue**.
5. Set the position of the sample vial to be processed with priority and set the other parameters as desired.Select **Start Priority**: the autosampler starts the operations on the priority vial and then automatically resume the original sample list.

## 7.7.4 Modify the autosampler general settings

*Run menu > Settings > Setup > Configuration*

Select the desired parameters and modify them. For details, see 'Configuration' on page 286.

## 7.8 Sequences management

### 7.8.1 Add a sequence step copying from another one

*Run menu > Settings > Sequences > Tools*

1. Select **Copy as new** and select the step to copy from.
2. Select **Copy**.
3. Select **Continue**.

### 7.8.2 Reorder sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Reorder**.
2. Select the step to move and select **OK**.
3. Select the target position where you want to move the step and select **Move**.
4. Select **Continue**.

### 7.8.3 Remove sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Remove Step**.
2. Select the step to remove and select **OK**.
3. Select **Continue**.

## 7.9 Racks management

### 7.9.1 Set the characteristics of the rack to be used

This procedure adds, to the list of the available racks to be used, a rack with a different draw depth than the previous one.

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Add New** and select **OK**.
2. Select **Continue** > **Continue**.
3. Set the draw depth and select **Save** > **Continue**: the new list item appears.
4. Select **Exit** > **Exit**.

### 7.9.2 Choose the type of rack to be used

*Run menu > Settings > Tray Type*

1. Select the desired type of rack and select **OK** > **Mount** to confirm: the tray opens.
2. Follow the screen instructions to place the required sample vial, then select **Continue**: the vial locator touches the sample vial.
3. Select **Continue**.

### 7.9.3 Remove a rack from the list

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Remove** and select **OK**.
2. Select the tray to be removed and select **Remove**.
3. Select **Continue** > **Exit** > **Exit**.

# 7.10 Syringe management

## 7.10.1 Workflow for replacing the syringe

For replacing the syringe, follow these procedures in the stated order:

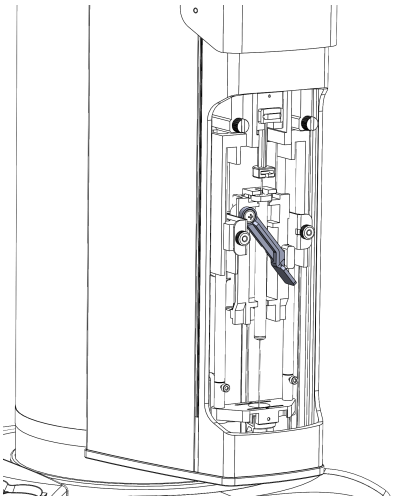
1. 'Remove the syringe' on page 173.
2. Check if the syringe holder is suitable for the new syringe. For details see 'Syringes for Liquid technique' on page 403.
3. If necessary, replace the syringe holder.
4. 'Inspect the syringe before installation' on page 174.
5. 'Install the syringe' on page 175.

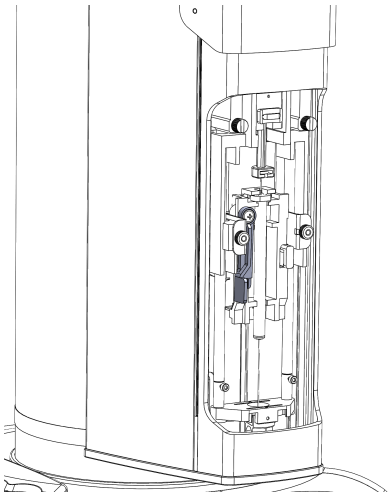
Each procedure is described in detail below.

## 7.10.2 Remove the syringe

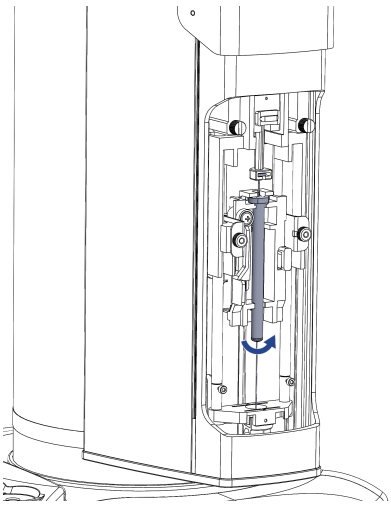
*Run menu > Settings > Setup > Syringe Installation*

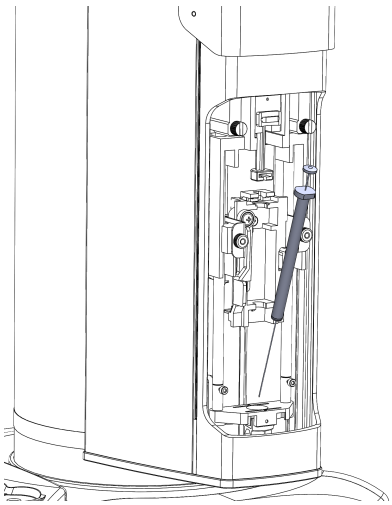
1. Raise the sliding lid above the syringe location.
2. Open the syringe locker.





3. Turn the syringe until it comes out from the syringe holder.

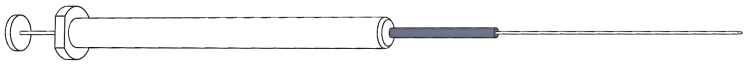




4. Carefully remove the syringe from the syringe holder and the syringe needle from the vial locator.

### 7.10.3 Prepare the syringe

This procedure is only for a syringe with o-ring or reinforcement.

| If the syringe has... | Then... |
|---|---|
| an o-ring | put the syringe through the o-ring from the needle until the o-ring reaches the top of the syringe.<br>  |
| a reinforcement | completely put the syringe needle through the reinforcement.<br>  |

### 7.10.4 Inspect the syringe before installation

1. Roll the syringe over a clean flat surface and observe the needle tip:

| If the needle tip... | Then... |
|---|---|
| does not move in a circle | Proceed with step 2. |
| moves in a circle | 1. Straighten the needle by bending it carefully near the connection point to the barrel.<br>  <br>2. Roll the syringe again to ensure the needle is straight. Otherwise, straighten it again and repeat. |

2. Observe the needle under a 10X magnifier:

| If ridges are... | Then... |
|---|---|
| absent | Proceed with step 3. |
| present | 1. Rub carefully the needle with a fine emery paper to remove all ridges.<br>***NOTICE:*** *Do not damage the needle tip.*<br>2. Proceed with step 3. |

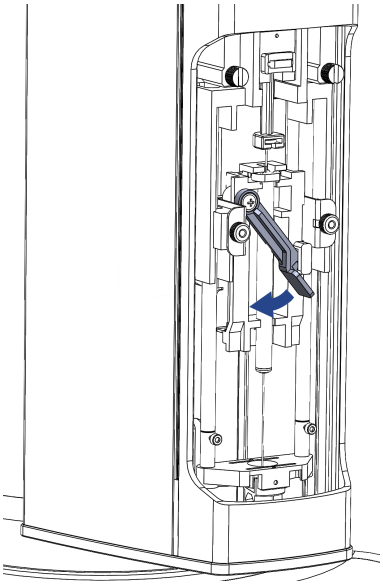
3. Check the syringe plunger by sliding it up and down a few times.
4. If the syringe plunger sticks, remove and clean it using a suitable solvent. Then replace it and repeat step 3.
5. Check that the needle tip is suitable for the septa to pierce.

### 7.10.5 Install the syringe

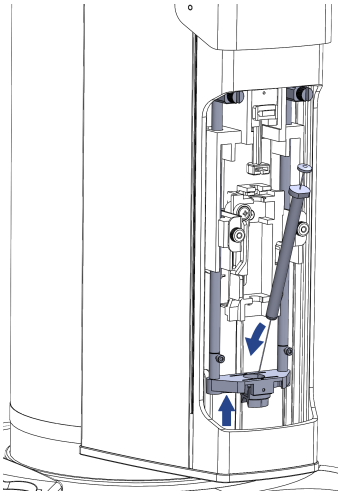
1. When the screen displays the **Remove and install new syringe** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the syringe installation without moving the turret | proceed to point 2. |

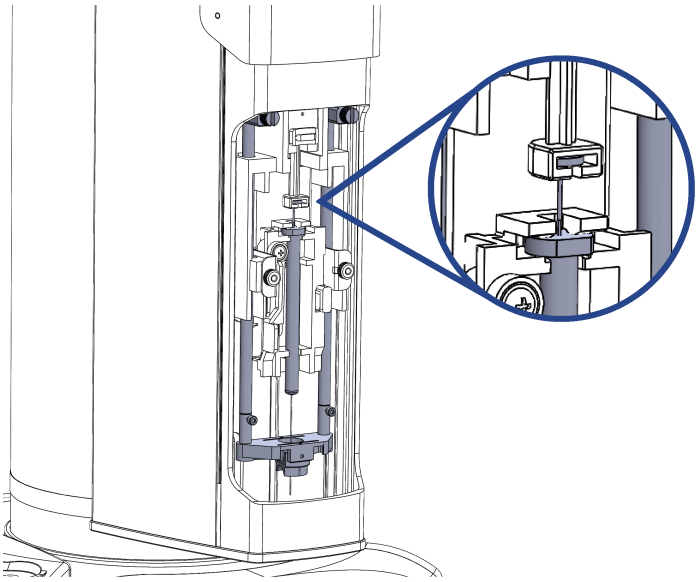
2. Open the syringe locker.

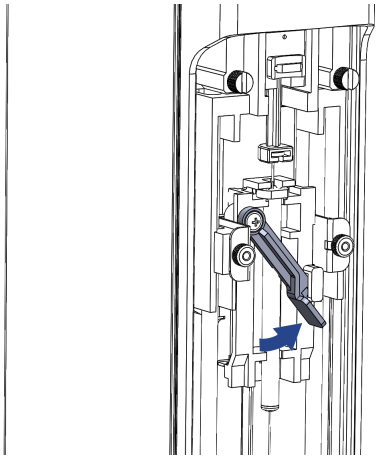


3. Take the syringe.
4. Push the vial locator up and insert the syringe needle in the central hole of the vial locator.



5. Insert the syringe body in the syringe holder and the plunger in the in the plunger extension.

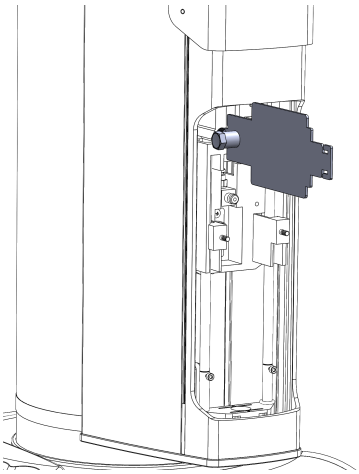
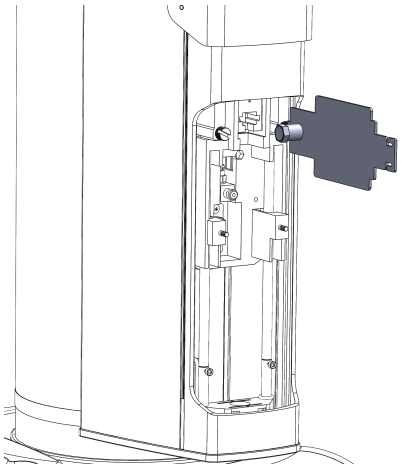
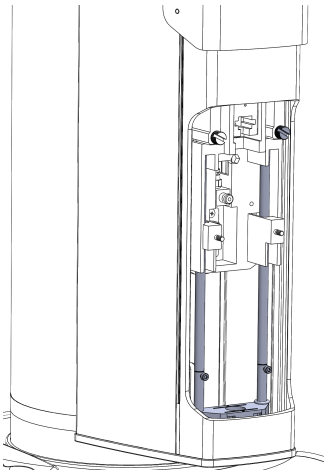
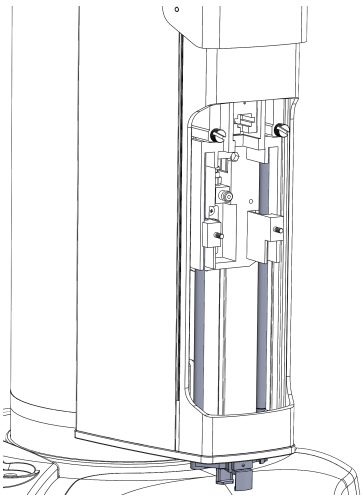




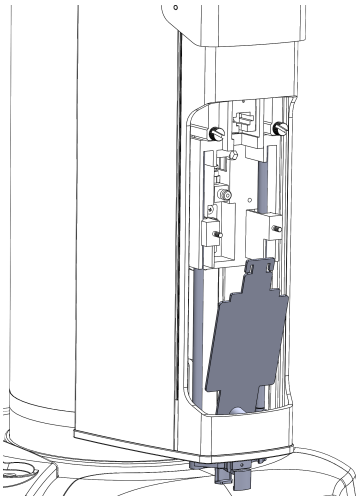
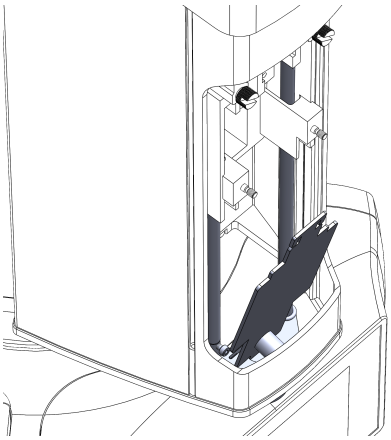
6. Close the syringe locker.
7. Select **Continue**: the **Select syringe Volume [µl]** page appears.
8. Choose the syringe volume and select **Save**: the automatic alignment procedure starts.
9. Wait for the automatic positing.
10. Lower the sliding lid.

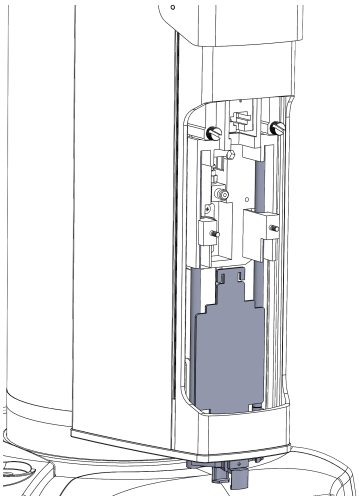
## 7.10.6 Align the vial locator to the needle tip

1. Remove the syringe and the syringe holder. For details, see 'Remove the syringe' on page 173.
2. Unscrew the safety lock and the needle higher regulator and let the vial locator to rest on the frontal panel.

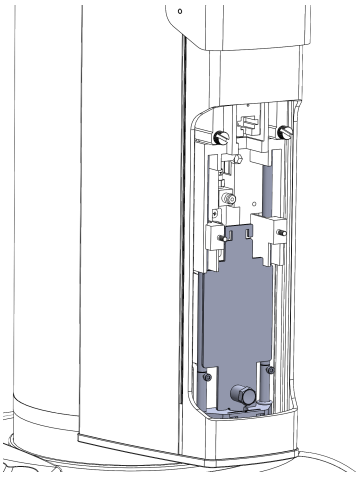





3. Insert the syringe pointer as indicated in the following pictures:

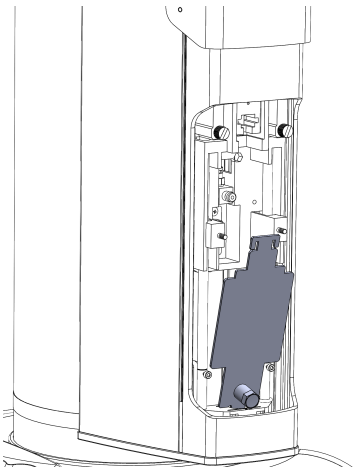





4. Lift up the vial locator until the syringe pointer is completely against the sledge.



5. Using a flat screwdriver, screw the safety lock and the needle height regulator to block the vial locator in position.
6. Remove the syringe pointer.



7. Install the syringe holder and the syringe.

## 7.11 Obtain support in case of autosampler problems

This procedure allows to send an auto-generated email with useful technical information about autosampler.

***Note:*** *This procedure is applicable only if the parameter* ***Log*** *has been set to* ***Enable*** *or* ***Enable w/o warnings****.*

 *Run menu*

1. Select **Generate QR code**. The Generate QR code wizard appears on the PC screen.
2. Follow the wizard instructions.
3. Select **Continue.**

## 7.12 Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## 7.13 Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

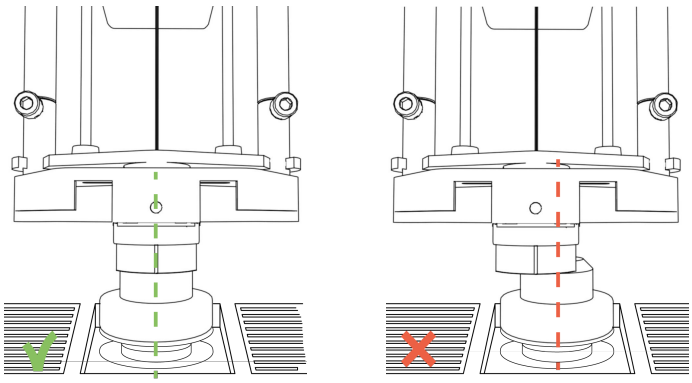
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

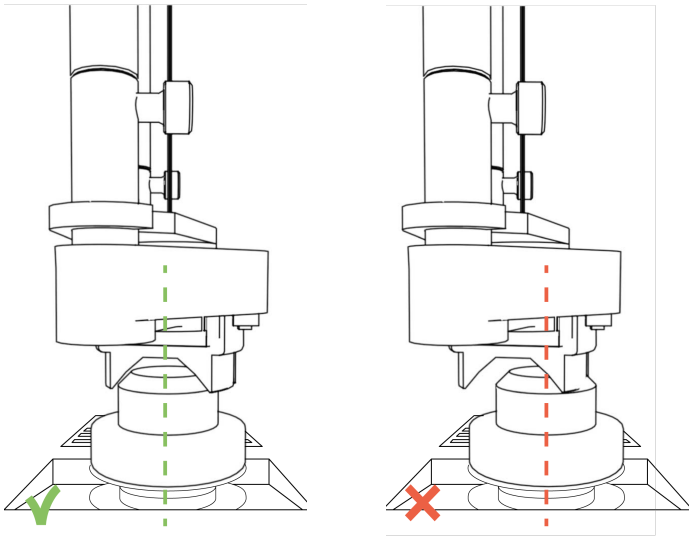
   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

7. Repeat from step 2 to 7.

### Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.





## 7.14 Reset the position of the vial

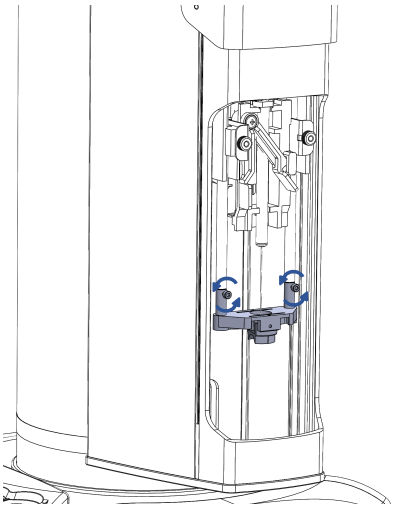
*Run menu > Settings > Setup > Alignment*

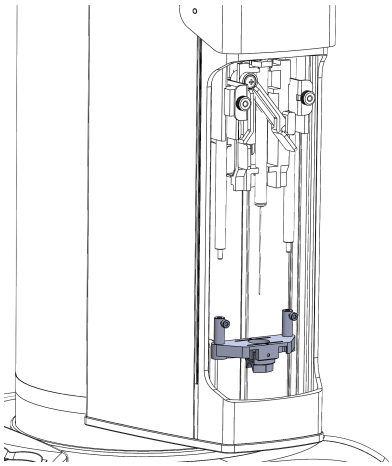
1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a sample vial with cap in position A6 of the standard rack, a black spacer and a solvent vial in position C of the oven and ensure the waste vial is in its proper position.
3. Select **Continue**: the vial locator touches the waste vial, the sample vial, the solvent vial and the injector adapter to memorize their positions.
4. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

## 7.15 Get out of Liquid mode

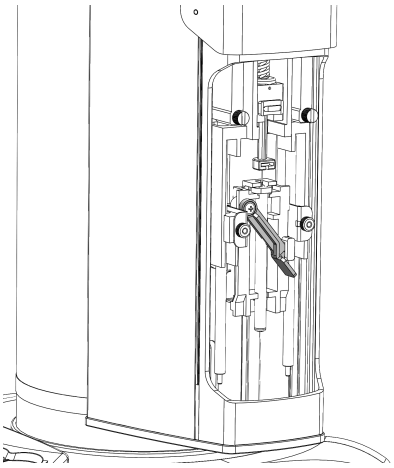
*Run menu > Change Mode*

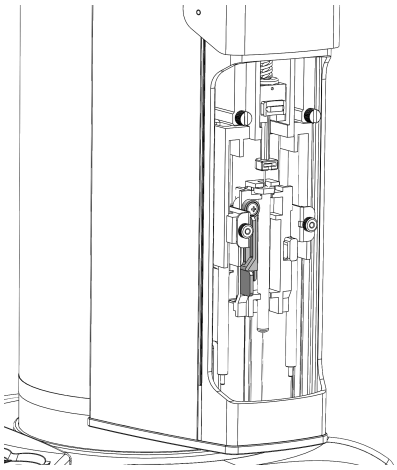
1. Select the mode you are going to use and select **Continue**.
2. Wait for the automatic positioning.
3. Remove the two fixing screws to remove the vial locator.

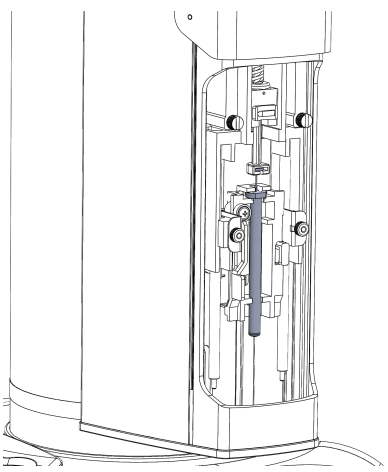


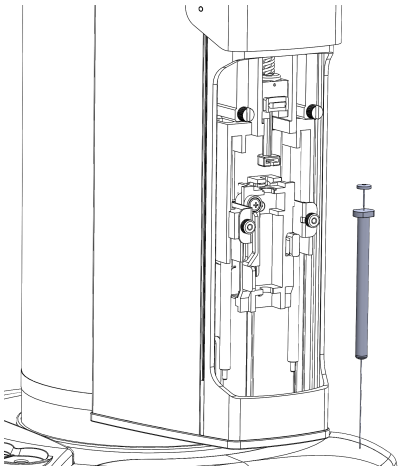


4. Select **Continue**.
5. Wait for the automatic positioning, open the locker and remove the syringe.

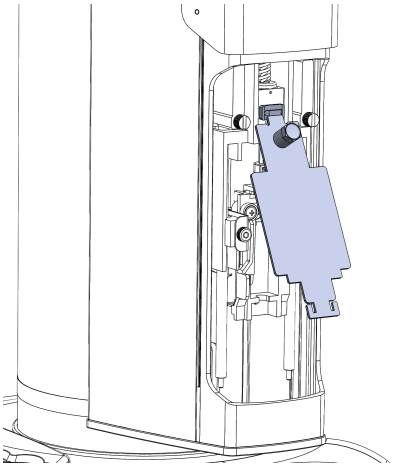


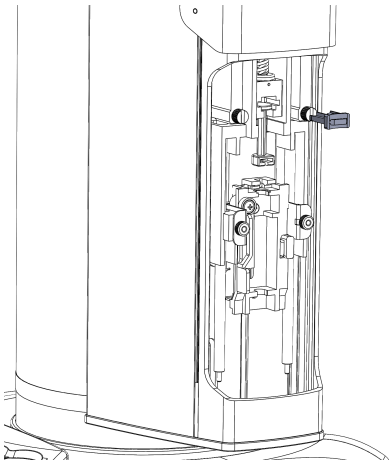




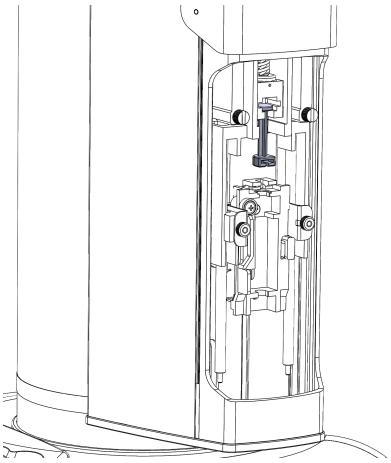


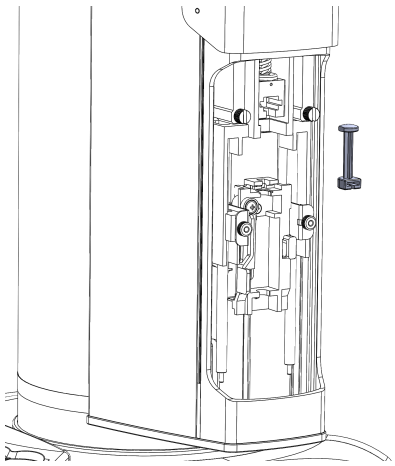
6. Take the syringe pointer, insert its edge in the plunger locker and pull it out.



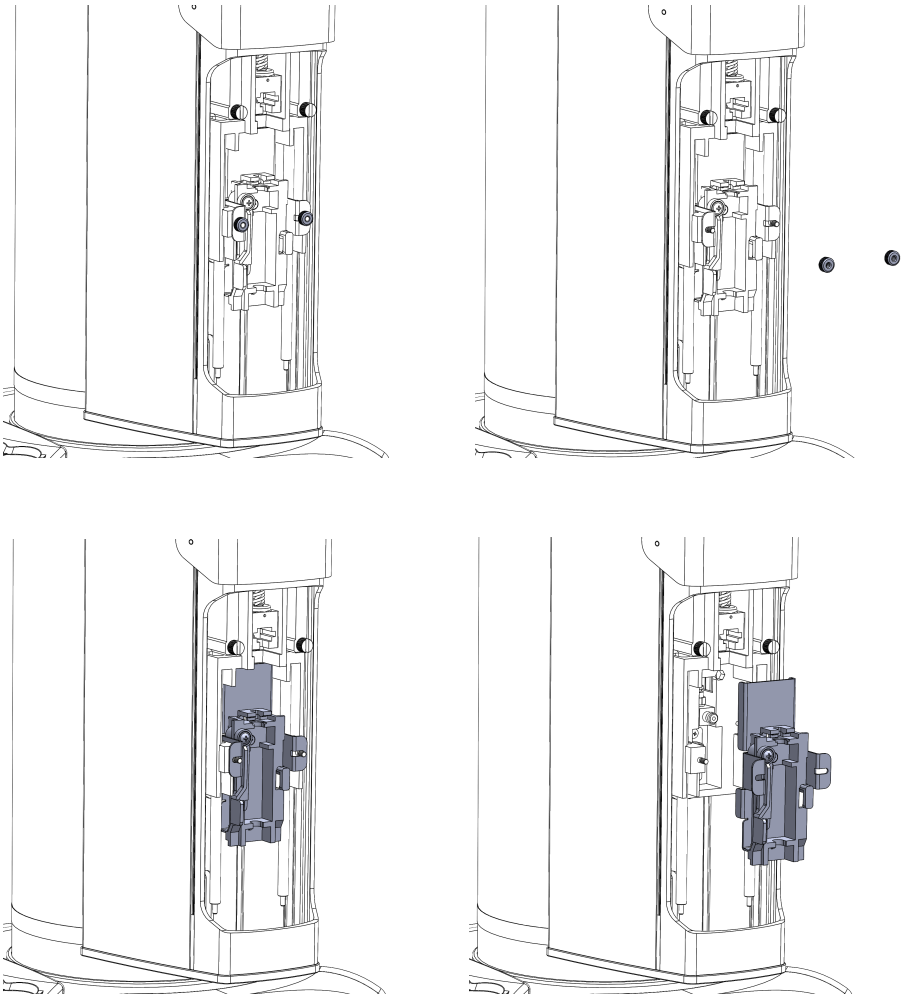


7. Remove the plunger extension.





8. Unscrew the two fixing nuts and remove the syringe holder.



9. Select **Continue**.
10. Follow the instructions of the 'Get in' chapter of the mode you are going to use.

# 8. Use in SPME mode

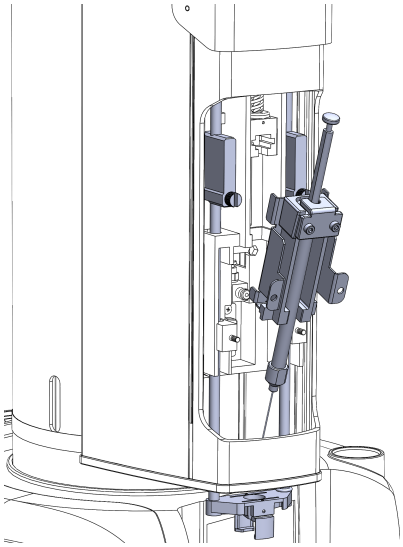
## 8.1 Get into SPME mode (fiber)

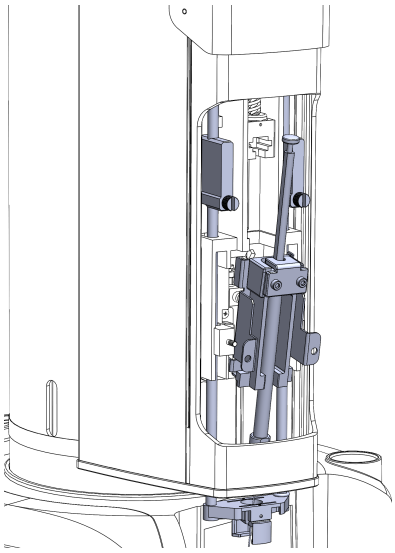
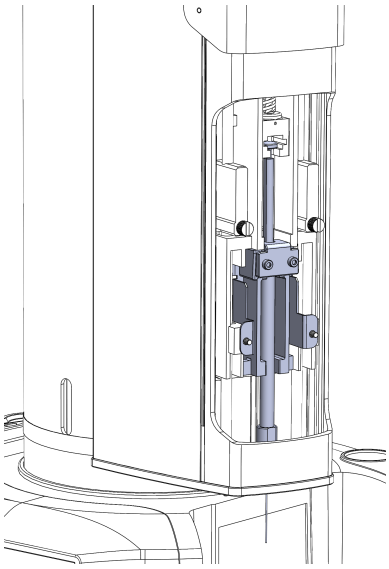
To get into SPME mode, you need first to get out of the mode you are currently using: therefore, please follow the 'Get out of Headspace mode' on page 148 or 'Get out of Liquid mode' on page 184.

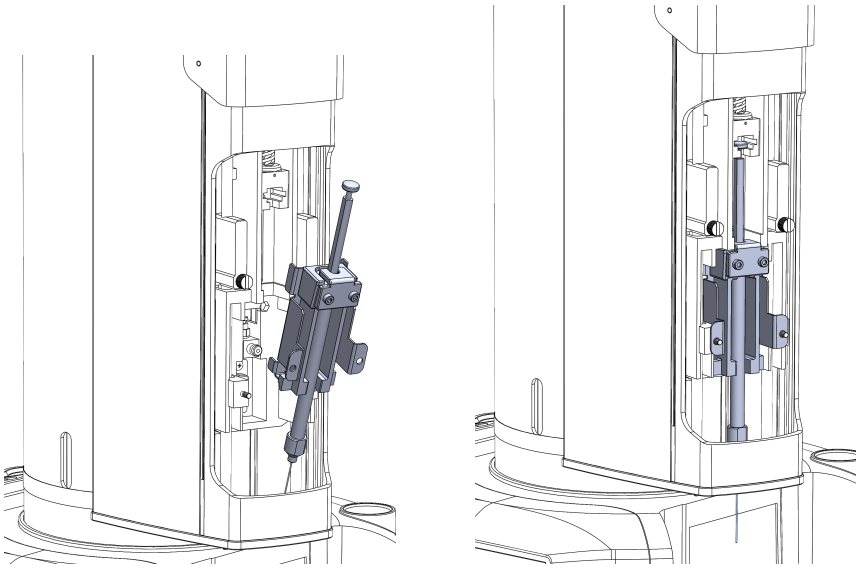
1. Select the **Type** of fiber / sealed tip you are going to use.
2. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the fiber holder installation without moving the turret | proceed to point 3. |

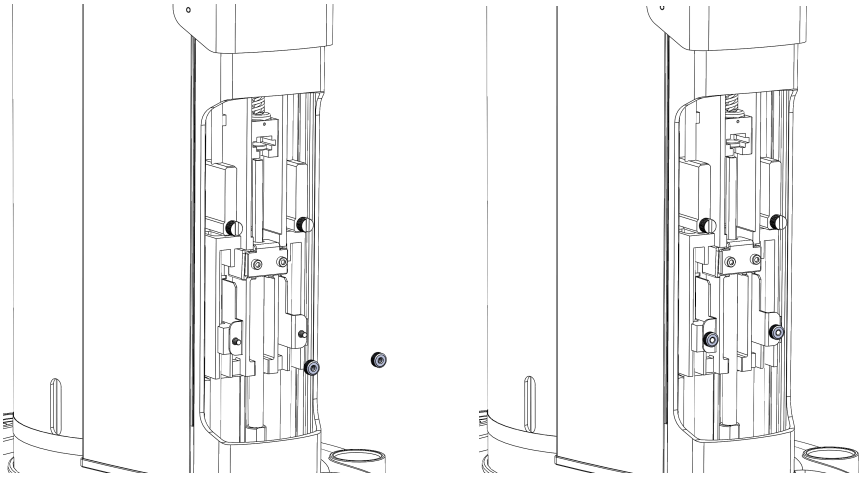
3. If necessary, raise the sliding lid and unscrew the two finger nuts.
4. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
5. Wait for the automatic positioning.

| If the vial locator... | Then... |
|---|---|
| is already mounted | 1. Push the vial locator up and insert the fiber in the central hole of the vial locator.<br>  |

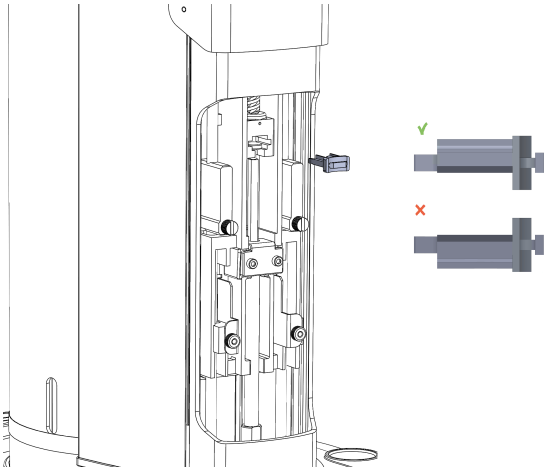
| If the vial locator... | Then... |
| --- | --- |
| |  <br>2. Install the fiber holder.<br>  |
| is not mounted yet | install the fiber holder. |

| If the vial locator... | Then... |
| --- | --- |
| |  |

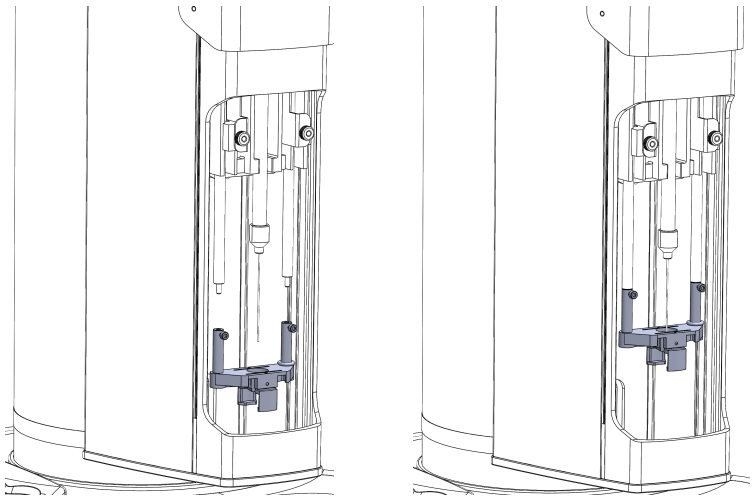
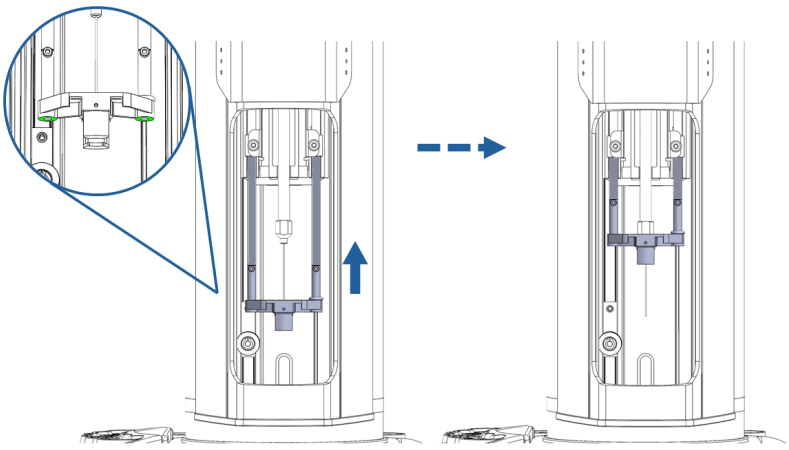
6. Fix completely the two finger nuts.

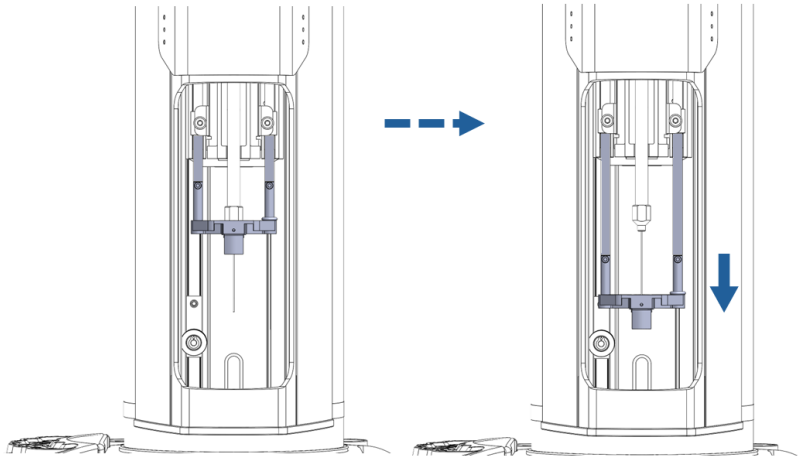


7. Insert the plunger locker.



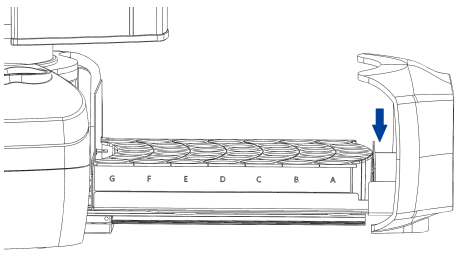
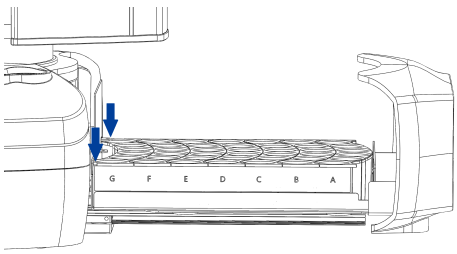
8. Press **Continue**.
9.

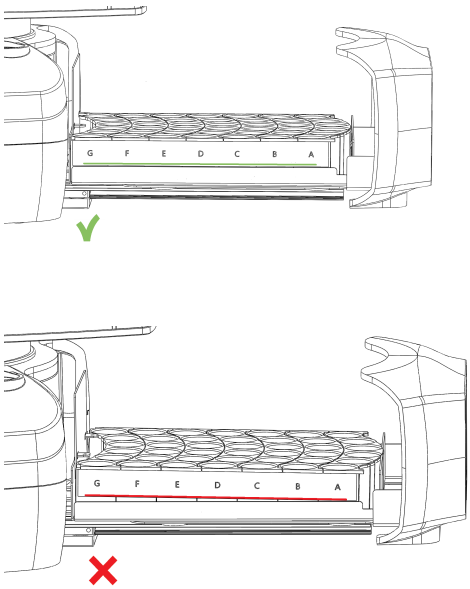
| If... | Then... |
|---|---|
| the autosampler asks to mount the vial locator and the standard fiber is installed | 1. Install the vial locator for Headspace and SPME standard fibers technique (blue o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.<br>  <br>2. Fasten completely the two fixing screws.<br>3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the fiber.<br>  <br>4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it. |

| If... | Then... |
|---|---|
| |  <br>5. Select **Continue**. |
| the autosampler executes the Automatic Fiber / Sealed tip Zero procedure | proceed to point 10. |

10. Wait the end of the of the Automatic Fiber / Sealed tip Zero procedure.

11.

| If the autosampler asks to... | Then... |
|---|---|
| remove the sample vials and the 121 positions rack is installed | proceed to sample rack installation:<br>1. Remove the sample vials and the 121 positions sample rack.<br>2. Insert the front side of sample rack.<br>  <br>3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.<br>  <br>4. Check that rack is correctly positioned. |

| If the autosampler asks to... | Then... |
|---|---|
| |   |
| remove the sample vials and the 42 positions rack is installed | remove the sample vials. |

### 8.1.1 Set the position of the vials - The Touch and Plunger Zero procedure

1. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case wash vial is used, insert it in its position.
2. Select **Continue**: the vial locator touches the wash vial, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
3. Remove the vial from oven and press **Continue**.

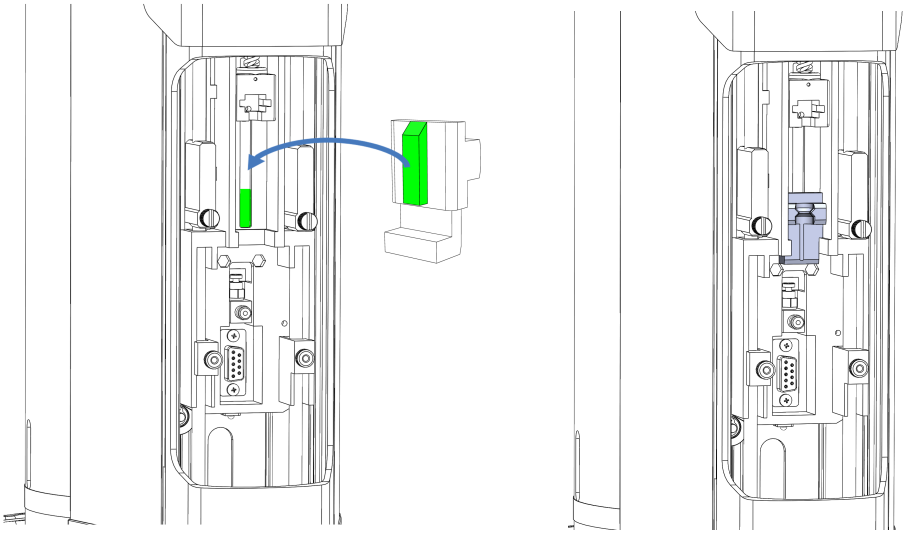
## 8.2 Get into SPME mode (sealed tip)

To get into SPME mode, you need first to get out of the mode you are currently using: therefore, please follow the 'Get out of Headspace mode' on page 148 or 'Get out of Liquid mode' on page 184.

1. Select the **Type** of fiber / sealed tip you are going to use.
2. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

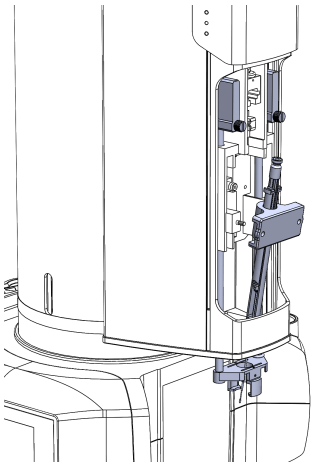
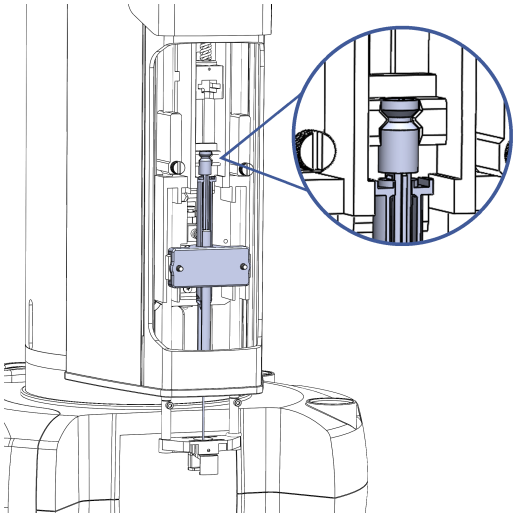
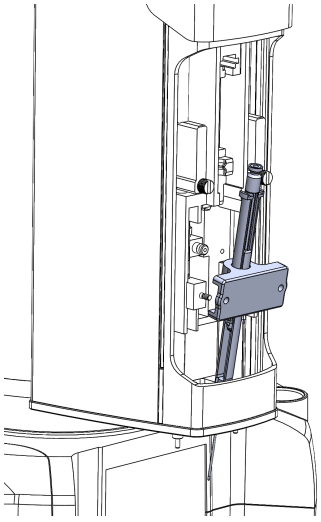
| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the sealed tip holder installation without moving the turret | proceed to point 3. |

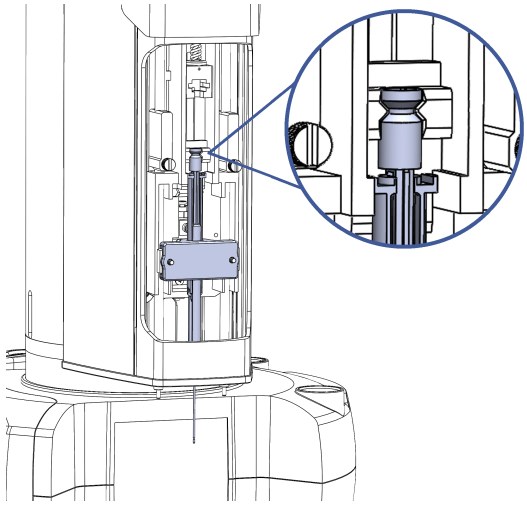
3. If necessary, raise the sliding lid and unscrew the two finger nuts.
4. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
5. Insert the sealed tip spacer in the position shown in the following pictures.



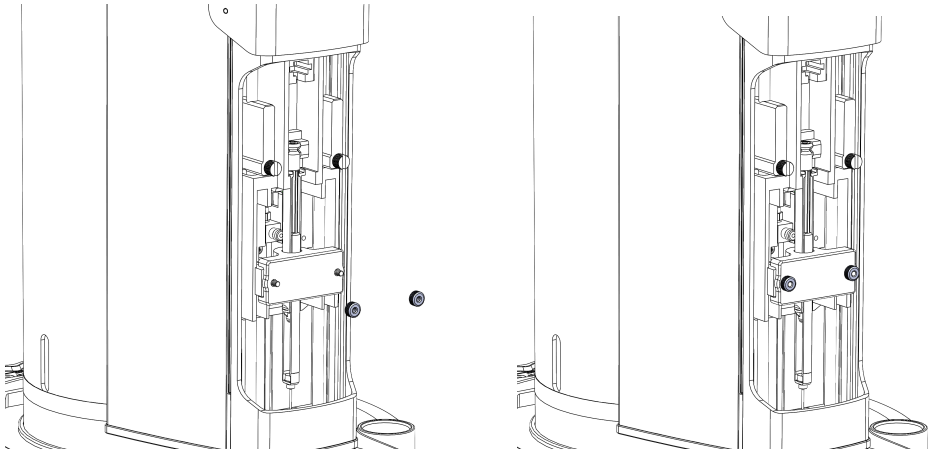
6.

| If the vial locator... | Then... |
|---|---|
| is already mounted | 1. Push the vial locator up and insert the sealed tip in the central hole of the vial locator. |

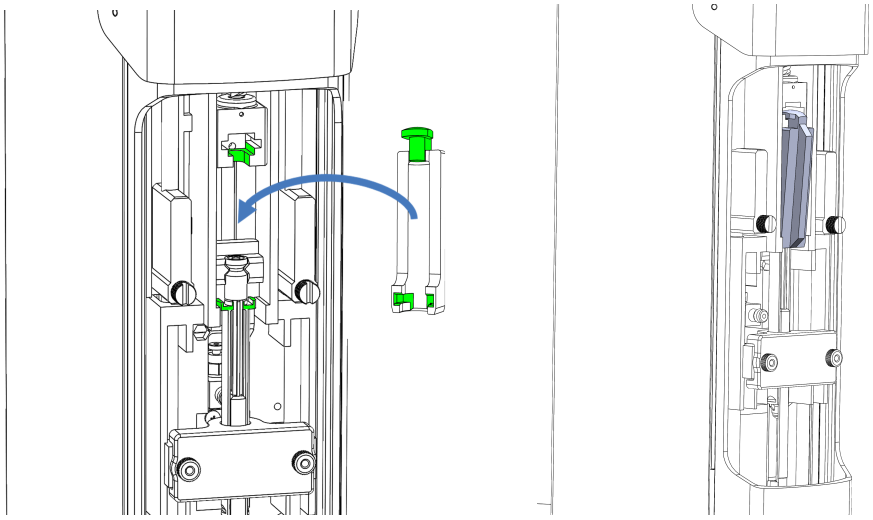
| If the vial locator... | Then... |
|---|---|
| |  <br>2. Install the sealed tip holder.<br>  |
| is not mounted yet | install the sealed tip holder.<br>  |

| If the vial locator... | Then... |
| --- | --- |
| |  |

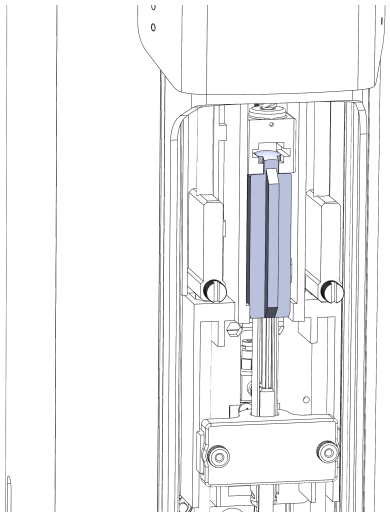
7. Fix completely the two finger nuts.



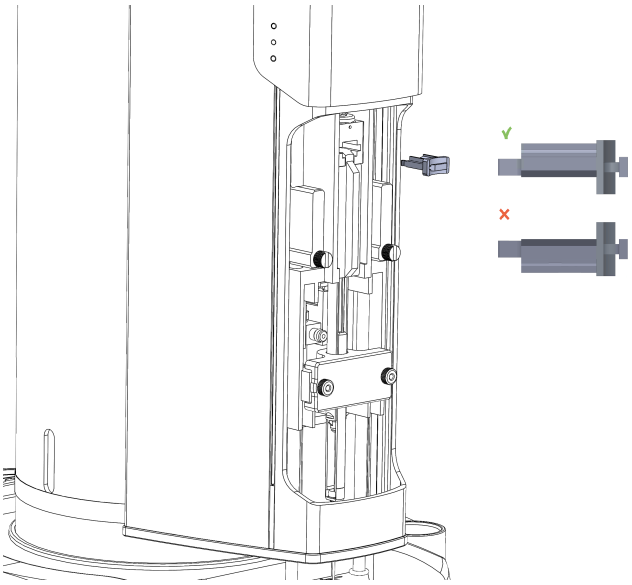
8. Insert the plunger extension.



9. Lower the plunger extension until it rests on the plunger holder.



10. Insert the plunger locker.

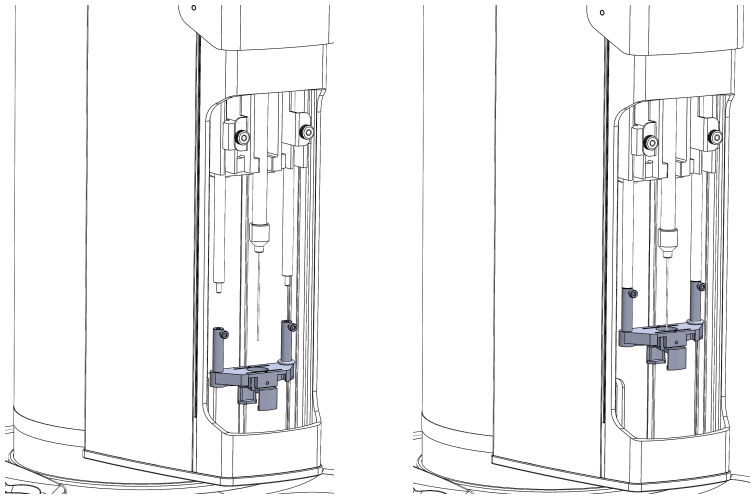


11. Press **Continue**.

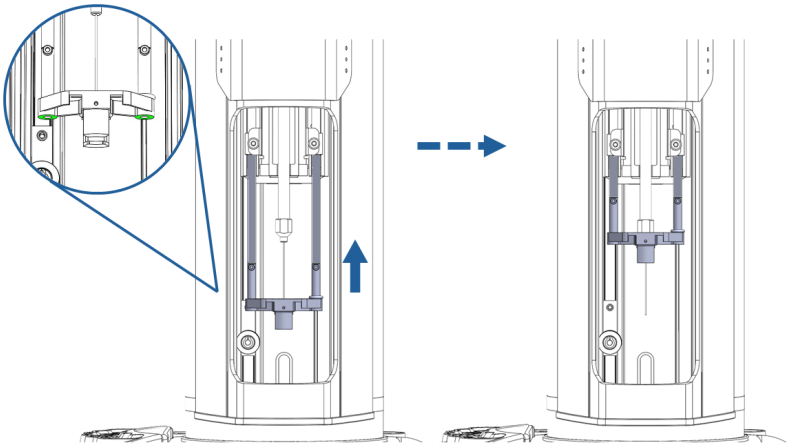
12.

| If... | Then... |
|---|---|
| the autosampler asks to mount the vial locator | 1. Install the vial locator for SPME for 1.1 fibers / 1.5 fibers technique (yellow o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars. |

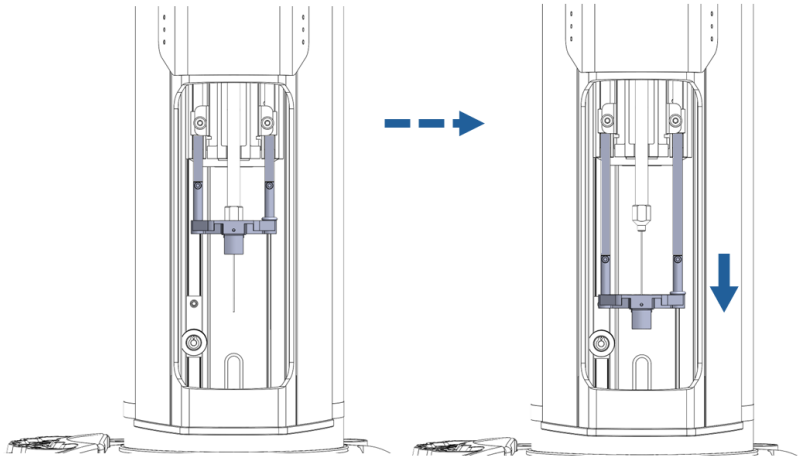
| If... | Then... |
|---|---|



2. Fasten completely the two fixing screws.
3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the sealed tip.

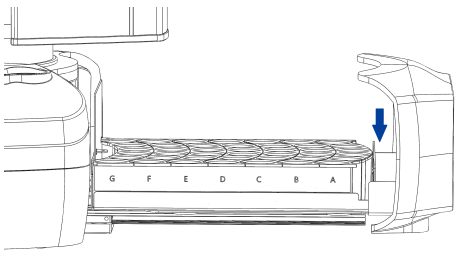
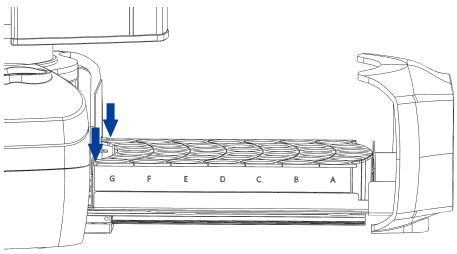


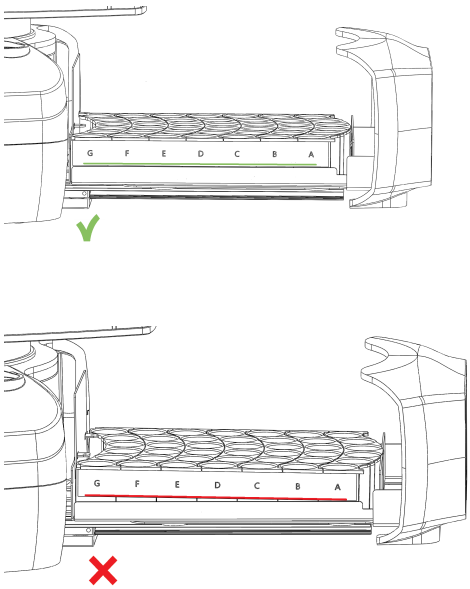
4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.

| If... | Then... |
|---|---|
| |  <br>5. Select **Continue**. |
| the autosampler executes the Automatic Fiber / Sealed tip Zero procedure | proceed to point 10. |

10. Wait the end of the of the Automatic Fiber / Sealed tip Zero procedure.

11.

| If the autosampler asks to... | Then... |
|---|---|
| remove the sample vials and the 121 positions rack is installed | proceed to sample rack installation:<br>1. Remove the sample vials and the 121 positions sample rack.<br>2. Insert the front side of sample rack.<br>  <br>3. Insert the other side of the sample rack and push it so that the label with the letters is parallel to the base of the tray.<br>  <br>4. Check that rack is correctly positioned. |

| If the autosampler asks to... | Then... |
|---|---|
| |   |
| remove the sample vials and the 42 positions rack is installed | remove the sample vials. |

### 8.2.1 Set the position of the vials - The Touch and Plunger Zero procedure

1. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case wash vial is used, insert it in its position.
2. Select **Continue**: the vial locator touches the wash vial, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
3. Remove the vial from oven and press **Continue**.

## 8.3 Prepare the sample vials

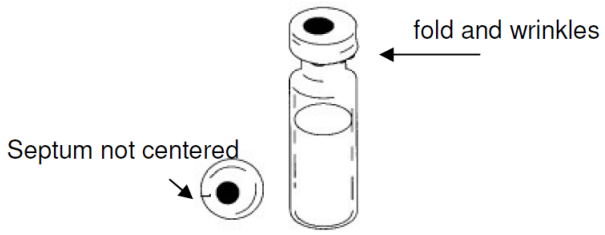
### 8.3.1 Basic information on sample vials

- Vials must be approved for SPME techniques;
- Rounded end;
- Clear or amber glass (amber glass is suitable for light sensitive samples). For more details see 'Sample vial specifications' on page 395.

### 8.3.2 Close a sample vial with a crimp cap

You must have a crimper available. Fit the septum on the cap and then:

1. Clean the inside surfaces of the crimper jaws.
2. Place the crimp cap over the top of the vial.
3. Hold the vial and place the crimper on top of it. Squeeze the handle until it touches the adjuster screw.
   ***Note:*** *Following picture shows a not correct crimping.*




4. Check each vial for proper crimping:
   - Check the aluminum cap is not folded or wrinkled.
   - The cap should be tight and not easy to move or rotate.
   - If either of the above problems occur crimp the cap again. Regulate the crimper to adjusting the tightness if needed.
   - Check that each cap has a flat septum and that it is centered over the top of the vial:

| If... | Then... |
|---|---|
| the septum is not flat | remove the cap, turn the crimper adjusting screw and try again. |
| the cap is not centered | remove the cap and make sure the new cap is flat on the top of the vial before the crimp operation. |

## 8.4 Operating Modes

### 8.4.1 Operate by autosampler touch screen

| To... | Then... |
|---|---|
| Set the method and sequence | Do what follows:<br>**If...** / **Then...**<br>all samples are processed in the same way / you don't need to change method and sequence at each run<br>you are required to process samples in different way / see 'Set the method and sequence' on page 205. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 206. |
| Run sample(s) - Start a sequence | See 'Run sample(s) - Start a sequence' on page 206. |
| Run sample(s) - Stop a sequence | See 'Run sample(s) - Stop a sequence' on page 207. |
| Run sample(s) - Process a single sample | **If...** / **Then...**<br>all samples are processed in the same way / see 'Run sample(s) - Start a sequence' on page 206.<br>you are required to process samples in different way / see 'Run sample(s) - Process a single sample' on page 206. |
| Perform additional fiber conditioning | See 'Perform additional fiber cleaning conditioning' on page 207. |
| Modify the autosampler general settings | See 'Modify the autosampler general settings' on page 207. |
| Manage racks | See 'Racks management' on page 209. |

### 8.4.2 Operate by HTA Autosampler Manager

| To... | Then... |
|---|---|
| Set the method and sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 206. |
| Run sample(s) - Start a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Stop a sequence | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Run** topic. |
| Run sample(s) - Process a single sample | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Single Injection** topic. |
| Perform additional syringe purge | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Auxiliary** > **Purge** topic. |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see |

| To... | Then... |
|---|---|
| | the help by pressing **F1**.<br>See in particular **Setup** topic. |
| Manage racks | See 'Racks management' on page 209. |

### 8.4.3 Operate by CDS through HTA software integration

| To... | Then... | |
|---|---|---|
| Set the method and sequence | **If you want to work from...** | **Then...** |
| | touch screen | see 'Set the method and sequence' on page 205. |
| | HTA Autosampler Manager | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Method**, **Sequence** and **Run** topics. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 206 | |
| Run sample(s) - Start a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Stop a sequence | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Run sample(s) - Set a priority | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. | |
| Run sample(s) - Process a single sample | Use your CDS.<br>For further details, see your CDS documentation and HTA Autosampler Manager help. | |
| Perform additional syringe purge | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. | |
| Modify the autosampler general settings | Open the autosampler with HTA Autosampler Manager and see the help by pressing **F1**.<br>See in particular **Setup** topics. | |
| Manage racks | See 'Racks management' on page 209. | |

### 8.4.4 Operate by CDS through software connectors

| To... | Then... |
|---|---|
| Set the method and sequence | Use your CDS.<br>Check the installation and usage guide of the driver. |
| Run sample(s) - Before proceeding | Check the installation and usage guide of the driver. |
| Run sample(s) - Start a sequence | Use your CDS.<br>Check the installation and usage guide of the driver. |
| Run sample(s) - Stop a sequence | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the |

| To... | Then... |
|---|---|
| | installation and usage guide of the driver. |
| Run sample(s) - Process a single sample | If supported by your CDS, use your CDS.<br>Check the installation and usage guide of the driver. |
| Perform additional syringe purge | If supported by your CDS, use your CDS.<br>See your CDS documentation for further details. Check the installation and usage guide of the driver. |
| Modify the autosampler general settings | **If...** / **Then...**<br>supported by your CDS / Use your CDS.<br>not supported by your CDS / see 'Modify the autosampler general settings' on page 207.<br>Check the installation and usage guide of the driver. |
| Manage racks | See 'Racks management' on page 209. |

### 8.4.5 Operate by CDS through third party integration

| To... | Then... |
|---|---|
| Set the method and sequence | Use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Before proceeding | See 'Run sample(s) - Before proceeding' on page 206. |
| Run sample(s) - Start a sequence | Use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Stop a sequence | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Set a priority | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Run sample(s) - Process a single sample | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Perform additional syringe purge | If supported by your third party software, use your third party software.<br>See your third party software documentation for further details. |
| Modify the autosampler general settings | **If...** / **Then...**<br>supported by your third party software / Use your third party software.<br>See your third party software documentation for further details.<br>not supported by your third party software / see 'Modify the autosampler general settings' on page 207. |
| Manage racks | See 'Racks management' on page 209. |

## 8.5 Set the method and sequence

### 8.5.1 Modify a method

*Run menu > Settings > Methods*

1. Select the desired method and then **OK** to confirm.
2. Select **General** and, if necessary, modify the parameters. Press **Exit**.
3. If desired, modify the remaining parameters.
4. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.
5. To proceed, see 'Set a sequence' on page 205.

### 8.5.2 Set a sequence

*Run menu > Settings > Sequences*

1. Select the first step and **OK** to open it.
2. Set the step parameters as desired.
3. Select **Exit** to exit from the first step menu.
4. To add a new sequence step, select **Settings** > **Sequences** > **Tools** > **OK** > **Add new** > **Continue** > **Exit** and set the parameters of the new step as desired.
5. Select **Exit** > **Save** > **Continue**: the **Settings** menu appears.

### 8.5.3 Restore the default parameters of a method

*Run menu > Settings > Methods > Tools*

1. Select **Restore Default** and select the method to be modified.
2. Select **Continue**.
3. Select **Load** to confirm.
4. Select **Continue**.

### 8.5.4 Copy the parameters of a method to another method

*Run menu > Settings > Methods > Tools*

1. Select **Copy Methods**.
2. Select the source method and the destination method.
3. Select **Copy** to confirm.
4. Select **Continue**.

## 8.6 Start the Run

### 8.6.1 Run sample(s) - Before proceeding

Before starting the run:

- Ensure to have correctly prepared the sample vials and the sample list in the analyzer software.
- Ensure methods and, if desired, sequences, have already been set.
- Verify that the parameter values of the desired method are correct

To modify a method or set a sequence, see 'Set the method and sequence' on page 205.

### 8.6.2 Run sample(s) - Start a sequence

This procedure is useful when there are many sample vials to be processed.

*Run menu > Load Sample Tray*

1. Insert the sample vials in the tray.
2. Select **Close**.
3. Start the sample list on the analyzer software.
4. In the **Run** menu select **Start**: the autosampler starts the sequence and the summary page appears.
5. At the end of the run, select **Continue**: the **Run** menu appears.

### 8.6.3 Run sample(s) - Process a single sample

This procedure is useful when there is only one sample vial to be processed or to perform some test.
***Note:*** *This procedure is applicable only if the parameter* ***User Interface*** *has been set to* ***Standard****.*

*Run menu > Load Sample Tray*

1. Insert the sample vial in the tray.
2. Start the sample list on the analyzer software.
3. In the Standard version of the Run menu select **Single Injection**.
4. Set the parameters as desired.
5. Select **Start**: the autosampler starts the single injection and the summary page appears.

## 8.7 Run management

### 8.7.1 Perform additional fiber cleaning conditioning

*Run menu > Fiber cleaning conditioning*

1. Set **Position** and **Remaining time**.
2. Set the desired parameters and select **Start**: the autosampler performs the defined additional fiber cleaning conditioning.

### 8.7.2 Run sample(s) - Stop a sequence

1. Select **Stop**: the autosampler pauses.
2. Do what follows:

| If you want... | Then... |
|---|---|
| to put the autosampler into standby | select **Abort**: the autosampler washes the syringe and goes into standby. |
| to stop the autosampler | select **Terminate Current**: the autosampler stops when the operations on the current sample vial end. |
| to continue the sequence | select **Resume**. |

### 8.7.3 Modify the autosampler general settings

*Run menu > Settings > Setup > Configuration*

Select the desired parameters and modify them. For details, see 'Configuration' on page 318.

## 8.8 Sequences management

### 8.8.1 Add a sequence step copying from another one

*Run menu > Settings > Sequences > Tools*

1. Select **Copy as new** and select the step to copy from.
2. Select **Copy**.
3. Select **Continue**.

### 8.8.2 Reorder sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Reorder**.
2. Select the step to move and select **OK**.
3. Select the target position where you want to move the step and select **Move**.
4. Select **Continue**.

### 8.8.3 Remove sequence step

*Run menu > Settings > Sequences > Tools*

1. Select **Remove Step**.
2. Select the step to remove and select **OK**.
3. Select **Continue**.

## 8.9 Racks management

### 8.9.1 Set the characteristics of the rack to be used

This procedure adds, to the list of the available racks to be used, a rack with a different vial type than the previous one.

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Add New** and select **OK**.
2. Select the vial type, the vial depth and press **Continue**.
3. The new list item appears.
4. Select **Exit** > **Exit**.

### 8.9.2 Choose the type of rack to be used

*Run menu > Settings > Tray Type*

1. Select the desired type of rack and select **OK** > **Mount** to confirm: the tray opens.
2. Follow the screen instructions to place the required sample vial, then select **Continue**: the vial locator touches the sample vial.
3. Select **Continue**.

### 8.9.3 Remove a rack from the list

*Run menu > Settings > Setup > Alignment > Tray Install*

1. Select **Remove** and select **OK**.
2. Select the tray to be removed and select **Remove**.
3. Select **Continue** > **Exit** > **Exit**.

# 8.10 Fiber management

## 8.10.1 Workflow for replacing the fiber

For replacing the fiber, follow these procedures in the stated order:

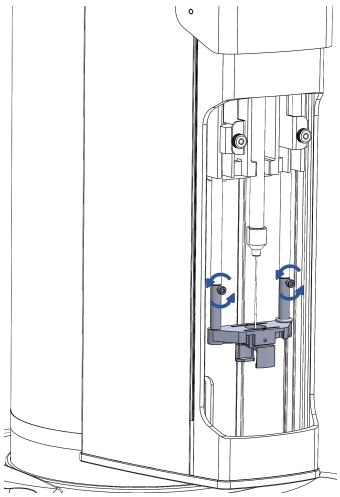
1. 'Remove the fiber holder' on page 210.
2. 'Remove the fiber' on page 212.
3. 'Install the fiber' on page 212.
4. 'Install the fiber holder' on page 213.

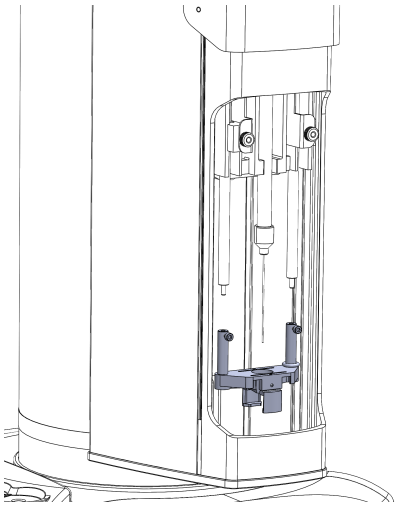
Each procedure is described in detail below.

## 8.10.2 Remove the fiber holder

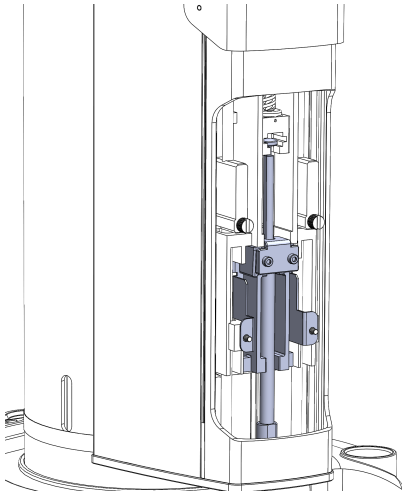
*Run menu > Settings > Setup > Fiber Installation*

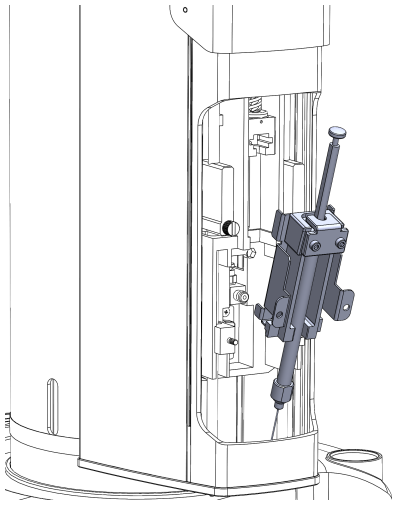
1. Raise the sliding lid.
2. Select the **Fiber type** you want to install and press **Save**.
3. Do what follows:

| If the autosampler asks to... | Then... |
|---|---|
| remove the fiber holder or the sealed tip holder | proceed to point 4. |
| remove the vial locator | 1. Remove the two fixing screws to remove the vial locator.<br>  |

| If the autosampler asks to... | Then... |
| --- | --- |
| |  <br>2. Select **Continue**. |

4. Unscrew the two finger nuts.
5. Take the syringe pointer, insert its edge in the plunger locker and pull it out.
6. Carefully remove the fiber holder.

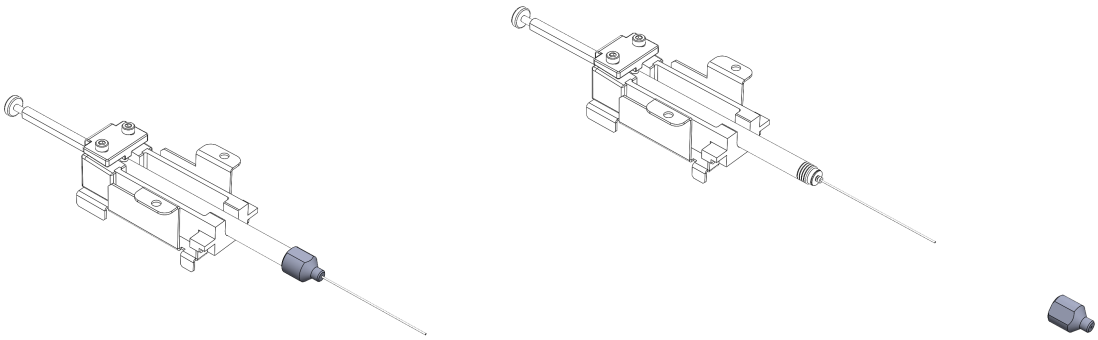




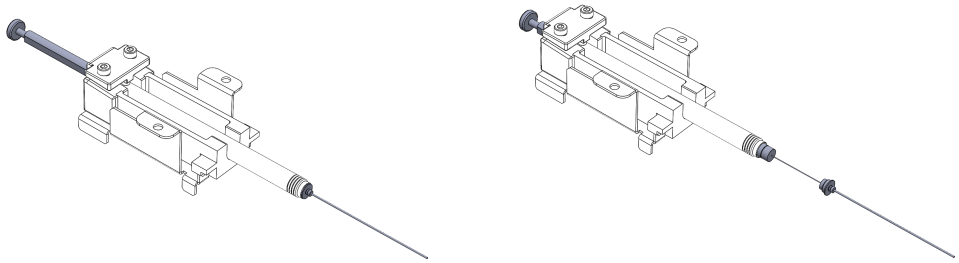
7. Press **Continue**.

### 8.10.3 Remove the fiber

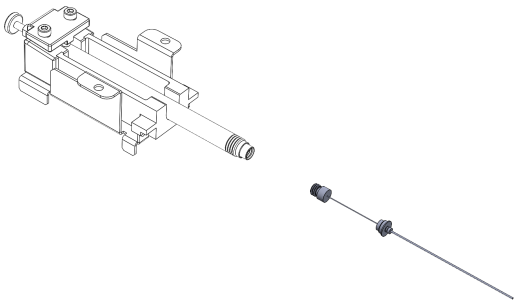
1. Unscrew the fiber guide and remove it.



2. Lower the fiber holder plunger until the fiber fixing point is visible.

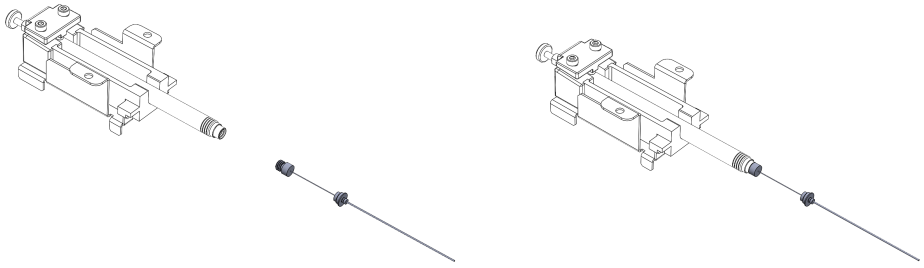


3. Unscrew the fiber fixing point to remove the fiber.

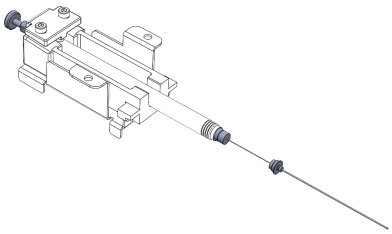


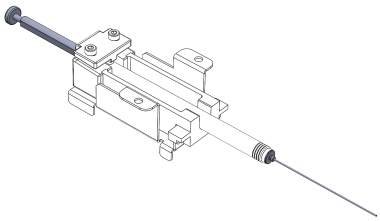
### 8.10.4 Install the fiber

1. Screw the fiber fixing point to the fiber holder plunger.

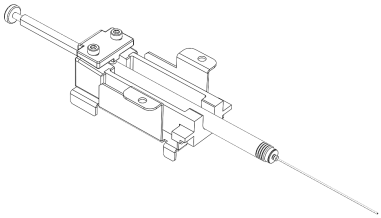


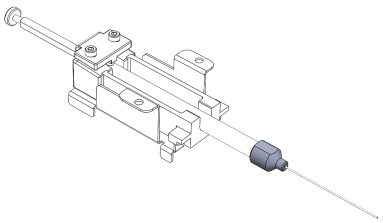
2. Lift up the fiber holder plunger until the fiber is completely inside the fiber holder.





3. Insert the fiber guide along the fiber and fix it at the fiber holder.





***Note:*** *Take care to use the standard fiber guide in case of standard fiber or the sealted tip guide in case of sealed tip.*

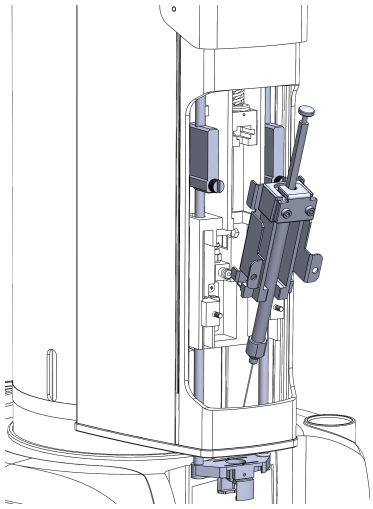
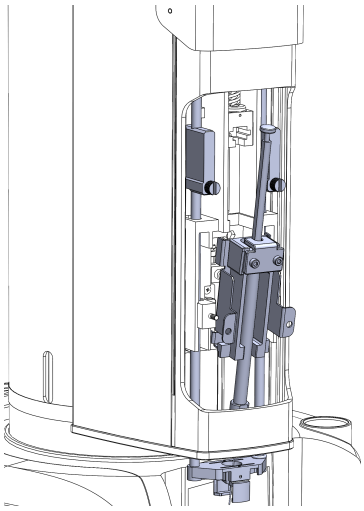
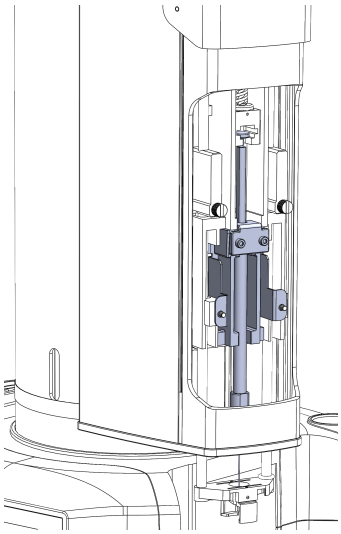
### 8.10.5 Install the fiber holder

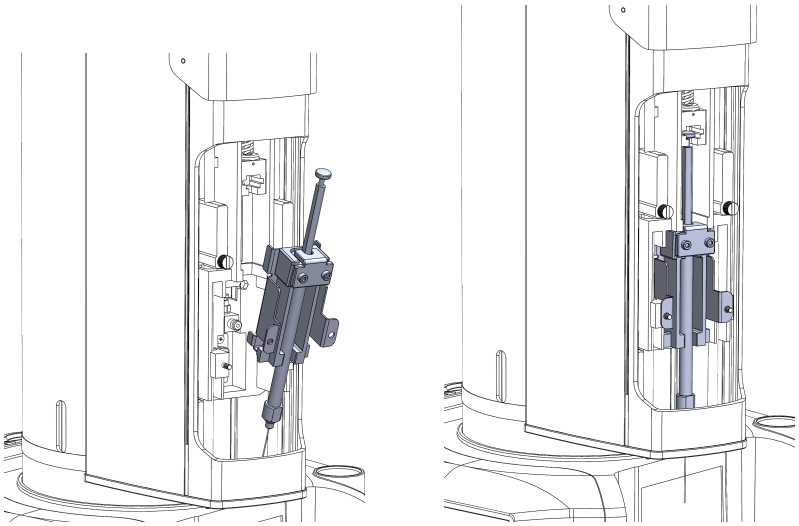
1. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the fiber holder installation without moving the turret | proceed to point 2. |

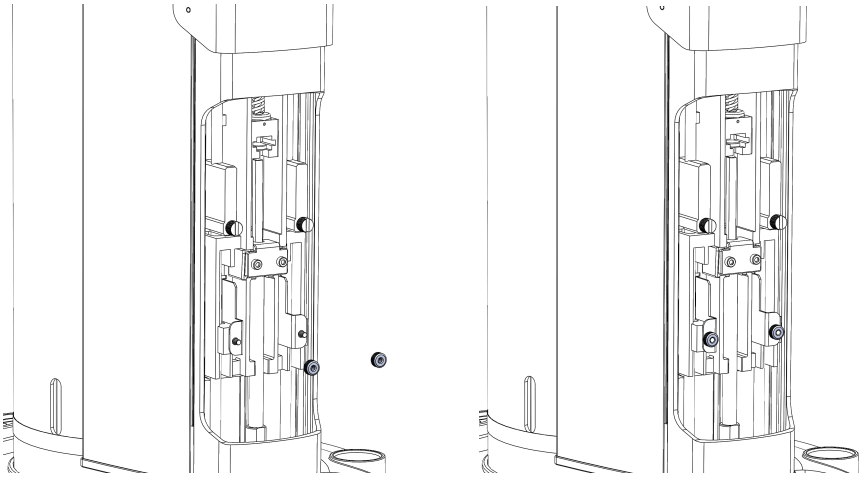
2. If necessary, raise the sliding lid and unscrew the two finger nuts.
3. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
4. Wait for the automatic positioning.

| If the vial locator... | Then... |
|---|---|
| is already mounted | 1. Push the vial locator up and insert the fiber in the central hole of the vial locator. |

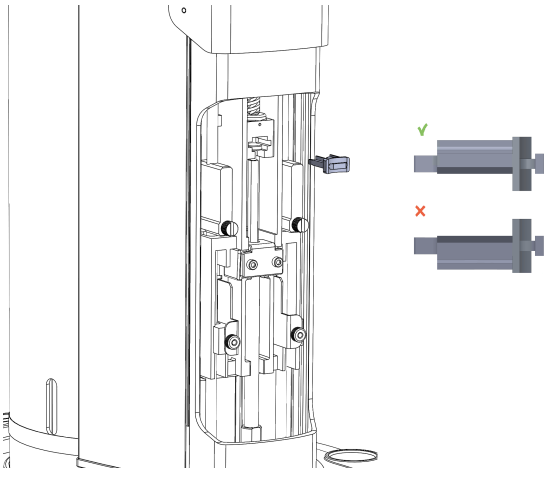
| If the vial locator... | Then... |
|---|---|
| |   <br>2. Install the fiber holder.<br>  |
| is not mounted yet | install the fiber holder. |

| If the vial locator... | Then... |
| --- | --- |
| |  |

5. Fix completely the finger nuts.

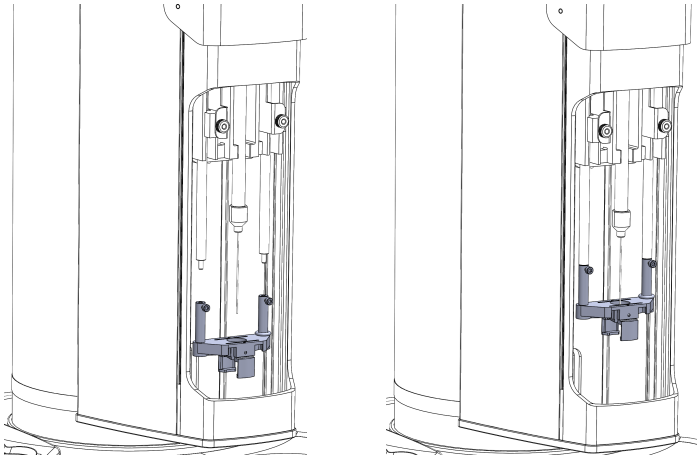
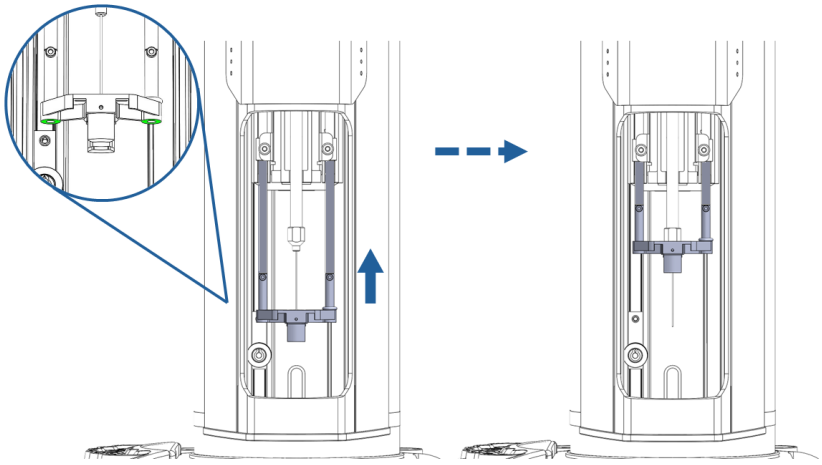


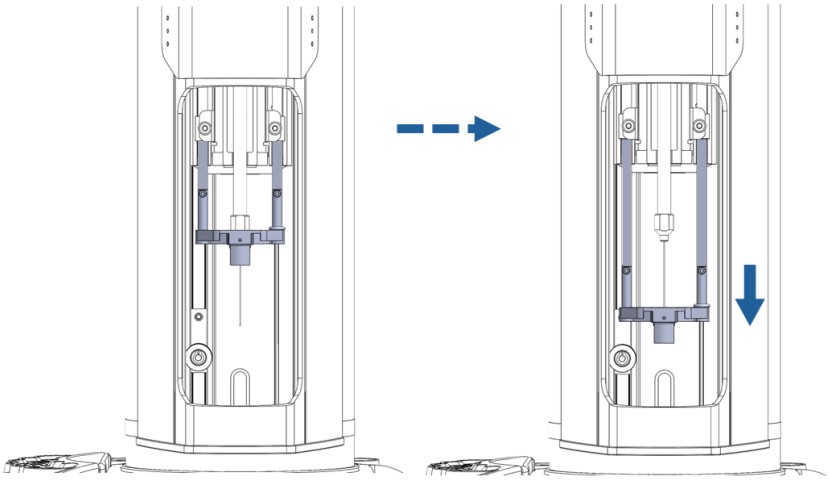
6. Insert the plunger locker.



7. Press **Continue**.

8.

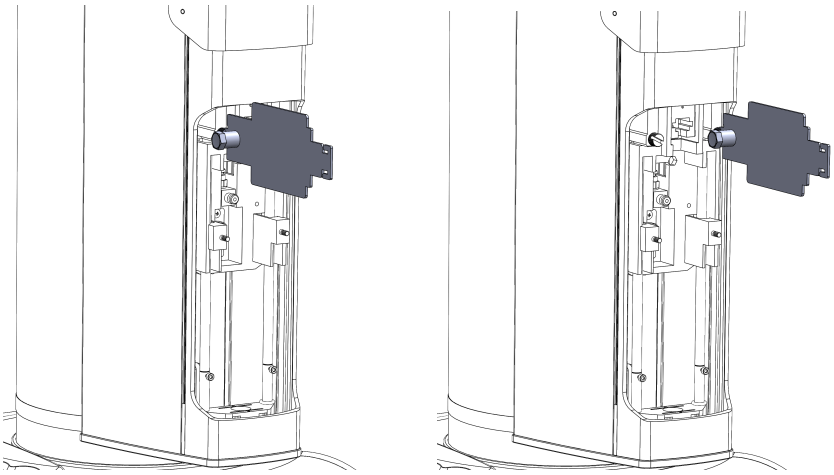
| If... | Then... |
|---|---|
| the autosampler asks to mount the vial locator | 1. Install the vial locator for Headspace and SPME standard fibers technique (blue o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.<br>  <br>2. Fasten completely the two fixing screws.<br>3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the fiber.<br>  <br>4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it. |

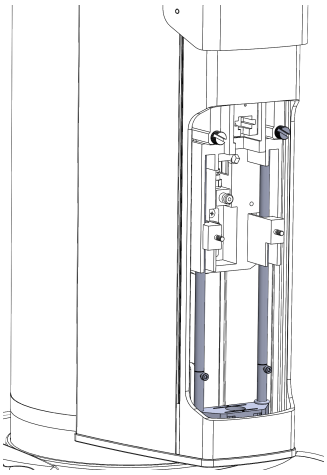
| If... | Then... |
|---|---|
| |  <br>5. Select **Continue**. |
| the autosampler executes the Automatic Fiber / Sealed tip Zero procedure | proceed to point 9. |

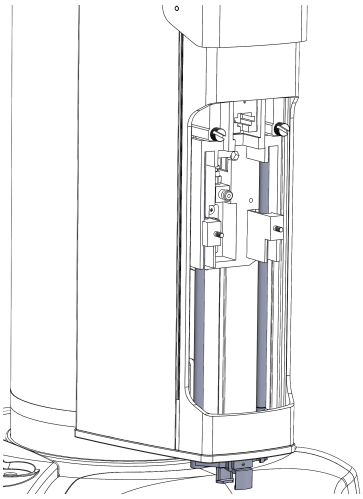
9. Wait the end of the of the Automatic Fiber / Sealed tip Zero procedure.

## 8.10.6 Align the vial locator to the needle tip

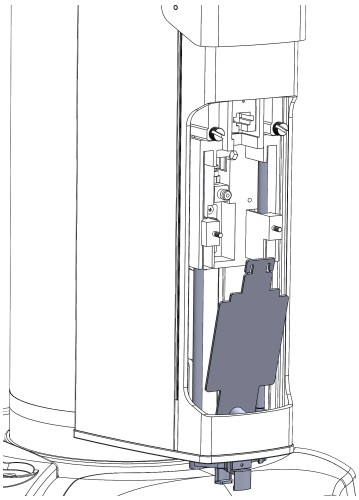
1. Remove the fiber holder. For details, see 'Remove the fiber holder' on page 210.
2. Unscrew the safety lock and the needle higher regulator and let the vial locator to rest on the frontal panel.

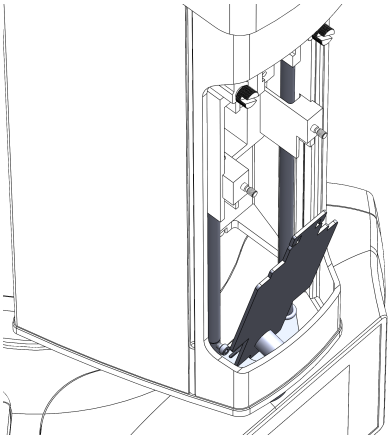


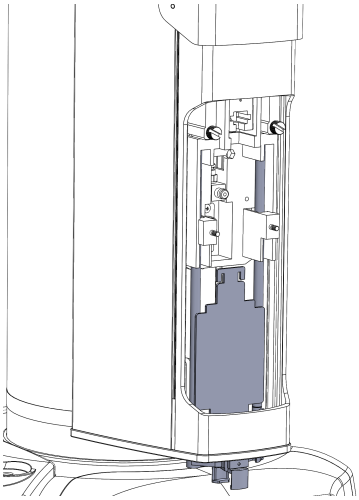




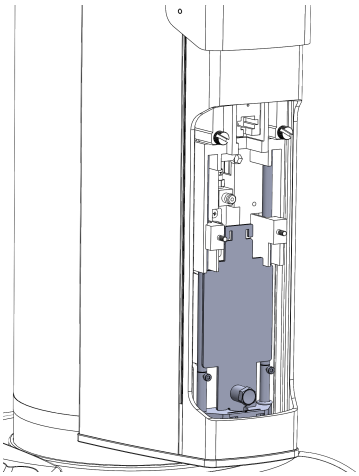
3. Insert the syringe pointer as indicated in the following pictures:



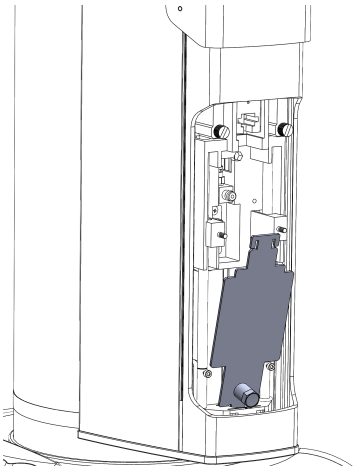




4. Lift up the vial locator until the syringe pointer is completely against the sledge.



5. Using a flat screwdriver, screw the safety lock and the needle height regulator to block the vial locator in position.
6. Remove the syringe pointer.



7. Install the fiber holder.

# 8.11 Sealed tip management

## 8.11.1 Workflow for replacing the sealed tip

For replacing the sealed tip, follow these procedures in the stated order:

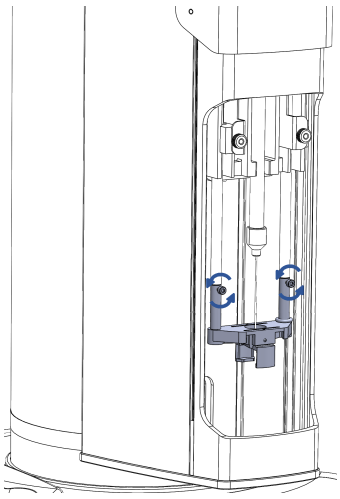
1. 'Remove the sealed tip holder' on page 220.
2. 'Remove the sealed tip' on page 222.
3. 'Install the sealed tip' on page 223.
4. 'Install the sealed tip holder' on page 223.

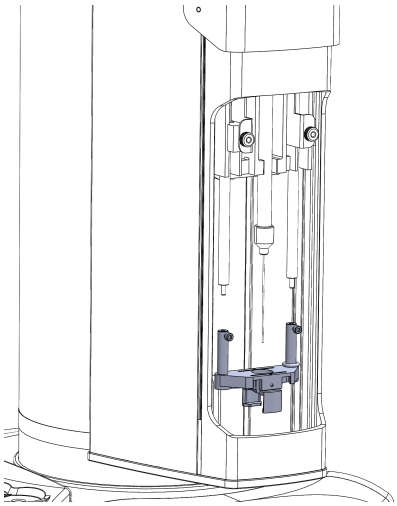
Each procedure is described in detail below.

## 8.11.2 Remove the sealed tip holder

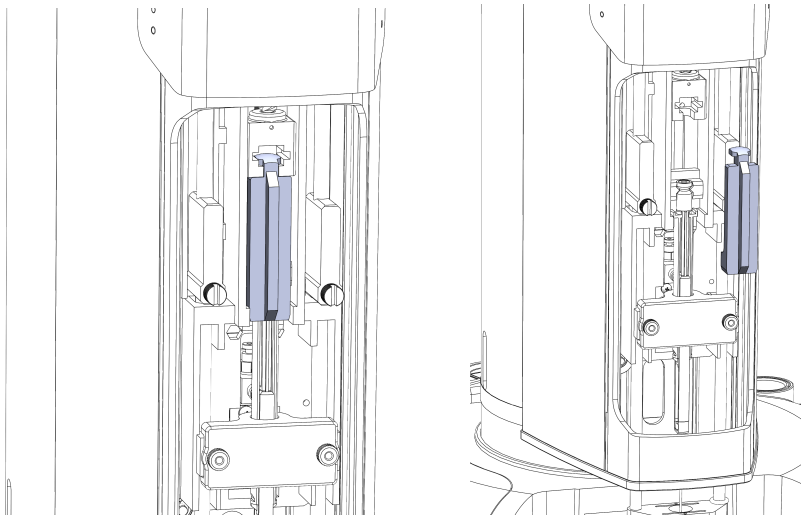
*Run menu > Settings > Setup > Fiber Installation*

1. Raise the sliding lid.
2. Select the **Fiber type** you want to install and press **Save**.
3. Do what follows:

| If the autosampler asks to... | Then... |
|---|---|
| remove the fiber holder or the sealed tip holder | proceed to point 4. |
| remove the vial locator | 1. Remove the two fixing screws to remove the vial locator.<br>  |

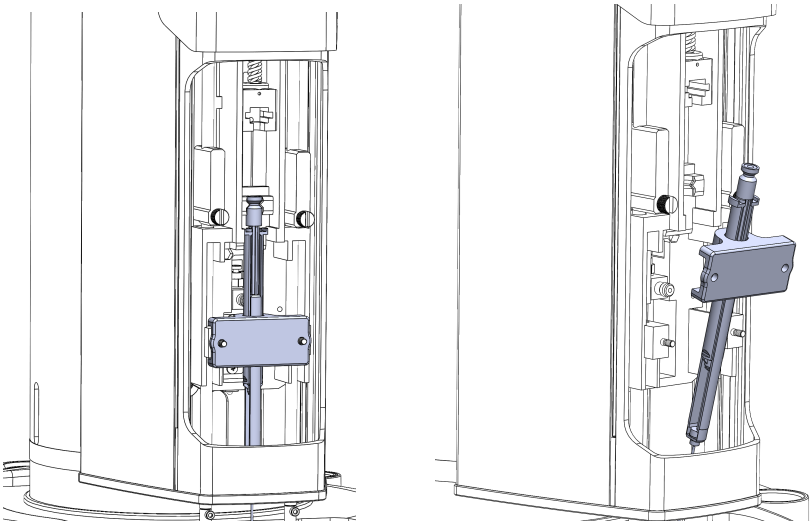
| If the autosampler asks to... | Then... |
| --- | --- |
| |  <br>2. Select **Continue**. |

4. Take the syringe pointer, insert its edge in the plunger locker and pull it out.
5. Remove the plunger extension.



6. Unscrew the two finger nuts.

7. Carefully remove the sealed tip holder.

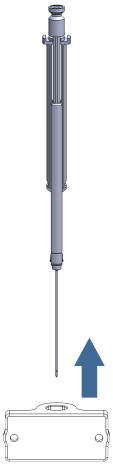


***Note:*** *In case you are going to mount the fiber holder for standard fiber, remove the sealed tip spacer too.*

8. Press **Continue**.

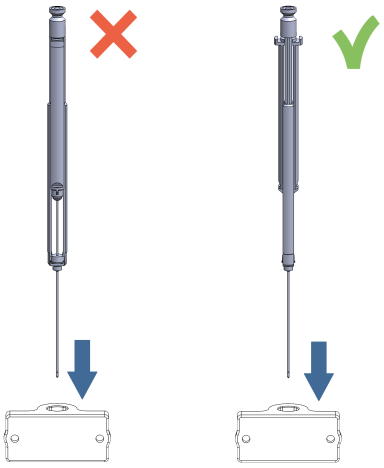
### 8.11.3 Remove the sealed tip

1. Remove the sealed tip fiber from the sealed tip holder.



### 8.11.4 Install the sealed tip

1. Insert the sealed tip fiber into the sealed tip holder.

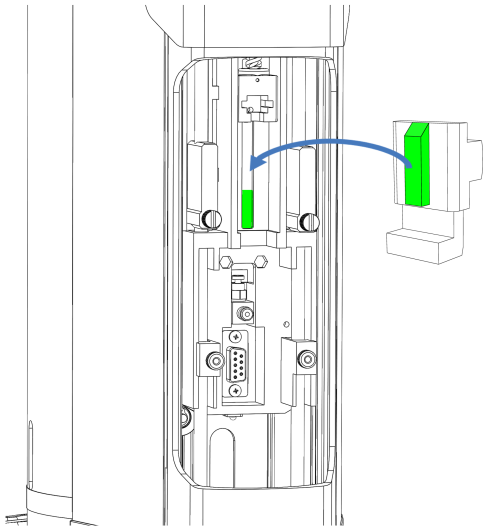


### 8.11.5 Install the sealed tip holder

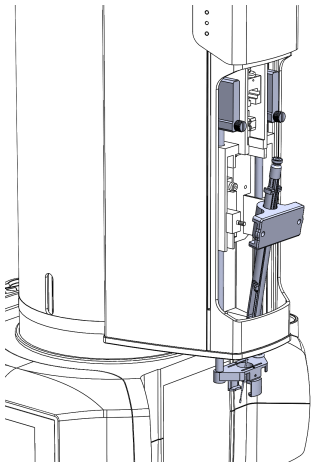
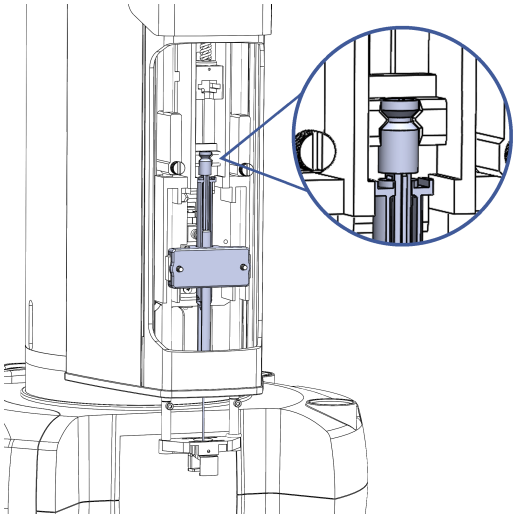
1. When the screen displays the **Install new fiber holder or Sealed tip holder** page, do what follows:

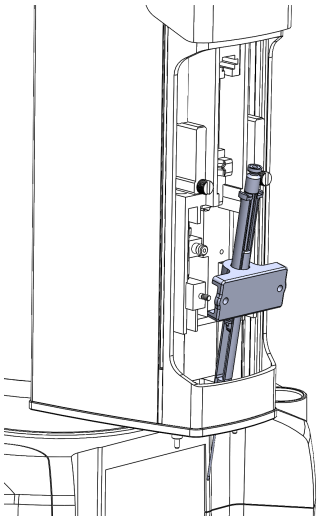
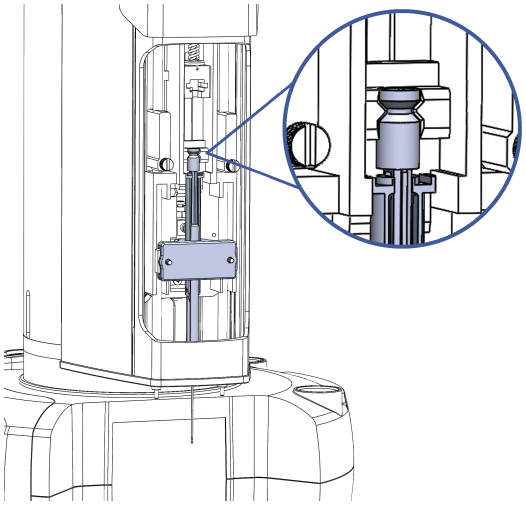
| If you want to... | Then... |
|---|---|
| move the turret to a more comfortable position | 1. Select **Manual**.<br>2. Select the arrows for moving the syringe location as you desire. |
| proceed with the sealed tip holder installation without moving the turret | proceed to point 2. |

2. If necessary, raise the sliding lid and unscrew the two finger nuts.
3. If necessary, take the syringe pointer, insert its edge in the plunger locker and pull it out.
4. If necessary, insert the sealed tip spacer in the position shown in the following picture.

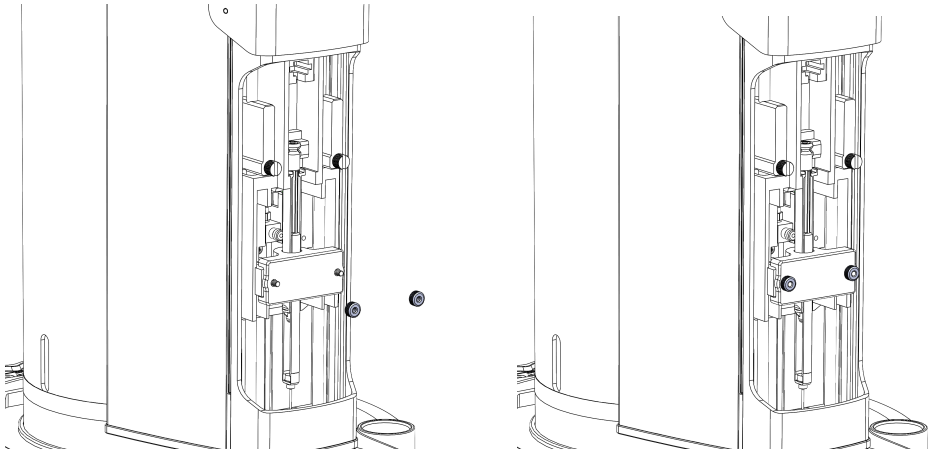


5. Wait for the automatic positioning.

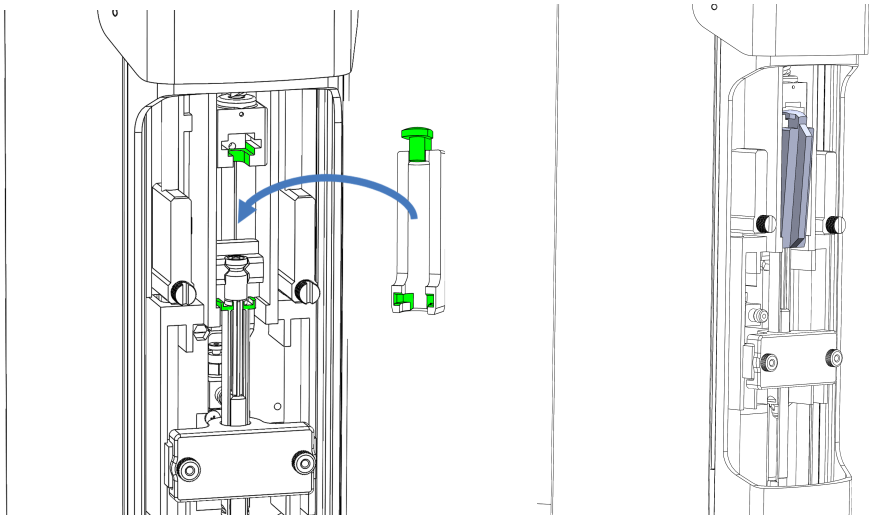
| If the vial locator... | Then... |
|---|---|
| is already mounted | 1. Push the vial locator up and insert the sealed tip in the central hole of the vial locator.<br>  <br>2. Install the sealed tip holder.<br>  |
| is not mounted yet | install the sealed tip holder. |

| If the vial locator... | Then... |
| --- | --- |
| |   |

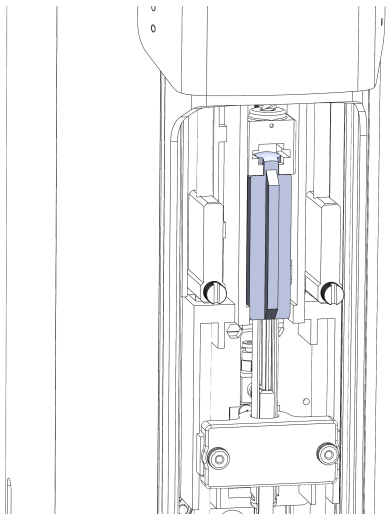
5. Fix completely the finger nuts.



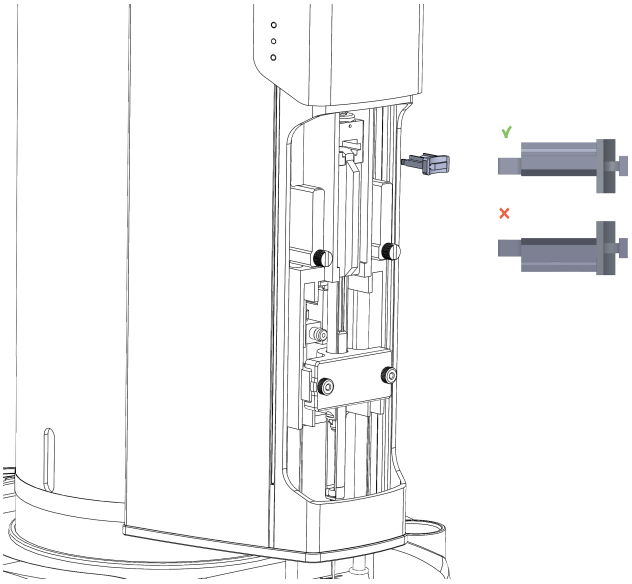
6. Insert plunger extension.



7. Lower the plunger extension until it rests on the plunger holder.

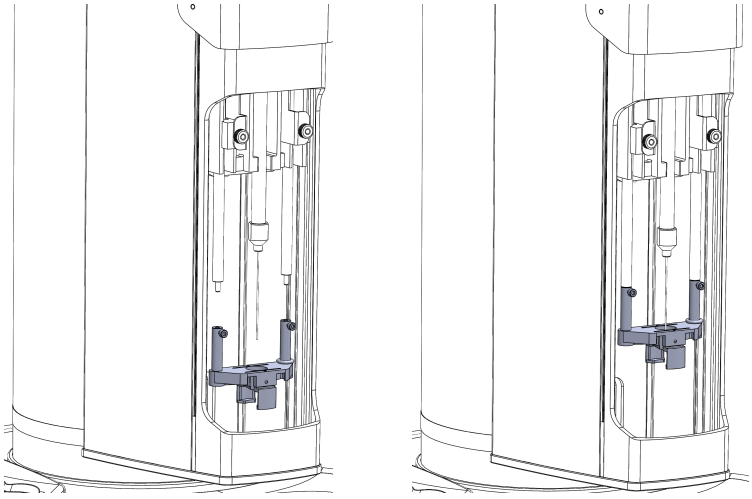


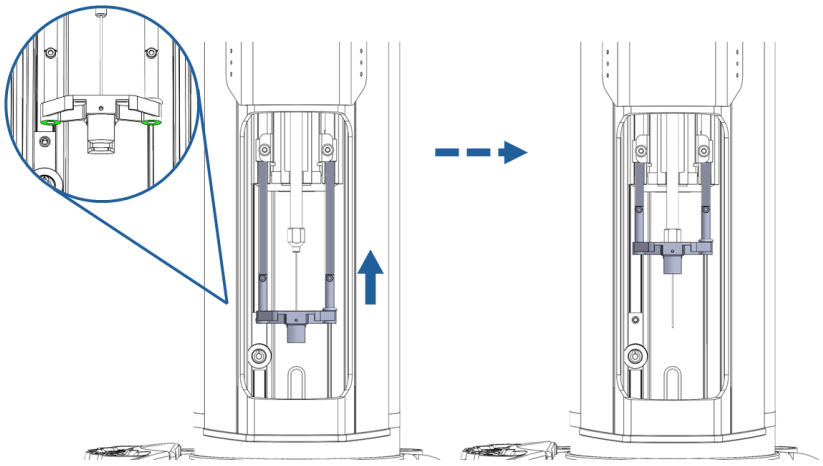
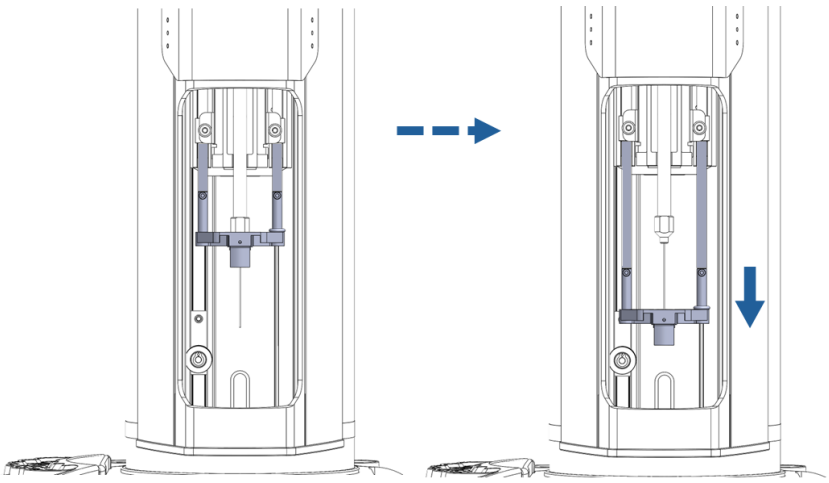
8. Insert the plunger locker.



9. Press **Continue**.

10.

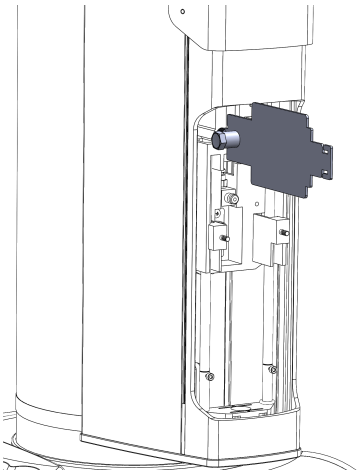
| If... | Then... |
|---|---|
| the autosampler asks to mount the vial locator | 1. Install the vial locator for SPME for 1.1 fibers / 1.5 fibers technique (yellow o-ring: see 'Vial locators' on page 55), taking care to let the needle tip to enter the central hole on the vial locator and to insert the two bars along the two long bars.<br>  <br>2. Fasten completely the two fixing screws. |

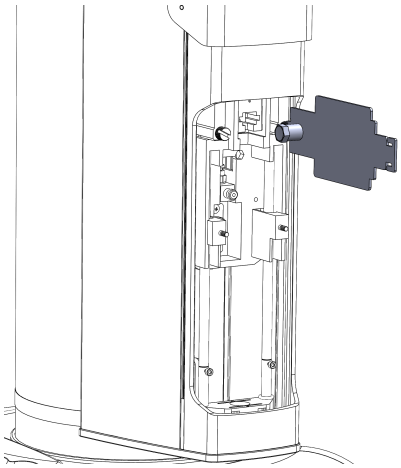
| If... | Then... |
|---|---|
| | 3. By pushing from the indicated point (green circles), manually lift the vial locator until it reaches the sealed tip.<br>  <br>4. Keeping your finger under the vial locator, guide the vial locator down until it returns to its original position, checking that it is free to lower, without the need to pull it.<br>  <br>5. Select **Continue**. |
| the autosampler executes the Automatic Fiber / Sealed tip Zero procedure | proceed to point 9. |

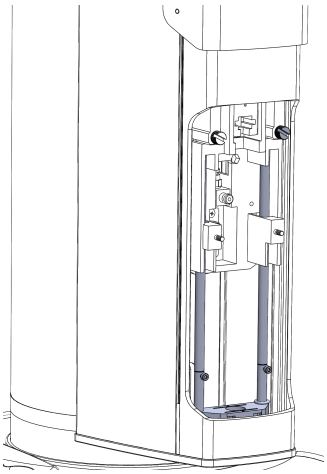
9. Wait the end of the of the Automatic Fiber / Sealed tip Zero procedure.

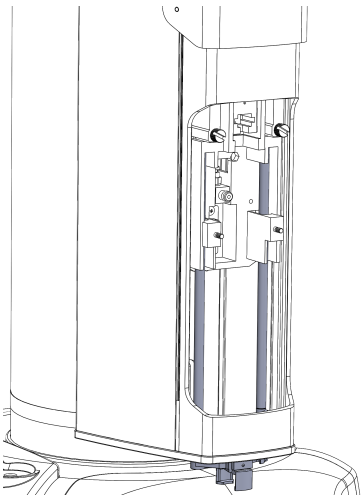
## 8.11.6 Align the vial locator to the needle tip

1. Remove the sealed tip holder. For details, see 'Remove the sealed tip holder' on page 220.
2. Unscrew the safety lock and the needle higher regulator and let the vial locator to rest on the frontal panel.

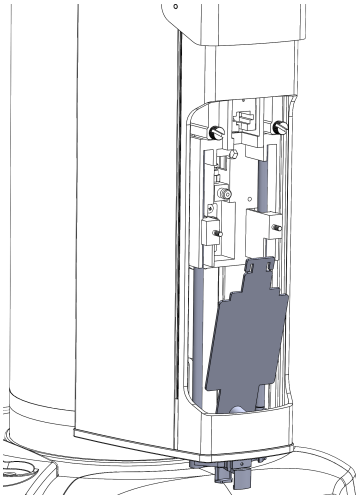


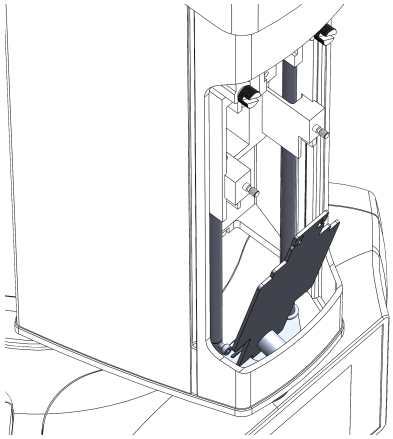


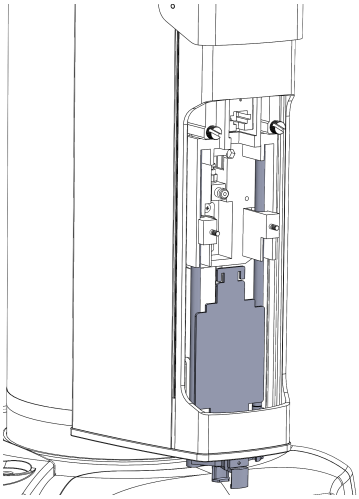




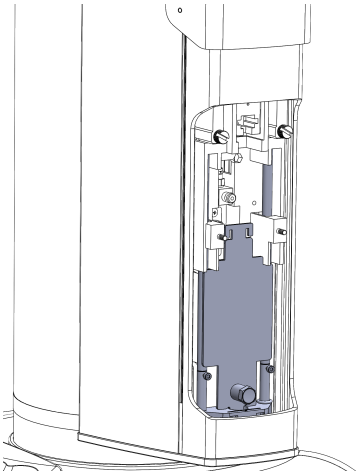
3. Insert the syringe pointer as indicated in the following pictures:





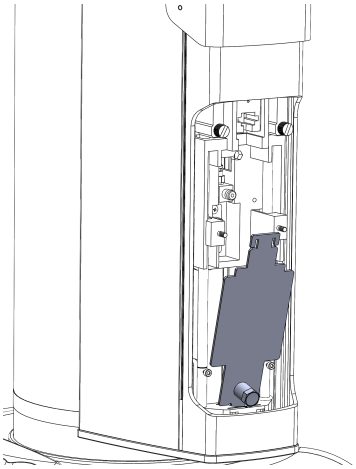


4. Lift up the vial locator until the syringe pointer is completely against the sledge.



5. Using a flat screwdriver, screw the safety lock and the needle height regulator to block the vial locator in position.

6. Remove the syringe pointer.



7. Install the sealed tip holder.

## 8.12 Obtain support in case of autosampler problems

This procedure allows to send an auto-generated email with useful technical information about autosampler.

***Note:*** *This procedure is applicable only if the parameter* ***Log*** *has been set to* ***Enable*** *or* ***Enable w/o warnings****.*

 *Run menu*

1. Select **Generate QR code**. The Generate QR code wizard appears on the PC screen.
2. Follow the wizard instructions.
3. Select **Continue.**

## 8.13 Change the analyzer to be used

*Run menu > Settings > Setup > Alignment > Analyzer Default*

1. If the name of the analyzer to be used is already listed, select it. Otherwise, select **Generic**.
2. Select **OK** to confirm.
3. Select the number of injectors to be used and then **OK** to confirm and **Load**.
4. Select **Continue**.
5. Proceed with the 'Align injectors' procedure on the following section. 70

## 8.14 Realign injectors

*Run menu > Settings > Setup > Alignment*

1. To align the autosampler to the front injector, select **Front Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the front injector adapter.

   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

2. Do what follows:

| If you want to... | Then... |
|---|---|
| confirm the injector alignment | select **Confirm**. |
| align the autosampler to the injector manually | 1. Select **Do Manual**.<br>2. Select the arrows to move the vial locator to the correct position (**Touch Sensor** must be ON).<br>3. Select **Store** to confirm. |

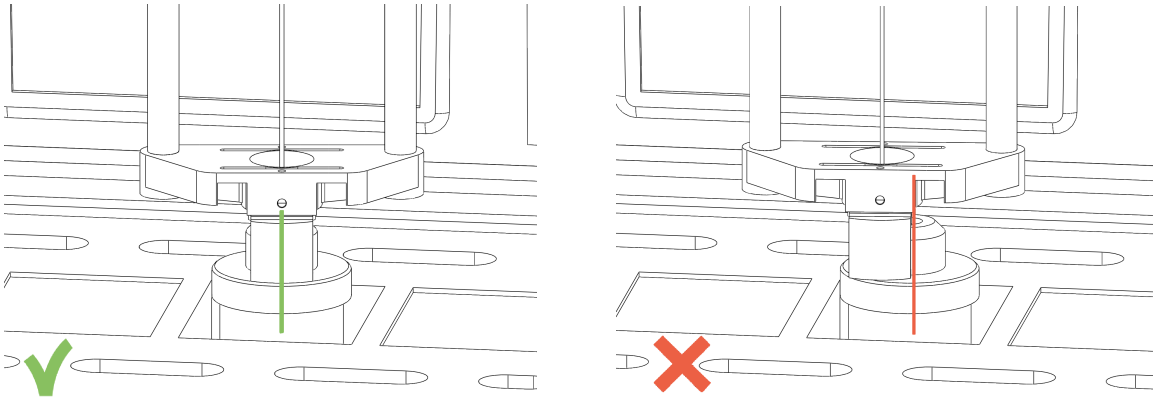
3. Set the desired injection depth: the autosampler tries to insert the needle in the injector.
4. Select **Save** to confirm.
5. Select the desired injection speed (from **Very Low** to **Very High**) and select **Save**: the turret returns to its original position and the **Alignment** menu appears.
6. If the rear injector is present, select **Rear Injector**: the turret moves and the vial locator touches a known part of the autosampler and then the rear injector adapter.

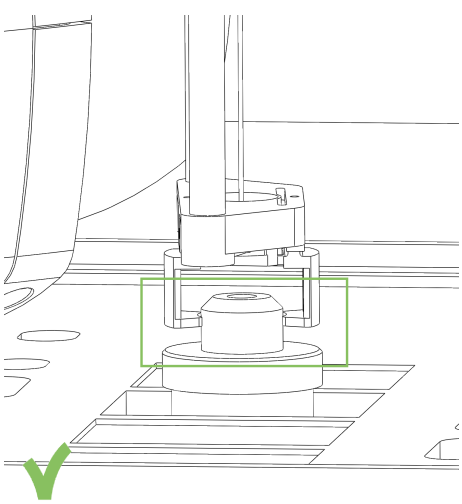
   **CAUTION** Vial locator with needle in motion. Do not touch nor adjust the injector adapter.

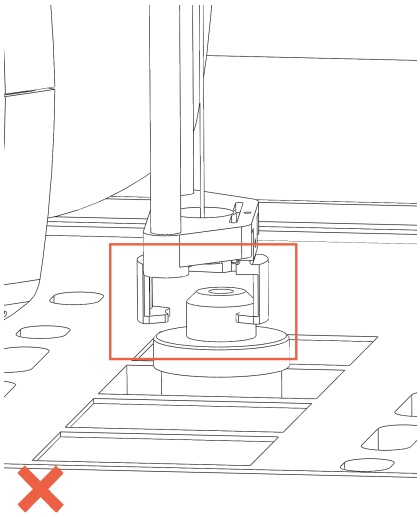
7. Repeat from step 2 to 7.

### Vial locator aligned to the injector adapter

To be aligned, the vial locator must lean against the top of the injector adapter completely.







## 8.15 Reset the position of the vial

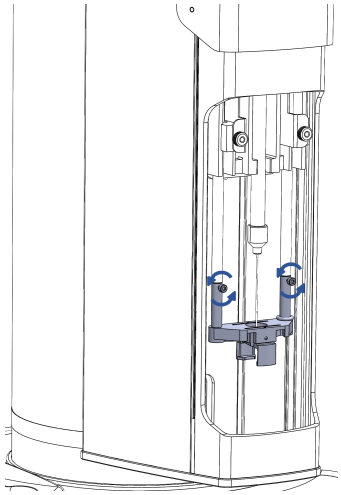
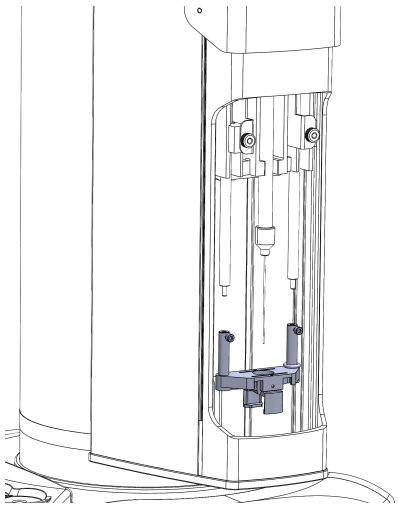
*Run menu > Settings > Setup > Alignment*

1. Select **Touch & Plunger Zero**: the turret moves and the tray opens.
2. Insert a crimped sample vial in position A4 of the rack and in C position of the oven (if using 6ml or 10 ml vial, ensure to insert first the proper spacer in C position). In case wash vial is used, insert it in its position.
3. Select **Continue**: the vial locator touches the wash vial, the sample vial in the rack, the sample vial in the oven, the cover and the injector adapter to memorize their positions.
4. Remove the vial from oven and press **Continue**.
5. At the end of the procedure, when the **Setup menu** appears, select **Exit** > **Exit**.

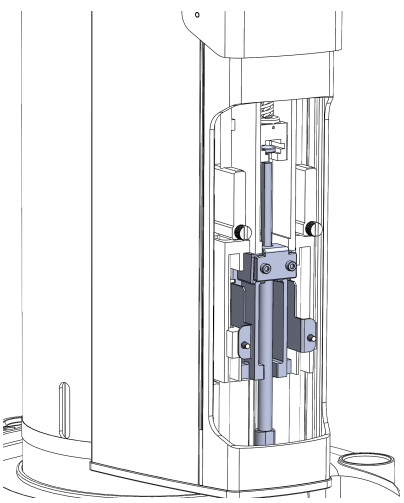
## 8.16 Get out of SPME mode (fiber)

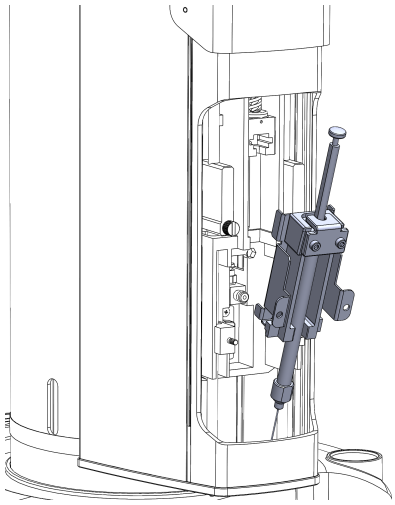
*Run menu > Change Mode*

1. Select the mode you are going to use and select **Continue**.
2. Lift the sliding lid.
3. 

| If the autosampler... | Then... |
|---|---|
| asks to Remove the vial locator | 1. Remove the two fixing screws to remove the vial locator.<br>  <br>  <br>2. Select **Continue**. |
| asks to Remove the fiber holder | proceed to point 4. |

4. Unscrew the finger nuts.
5. Take the syringe pointer, insert its edge in the plunger locker and pull it out.
6. Carefully remove the fiber holder.

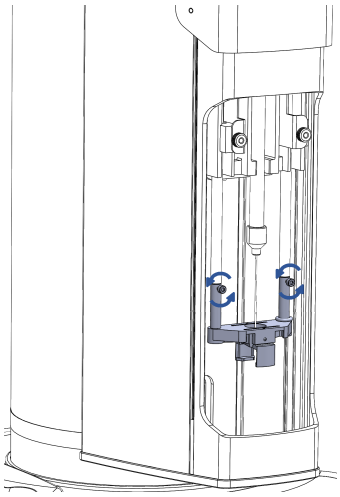
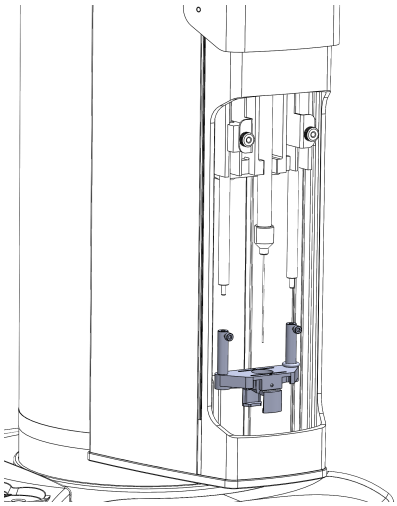




7. Press **Continue**.
8. Follow the instructions of the 'Get in' chapter of the mode you are going to use.

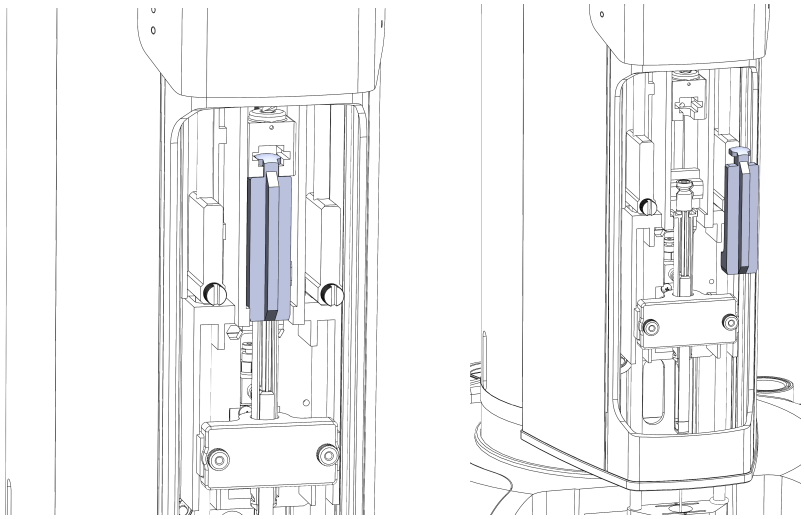
## 8.17 Get out of SPME mode (sealed tip)

1. Select the mode you are going to use and select **Continue**.
2. Lift the sliding lid.
3. Do what follows:

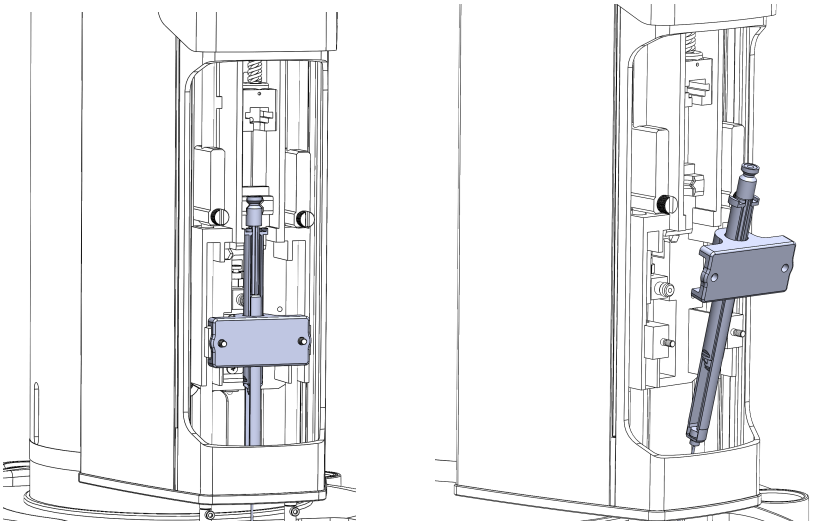
| If the autosampler asks to... | Then... |
|---|---|
| remove the fiber holder or the sealed tip holder | proceed to point 4. |
| remove the vial locator | 1. Remove the two fixing screws to remove the vial locator.<br>  <br>  <br>2. Select **Continue**. |

4. Take the syringe pointer, insert its edge in the plunger locker and pull it out.

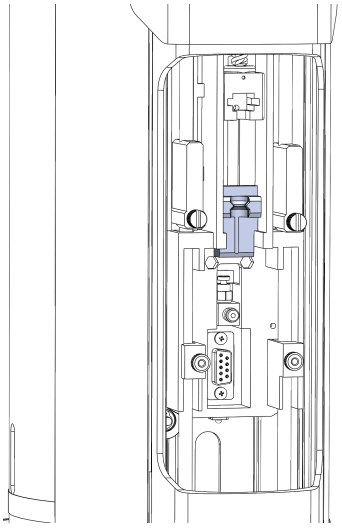
5. Remove the plunger extension.



6. Unscrew the two finger nuts.
7. Carefully remove the sealed tip holder.



8. Remove the sealed tip spacer.



9. Press **Continue**.
10. Follow the instructions of the 'Get in' chapter of the mode you are going to use.

# 9. Screen description in Headspace mode

## 9.1 Screen elements

***Note:*** *The interface may be updated in future. In this case, please follow the screen instructions.*

### 9.1.1 Interacting with the touch screen

The touch screen can be tapped with a finger or a capacitive touch screen stylus.

### 9.1.2 Types of screens

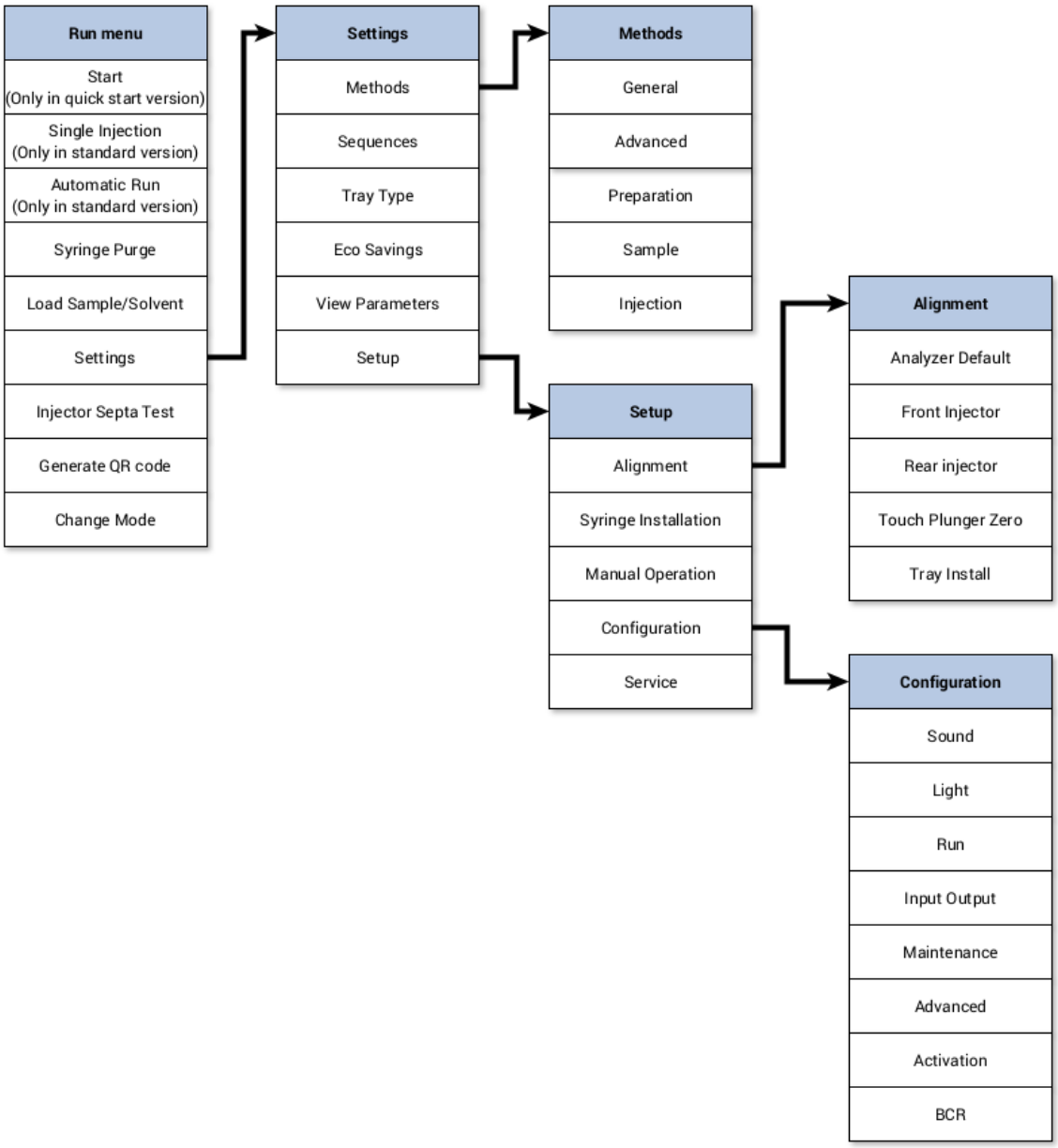
The screens of the touch screen are mainly of two types: menus, with icons, or pages, with a list.

### 9.1.3 Common buttons

| Part | Function |
|---|---|
| / | Move up and down in a list and select an item. |
| / | • Move the needle/plunger up and down.<br>• Open/Close the tray.<br>• Increase and decrease the visualized parameter. |
| / | Move the turret left and right. |
| **OK** | • Confirm the selection.<br>• Confirm a parameter value.<br>• Commute a signal status. |
| **Save** | Save the modifications. |
| **Next** | Go to the next page. |
| **Exit** | Exit the menu. |
| **Cancel** | Exit the page without saving the modifications. |
| **Continue** | Confirm and go to the next page. |
| **Abort** | Stop the autosampler immediately. |
| **Stop** | Pause the running operation. |
| **Menu** | Access additional options during the automatic run. |
| **Resume** | Continue a paused sequence. |
| **Terminate current** | Stop the sequence. The sequence stops only after having completed the injection in progress in the analyzer. |

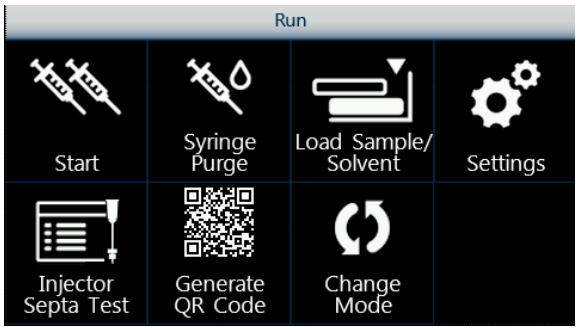
# 9.2 Main menus

## 9.2.1 Screen flowchart

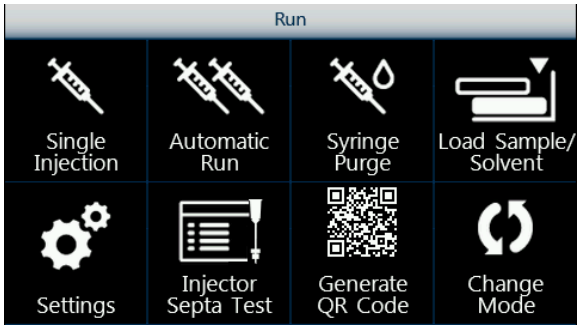


### 9.2.2 Run menu

#### Quick Start version



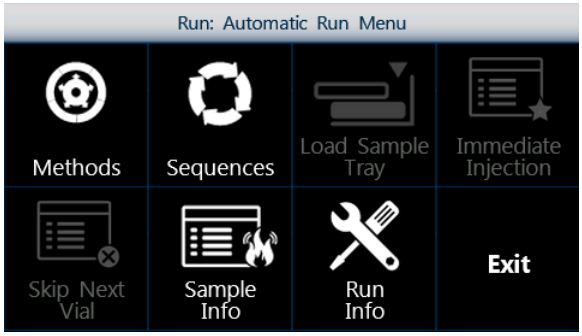

#### Standard version




| List item | Function |
|---|---|
| **Start** | Only in the quick start version. Process all the sample vials listed in all the sequence steps stored. After two consecutive empty positions, the autosampler stops. |
| **Single Injection** | Only in the standard version. Process a single sample vial.<br>For details, see 'Single Injection' on page 247. |
| **Automatic Run** | Only in the standard version. Perform a sequence of injections from different sample vials.<br>For details, see 'Automatic Run' on page 247. |
| **Syringe Purge** | Allow an extra purge of the syringe using the flush gas.<br>For details, see 'Syringe Purge' on page 248. |
| **Load Sample/Solvent** | Open the tray to load/unload the sample vials and racks. |
| **Settings** | Access the **Settings** menu.<br>For details, see 'Settings' on page 248. |
| **Injector Septa Test** | Check if the syringe can pierce the injector septum easily and correctly. |
| **Generate QR code** | Open the Generate QR code wizard on the PC in the HTA Monitor. |
| **Change Mode** | Change the operation mode (Liquid or SPME). |

### 9.2.3 Automatic Run menu

*(during the automatic run) Menu*

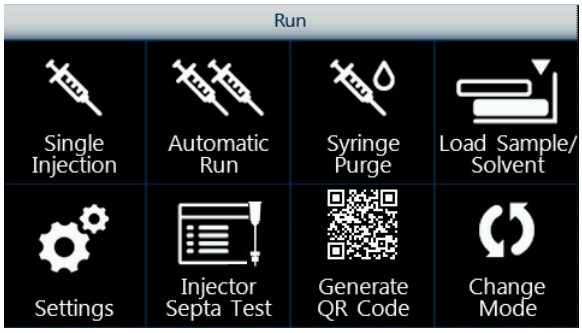


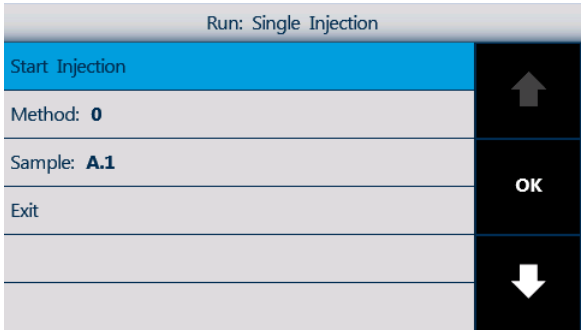

| List item | Function |
|---|---|
| **Methods** | Show the methods menu. |
| **Sequences** | Show the sequences menu. |
| **Load Sample Tray** | Open the tray to add sample vials. |
| **Immediate Injection** | Skip the remaining conditioning time and inject immediately. |
| **Skip Next Vial** | Skip the remaining conditioning time and unload the vial, without to perform the injection. |
| **Sample Info** | View the remaining conditioning time of the samples in the oven. |
| **Run Info** | View important details of the run. |
| **Exit** | Exit the menu and return to the summary page. |

## 9.3 The Run menu (main menu)

### 9.3.1 Single Injection

*Run menu > Single Injection*

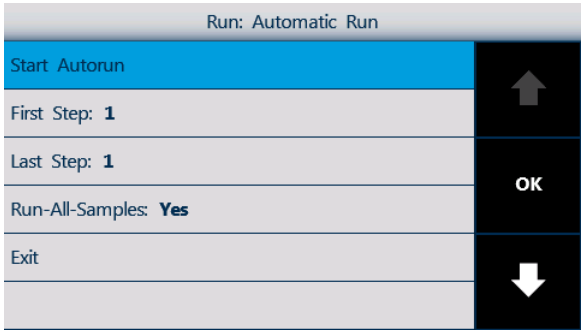



| List item | Description |
|---|---|
| **Start Injection** | Start the single injection set. |
| **Method** | From 0 to 9. |
| **Sample** | Position of the sample vial to be injected in the analyzer. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 9.3.2 Automatic Run

*Run menu > Automatic Run*

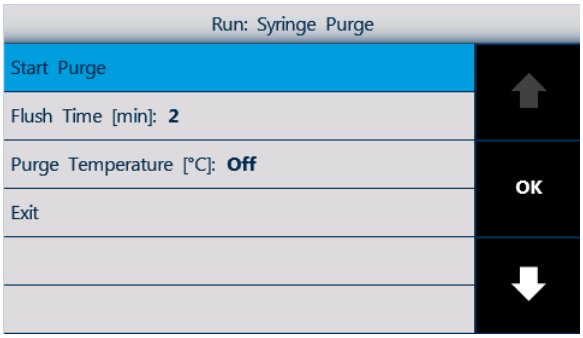



| List item | Function |
|---|---|
| **Start Autorun** | Start the set sequence. |

| List item | Function |
|---|---|
| **First Step** | Set the first step of the sequence. |
| **Last Step** | Set the last step of the sequence. |
| **Run-All-Samples** | Set the behaviour of the autosampler when it detects two consecutive empty positions:<br>• **Yes**: the autosampler stops.<br>• **No**: the autosampler searches for other sample vials. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 9.3.3 Syringe Purge

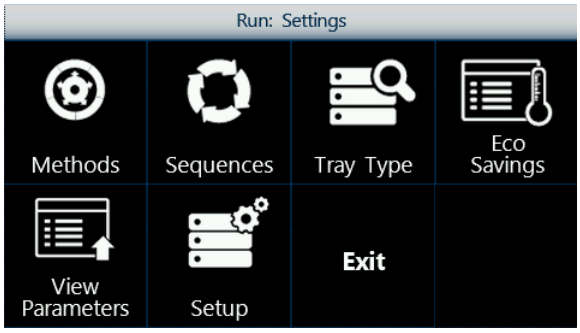
*Run menu > Syringe Purge*




| List item | Description |
|---|---|
| **Start Purge** | Run the syringe purge. |
| **Flush Time [min]** | Duration of the purge procedure. |
| **Purge Temperature [°C]** | Temperature of the purge procedure. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 9.3.4 Settings

*Run menu > Settings*



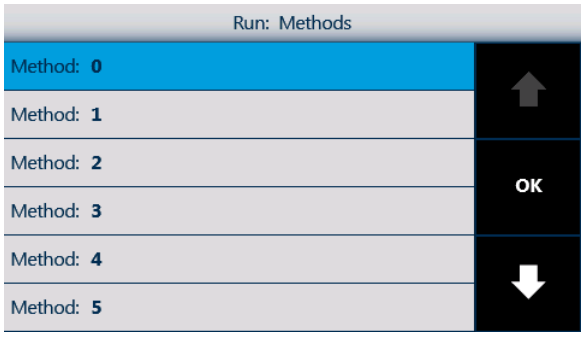

| List item | Function |
|---|---|
| **Methods** | Set the method parameters. |

| List item | Function |
|---|---|
| | For details, see 'Methods' on page 250. |
| **Sequences** | Set the sequence parameters.<br>For details, see 'Sequences' on page 251. |
| **Tray Type** | Set the rack type to be used.<br>For details, see 'Choose the type of rack to be used' on page 130. |
| **View Parameters** | Set the autosampler parameters.<br>For details, see 'View parameters' on page 251. |
| **Setup** | Access the menu for autosampler setup.<br>For details, see 'Setup' on page 253. |
| **Eco Savings** | Set the oven stand by temperature.<br>• **St-by Oven**: allow to set the oven temperature in stand-by conditions.<br>• **St-by Syringe**: allow to set the syringe temperature in stand-by condition.<br>• **St-by Flush**: allow to set if syringe purge is continuously active in stand-by condition. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 9.4 The Settings menu

## 9.4.1 Methods

*Run menu > Settings > Methods*

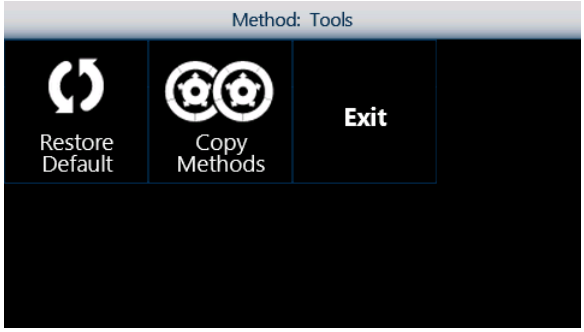




| List item | Function |
|---|---|
| **Method** | Select the method to be modified.<br>For details, see 'The method menu' on page 269. |
| **Tools** | Manage the method.<br>For details, see 'Tools' on page 250. |
| **Exit** | Exit the page and return to the **Settings** menu. |

## 9.4.2 Tools

*Run menu > Settings > Methods > Tools*

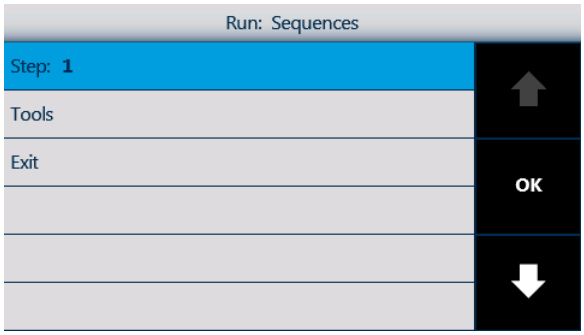



| List item | Function |
|---|---|
| **Restore Default** | Load the default settings for a method. |

| List item | Function |
|---|---|
| **Copy Methods** | Copy the parameters from one method to another. |
| **Exit** | Exit the page and return to the **Methods** menu. |

### 9.4.3 Sequences

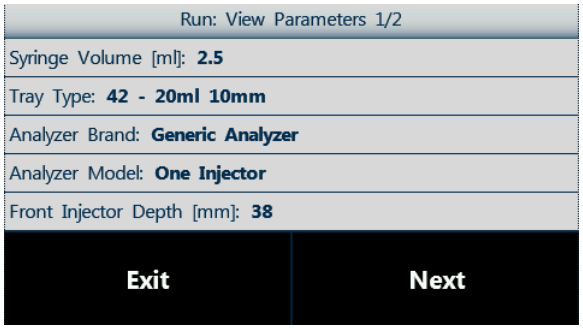
*Run menu > Settings > Sequences*

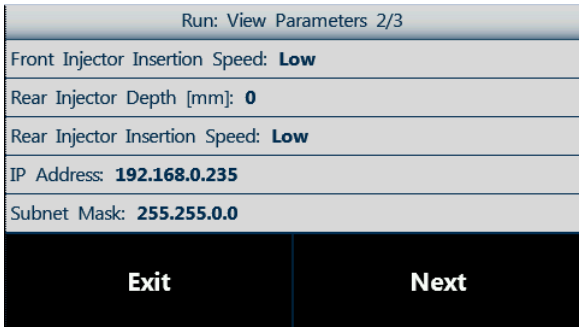



| List item | Function |
|---|---|
| **Step** | Select the desired step.<br>For details, see 'Step' on page 259. |
| **Tools** | Manage the sequence steps.<br>For details, see 'Tools' on page 260. |
| **Exit** | Exit the page and return to the **Settings** menu. |

### 9.4.4 View Parameters

*Run menu > Settings > View Parameters*



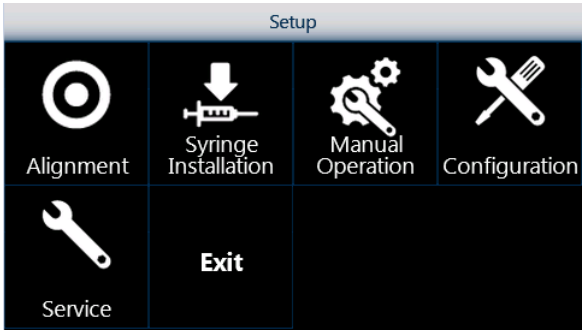




| List item | Description |
|---|---|
| **Syringe Volume [ml]** | Volume of the installed syringe. |
| **Tray Type** | Tray type installed, with number of vial positions, dimension of sample vials and needle draw depth inside the vial. |
| **Analyzer Brand** | Brand of the analyzer to which the autosampler is connected. |
| **Analyzer Model** | Model of the analyzer to which the autosampler is connected. |
| **Front Injector Depth [mm]** | Needle insertion depth into the front injector. |
| **Front Injector Insertion Speed** | Needle insertion speed into the front injector. |
| **Rear Injector Depth [mm]** | Only with rear injector. Needle insertion depth into the rear injector. |
| **Rear Injector Insertion Speed** | Only with rear injector. Needle insertion speed into the rear injector. |
| **IP Address** | LAN connection data. |
| **Subnet Mask** | |
| **Gateway** | |
| **Exit** | Exit the page and return to the **Settings** menu. |

### 9.4.5 Setup

*Run menu > Settings > Setup*

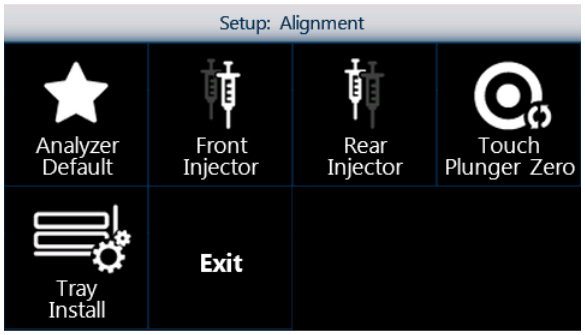



| List item | Function |
|---|---|
| **Alignment** | Access the autosampler alignment procedures to adjust the working positions.<br>For details, see 'Alignment' on page 254. |
| **Syringe Installation** | Install the syringe. |
| **Manual Operation** | Move the plunger, needle, turret and tray for diagnostic or emergency needs. Status:<br>• **RUN**: moving<br>• **IDLE**: not moving<br>• **BUSY**: an error impedes the movement<br>• **NEED ENC ALIGN**: the motor has not been aligned yet (only for service purpose)<br>For details, see 'Manual operation' on page 254. |
| **Configuration** | Edit the autosampler general settings.<br>For details, see 'Configuration' on page 257. |
| **Service** | Password protected. Allow service operations on the autosampler. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 9.5 The Setup menu

## 9.5.1 Alignment

*Run menu > Settings > Setup > Alignment*

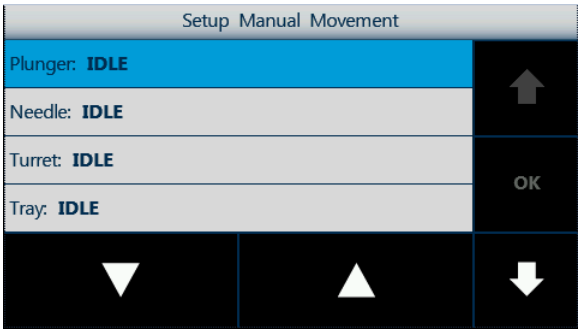


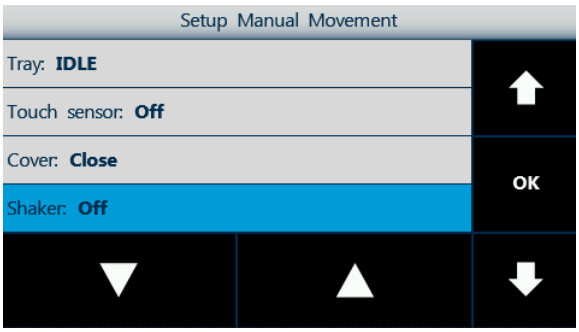

| List item | Function |
|---|---|
| **Analyzer Default** | Select the analyzer on which the autosampler is mounted. |
| **Front Injector** | Enabled only if the analyzer is selected. Align the vial locator to the front injector. |
| **Rear Injector** | Enabled only if the analyzer is selected. Align the vial locator to the rear injector. |
| **Touch Plunger Zero** | Perform the autosampler alignment procedure. |
| **Tray Install** | List the racks needed for the sequence with the related draw depth (mm) and manage the list. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

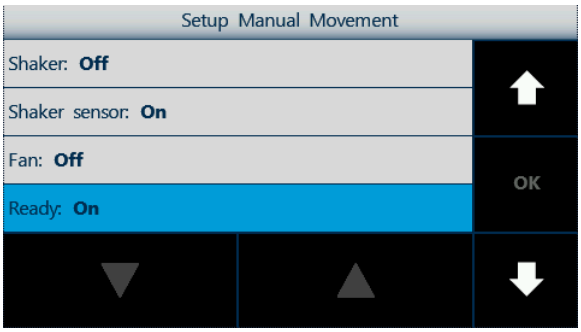
## 9.5.2 Manual Operation

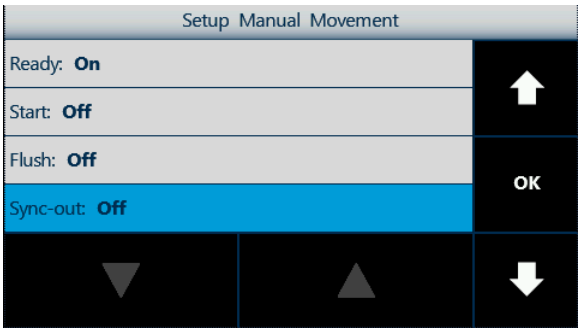
*Run menu > Settings > Setup > Manual Operation*

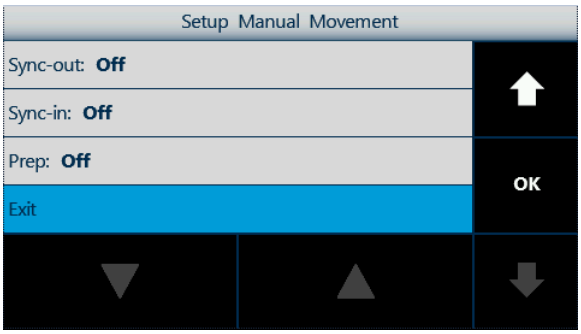
This page is useful for troubleshooting.





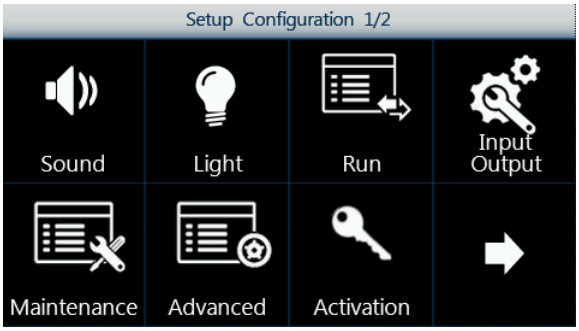

| List item | Description |
|---|---|
| **Plunger** | • Show the status sent by the plunger motor.<br>• If selected, it allows to move the plunger motor. |
| **Needle** | • Show the status sent by the needle motor.<br>• If selected, it allows to move the needle motor. |
| **Turret** | • Show the status sent by the turret motor. |

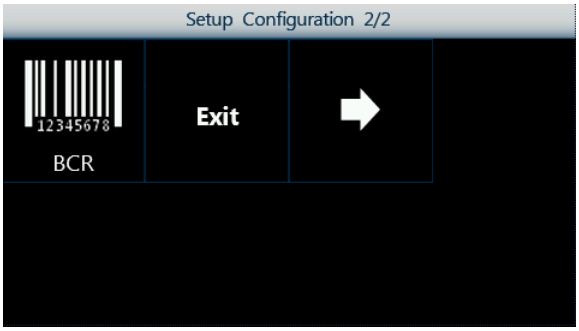
| List item | Description |
|---|---|
| | • If selected, it allows to move the turret motor. |
| **Tray** | • Show the status sent by the tray motor.<br>• If selected, it allows to move the tray motor. |
| **Touch sensor** | Status of the touch sensor:<br>• **On**: the vial locator has detected the object.<br>• **Off**: the vial locator has not detected the object. |
| **Cover** | • Show the status sent by cover motor.<br>• If selected, it allows to move the cover motor. |
| **Shaker** | Allow to select a defined speed and, by pressing **OK** button, to activate it at the defined speed.<br>It is used for service purpose. |
| **Shaker sensor** | Status of the shaker sensor:<br>• **On**: the shaker sensor is on.<br>• **Off**: the shaker sensor is off.<br>It is used for service purpose. |
| **Fan** | Allow to select a defined speed and, by pressing **OK** button, to activate it at the defined speed.<br>It is used for service purpose. |
| **Ready** | Signal sent by the analyzer to communicate that it has finished the analysis.<br>• **On**<br>• **Off** |
| **Start** | Signal sent by the autosampler to communicate that it has started the run.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Flush** | Status of the Flush valve.<br>Select **OK** to switch the Flush valve status. |
| **Sync-out** | Status of the sync-out signal.<br>Select **OK** to switch the signal. |
| **Sync-in** | Status of the sync-in signal.<br>• **On**<br>• **Off** |
| **Prep** | Signal sent by the autosampler to communicate to quit the PREP status and to go in READY status.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Exit** | Exit the page and return to the **Setup** menu. |

### 9.5.3 Configuration

*Run menu > Settings > Setup > Configuration*

This menu contains general settings of the autosampler.



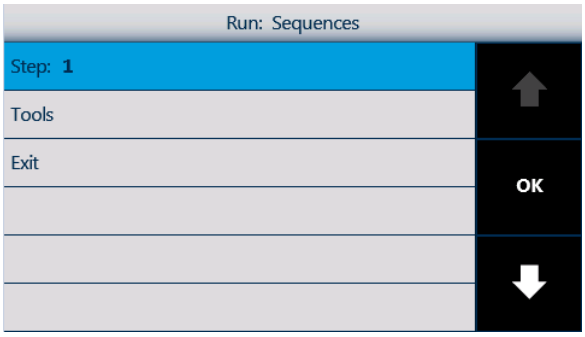

| List item | Function |
|---|---|
| **Sound** | Change the sound effects of the autosampler:<br>• **Level 2**: emit a sound when the screen is selected<br>• **Level 1**: emit a sound in the following cases:<br>  ○ The single injection is finished.<br>  ○ The sample has been injected in the analyzer.<br>  ○ **Save** or **Store** have been selected.<br>  ○ The autosampler memory has been erased.<br>• **Level 0**: no sound |
| **Light** | Change the syringe illumination settings:<br>• **On**: syringe LED on<br>• **Off**: syringe LED off<br>• **Injection**: syringe LED on during injection only |
| **Run** | Change the settings for the injection sequence.<br>For details, see 'Run' on page 261. |
| **Input Output** | Change the input/output parameters to/from the analyzer.<br>For details, see 'Input Output' on page 262. |
| **Maintenance** | Show information and allow to change the settings of the preventive maintenance counters.<br>For details, see 'Maintenance' on page 263. |
| **Advanced** | Password protected. Edit the advanced parameters of the autosampler. |

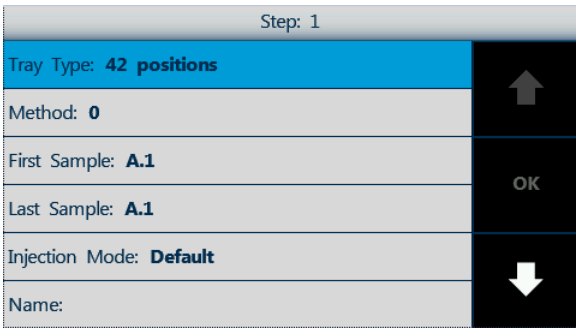
| List item | Function |
|---|---|
| **Activation** | Insert the password for the optional features. |
| **BCR** | Show information about the sample vial barcode and change the barcode reader settings.<br>For details, see 'BCR' on page 265. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

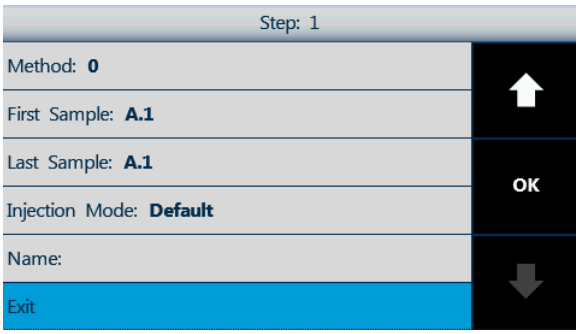
# 9.6 The Sequences page

## 9.6.1 Step

*Run menu > Settings > Sequences > Step*



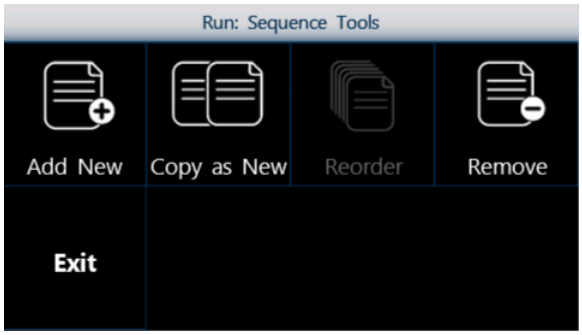




| List item | Description |
|---|---|
| **Tray Type** | Type of rack to be used. |
| **Method** | Method to be used. |
| **First Sample** | Position of the first sample vial to be processed with the selected method. |
| **Last Sample** | Position of the last sample vial to be processed with the selected method.<br>All the sample vials from the position set in **First Sample** to this one will be processed. |
| **Injection Mode** | • **Default**: the autosampler injects in the injector defined in 'Run' on page 261.<br>• **Front**: the autosampler injects only in the front injector.<br>• **Rear**: the autosampler injects only in the rear injector.<br>• **Confirmation**: the autosampler injects the same sample in both injectors. |

| List item | Description |
|---|---|
| **Name** | Name of the sequence step.<br>Editable from HTA Autosampler Manager. |
| **Exit** | Exit the page and return to the **Sequences** page. |

### 9.6.2 Tools

*Run menu > Settings > Sequences > Tools*



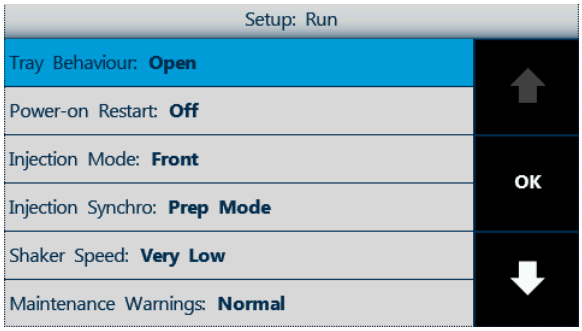

| List item | Function |
|---|---|
| **Add New** | Add a new sequence step. |
| **Copy as New** | Create a new sequence step by copying the parameters of an existing ones. |
| **Reorder** | Change the order of the sequence steps. |
| **Remove** | Remove a sequence step. |
| **Exit** | Exit the page and return to the **Sequences** page. |

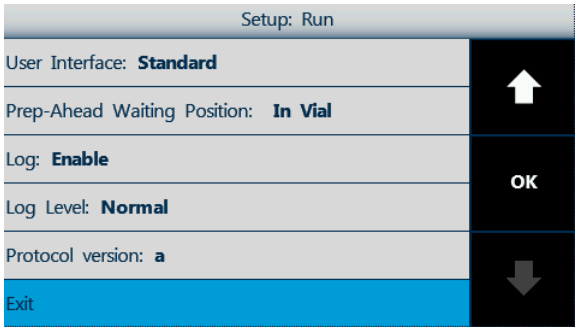
# 9.7 The Configuration menu

## 9.7.1 Run

*Run menu > Settings > Setup > Configuration > Run*

This page allows to change the autosampler behaviour during the run.



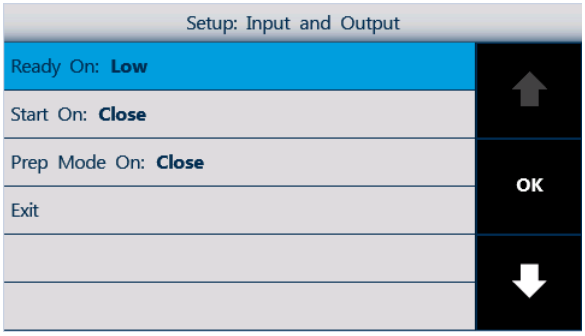




| List item | Function |
|---|---|
| **Tray Behaviour** | Set if the tray must stay open or closed during the run. |
| **Power-on Restart** | Set the autosampler restart after a power failure during the run:<br>• **On**: the run restarts.<br>• **Off**: the run does not restart and the **Run** menu appears. |
| **Injection Mode** | Only if two injectors are present. Set the default injector in which to inject the sample.<br>• **Front**: the autosampler injects only in the front injector.<br>• **Rear**: the autosampler injects only in the rear injector.<br>• **Confirmation**: the autosampler injects the same sample in both injectors. |
| **Injection Synchro** | Set the autosampler behaviour in relation to the analyzer.<br>For details, see 'Injection Synchro' on page 266. |
| **Shaker Speed** | Define the shaker speed used during the run.<br>• **Very Low**<br>• **Low**<br>• **Normal**<br>• **High**<br>• **Very High** |
| **Maintenance Warning** | Set when the maintenance warning messages can appear:<br>• **Normal**: at Start up and at the beginning of each run, if the set limit is reached. |

| List item | Function |
|---|---|
| | • **Only at Start up**: at the beginning of each run, if the set limit is reached. |
| **User Interface** | Set the version of the **Run** menu:<br>• **Standard**: version with all buttons<br>• **Quick Start**: version with less buttons |
| **Prep-Ahead Waiting Pos.** | For special application only. |
| **Log** | Set if the autosampler must send the logs to HTA Monitor.<br>• **Enable**: the autosampler sends logs to HTA Monitor,<br>• **Enable w/o warnings**: the autosampler sends logs to HTA Monitor, but does not show warnings in case the PC is not connected to the autosampler.<br>• **Disable**: the autosampler does not send logs to HTA Monitor. |
| **Log Level** | Set the type of logs the autosampler sends to the HTA Monitor.<br>• **Normal**: the autosampler sends the standard logs,<br>• **Troubleshooting**: the autosampler sends more detailed logs to HTA Monitor. |
| **Protocol version** | Set the communication protocol version used by the autosampler.<br>***Note:*** *Do not change unless:*<br>○ *you operate by CDS through HTA software connectors*<br>○ *required by your third party software documentation*<br>○ *required by your Customer Representative* |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 9.7.2 Input Output

*Run menu > Settings > Setup > Configuration > Input Output*

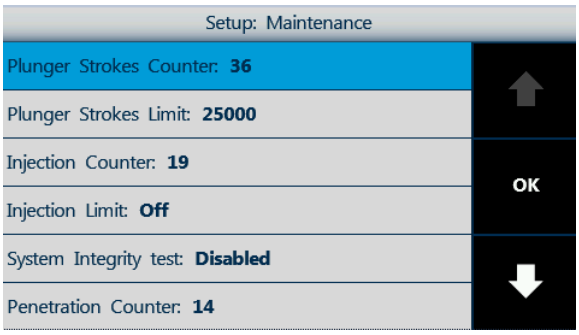


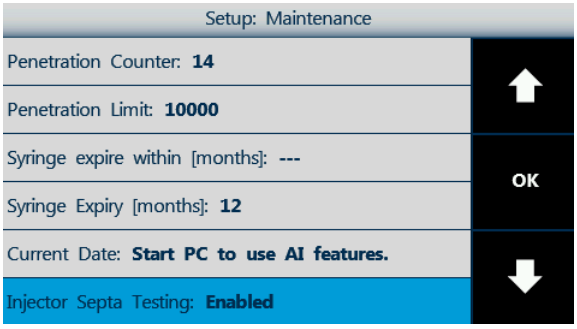

| List item | Function |
|---|---|
| **Ready On** | Set the ON state of the Ready signal. This signal is used to start the autosampler and must match the signal given by the analyzer.<br>• **Low**: the autosampler starts the injection when the analyzer provides a low logical level of voltage for the Ready signal.<br>• **High**: the autosampler starts the injection when the analyzer provides a high logical level of voltage (+5 V) for the Ready signal. |
| **Start On** | Set the ON state of the Start signal from the autosampler to the analyzer during the injection. This parameter has to be set according to the analyzer.<br>• **Open**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are |

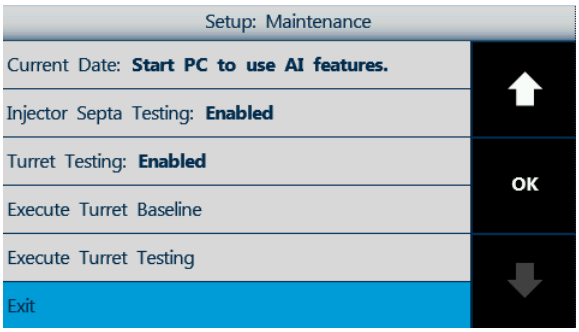
| List item | Function |
|---|---|
| | open for about one second. They are closed before and after the injection.<br>• **Close**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are closed for about one second (short- circuit). They are open before and after the injection. |
| **Prep Mode On** | Set the ON state of the Prep Mode signal from the autosampler to the analyzer during the run. This parameter has to be set according to the analyzer.<br>• **Open**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are open for about one second. If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received.<br>• **Close**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are closed for about one second (short- circuit). If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received. |
| **Exit** | Exit the page and return to the Configuration menu. |

### 9.7.3 Maintenance

*Run menu > Settings > Setup > Configuration > Maintenance*






| List item | Description |
|---|---|
| **Plunger Strokes Counter** | Number of plunger strokes since the last reset. It allows to monitor the syringe wear- and- tear.<br>This counter is automatically reset after a new syringe installation. |
| **Plunger Strokes Limit** | Limit of plunger strokes. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Injection Counter** | Number of injections performed in the analyzer since the last reset. It allows to predict when the analyzer septum or injection liner should be replaced. |
| **Injection Limit** | Limit of injection number. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **System Integrity Test** | Procedure to check syringe status before to execute a sequence.<br>• **Enable**<br>• **Disable**<br>To be performed, it requires the 'Syringe integrity tool' option. |
| **Penetration Counter** | Total number of perforation of the sample vial septa, and of the injector. It allows to predict when the syringe should be replaced, due to needle wear. |
| **Penetration Limit** | Limit of perforation of the sample vial septa, and of the injector. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Syringe expiry within [months]** | Only if connected to the HTA Monitor. Remaining months to the syringe expiration. It allows to predict when the syringe should be replaced: it is particularly relevant when the autosampler performs a few injection per day. |
| **Syringe Expiry [months]** | Only if connected to the HTA Monitor. Month in which the syringe expires. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Current Date** | Only if connected to the HTA Monitor. Current Date. |
| **Injector Septa Testing** | Procedure to avoid damaging the syringe needle during the injection.<br>• **Enable**<br>• **Disable** |
| **Turret Testing** | Initializing procedure performed by the autosampler every times it is switched on. It checks the correct movement of the turret to verify the good functioning of the autosampler.<br>• **Enable**<br>• **Disable** |

| List item | Description |
|---|---|
| **Execute Turret Baseline** | Perform the baseline necessary to perform the Turret Testing. To be performed only on Customer Representative request. |
| **Execute Turret Testing** | Perform a Turret Testing. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 9.7.4 BCR

*Run menu > Settings > Setup > Configuration > BCR*

| List item | Description |
|---|---|
| **Enable** | Read the sample vial barcode and save it in the autosampler memory so that the information contained can be read by the available software:<br>• **Yes**<br>• **No** |
| **On Reading Error** | Behaviour if a reading error occurs:<br>• **Skip**: skip the run for the vial.<br>• **Process**: perform the run anyway. |
| **Test** | Test the alignment of the turret in front of the barcode reader for correct reading. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

# 9.8 The Run page

## 9.8.1 Injection Synchro

*Run menu > Settings > Setup > Configuration > Run > Injection Synchro*

***Note: Prep Mode** is available only for some analyzer. Check in your autosampler mounting kit instruction manual if this feature is supported on your analyzer.*

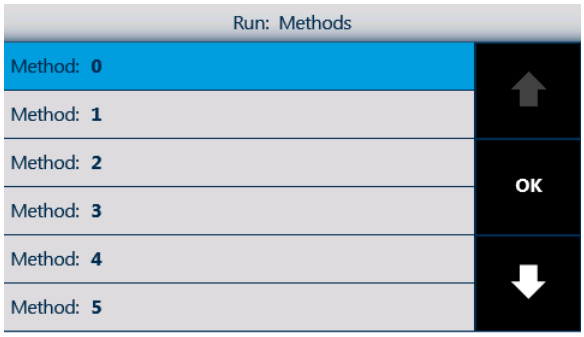
***Note**: If using **Prep Mode**, it is mandatory to start sample list on analyzer software before to start the run on the autosampler, otherwise the analysis could be not executed and/or not saved properly.*

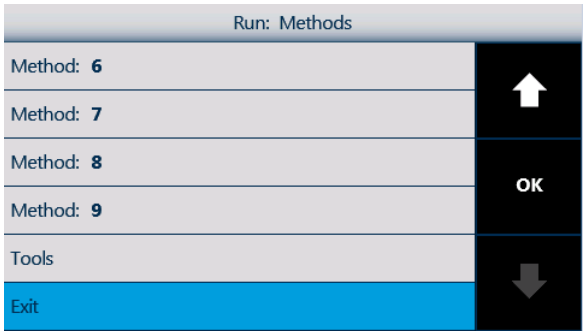
| Injection Synchro | Sample preparation start | Sample injection | Start signal to the analyzer |
|---|---|---|---|
| **Normal** | At the reception of the Ready signal from the analyzer. | After ending sample preparation the autosampler checks again the presence of the Ready signal from the analyzer and then starts the injection. | At the beginning of the syringe plunger movement. |
| **Trigger** | | | |
| **A-Start** | | | When the autosampler touches the injector. |
| **D-Start** | | | At the end of the syringe plunger movement. |
| **EA** | | | At the beginning of the syringe plunger movement. |
| **Normal w/o Rdy** | At the end of the analysis time set in the autosampler method. | After the ending sample preparation. | |
| **DIN** | At the reception of the Ready signal from the analyzer. | No injection is carried out. | At the beginning of the syringe plunger movement, when needle has reached the proper depth inside the vial. |
| **Prep Mode** | At the end of the analysis time set in the autosampler method, the autosampler sends a PREP signal to the analyzer and wait for the Ready signal from the analyzer. | After the autosampler has checked that the Ready signal is still present. | When the syringe plunger starts to move with the syringe in the injector. |

# 9.9 The Method page

## 9.9.1 Method

*Run menu > Settings > Methods > (method) OK*





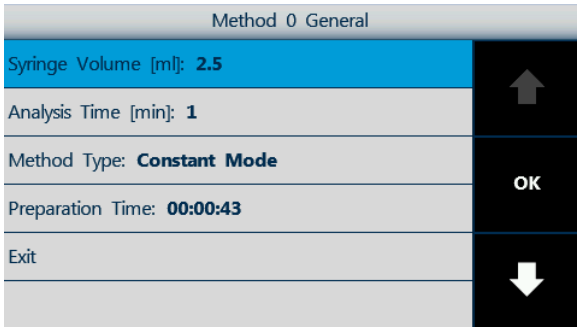
| List item | Function |
|---|---|
| **General** | Access the page for setting the general parameters of the method.<br>For details, see 'General' on page 269. |
| **Advanced** | Access the page for setting the advanced parameters of the method.<br>For details, see 'Advanced' on page 269. |
| **Preparation** | Access the page for setting the preparation parameters of the method.<br>For details, see 'Preparation' on page 270. |
| **Sample** | Access the page for setting the sample parameters of the method.<br>For details, see 'Sample' on page 270. |
| **Injection** | Access the page for setting the injection parameters of the method.<br>For details, see 'Injection' on page 271. |

| List item | Function |
|---|---|
| **Exit** | Exit the menu and return to the **Methods** page. |

# 9.10 The Method menu

## 9.10.1 General

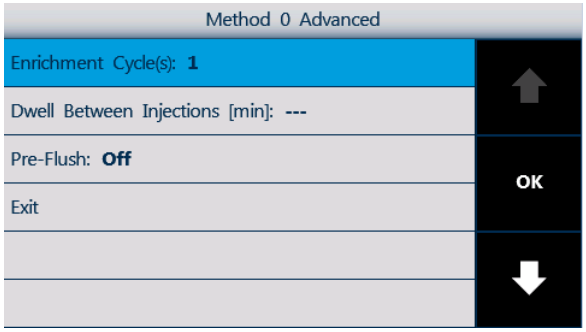
*Run menu > Settings > Methods > (method) OK > General*




| List item | Description |
|---|---|
| **Syringe Volume [ml]** | Volume of the syringe. The syringe volume affects the limits of other parameters such as speed and volume. |
| **Analysis Time [min]** | Time of the sample analysis. |
| **Method Type** | Parameter not editable. |
| **Preparation Time** | Display how long the autosampler needs to perform a cycle. It is calculated from the instrument and is not editable (Time needed to transfer the vial from the tray to the incubator, filling time, injection time, etc.). |
| **Exit** | Exit the page and return to the selected method page. |

## 9.10.2 Advanced

*Run menu > Settings > Methods > (method) OK > Advanced*

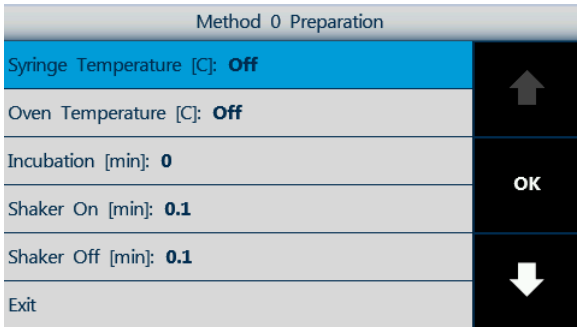



| List item | Function |
|---|---|
| **Enrichment Cycle(s)** | The number of enrichments in the injection cycle. The enrichment allows the user to inject a higher quantity of sample.<br>***Note:*** *It is only possible to enrich the sample by multiple injections if the gas chromatograph can support this feature by a proper trapping system.* |
| **Dwell Between Injections [min]** | Delay time between any enrichment, to allow the headspace vial to equilibrate. |
| **Pre-Flush** | Let the flush gas to pass thorugh the syringe immediately before to insert the needle in the vial; it is used to eject the room air from the syringe before to take the |

| List item | Function |
|---|---|
| | sample. |
| **Exit** | Exit the page and return to the selected method page. |

## 9.10.3 Preparation

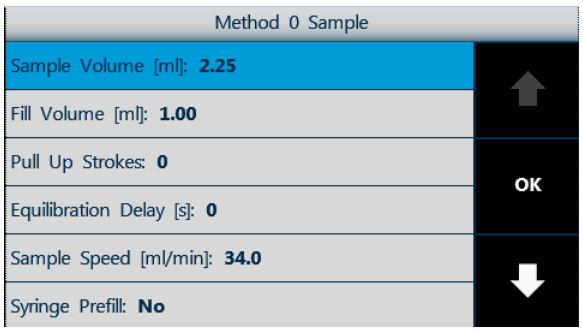
*Run menu > Settings > Methods > (method) OK > Preparation*

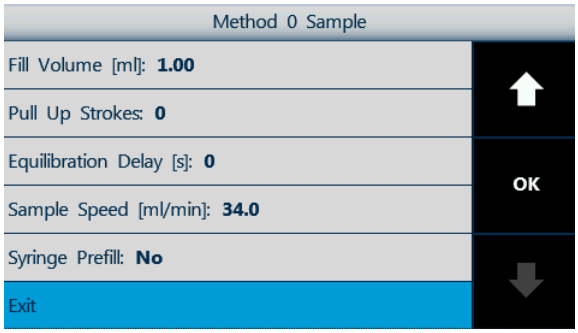



| List item | Function |
|---|---|
| **Syringe Temperature [°C]** | Temperature of syringe conditioning. This value can be between 40°C and 150°C, or off (inactive conditioning). |
| **Oven Temperature [°C]** | Temperature of oven conditioning. This value can be between 40°C and 170°C, or Off (inactive conditioning). |
| **Incubation Time [min]** | Sample incubation time inside the oven. |
| **Shaker On [min]** | Interval time during incubation time in which the sample is shaken. |
| **Shaker Off [min]** | Interval time during incubation time in which the sample is not shaken. |
| **Exit** | Exit the page and return to the selected method page. |

## 9.10.4 Sample

*Run menu > Settings > Methods > (method) OK > Sample*



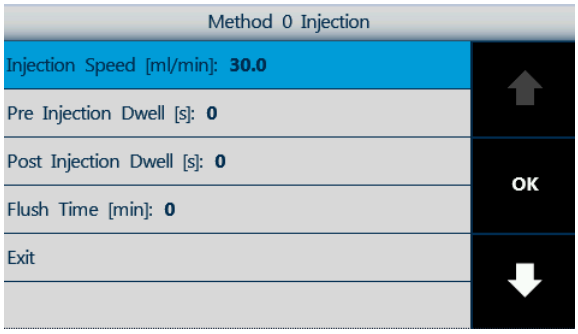




| List item | Function |
|---|---|
| **Sample Volume [ml]** | Sample volume to be injected in the analyzer. |
| **Fill Volume [ml]** | Sample volume to be aspired for the syringe prefill and the pull up strokes. |
| **Pull Up Strokes** | Up and down movements of the plunger to homogenize the head space sample in the vial. |

| List item | Function |
|---|---|
| **Equilibration Delay [s]** | Delay time between sample pick up and the syringe moving from the sample. |
| **Sample Speed [ml/min]** | Speed of the plunger during the syringe filling operation and pull up operation. |
| **Syringe Prefill** | Syringe-filling mode.<br>• **Yes**: the syringe plunger has to be pulled up...<br>• **No**: the syringe plunger has to be pulled down...<br>...when the needle comes in the vial, before the septum has been pierced. |
| **Exit** | Exit the page and return to the selected method page. |

### 9.10.5 Injection

*Run menu > Settings > Methods > (method) OK > Injection*




| List item | Function |
|---|---|
| **Injection speed [ml/min]** | Syringe dispensation speed while injecting the sample in the analyzer. |
| **Pre Injection Dwell [s]** | Waiting time of the needle inside the injector before injecting the sample in the analyzer. This allows the syringe temperature to level with the analyzer injector temperature. |
| **Post Injection Dwell [s]** | Waiting time of the needle inside the injector after having injected the sample in the analyzer. This allows the complete evaporation of the sample. |
| **Flush Time [min]** | Time during which the syringe is flushed with gas after injection. |
| **Exit** | Exit the page and return to the selected method page. |

# 10. Screen description in Liquid mode

## 10.1 Screen elements

***Note:*** *The interface may be updated in future. In this case, please follow the screen instructions.*

### 10.1.1 Interacting with the touch screen

The touch screen can be tapped with a finger or a capacitive touch screen stylus.

### 10.1.2 Types of screens

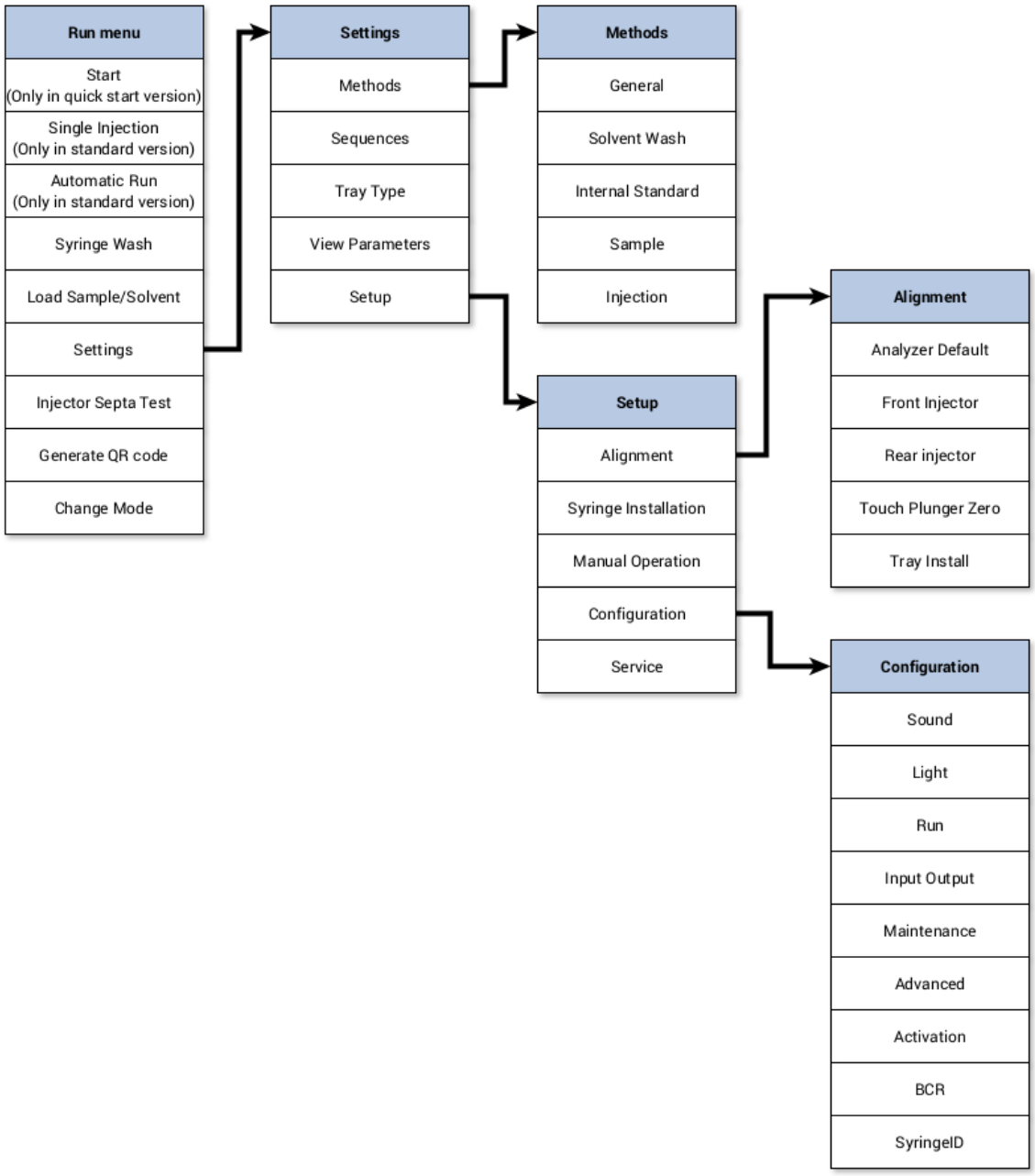
The screens of the touch screen are mainly of two types: menus, with icons, or pages, with a list.

### 10.1.3 Common buttons

| Part | Function |
|---|---|
| / | Move up and down in a list and select an item. |
| / | • Move the needle/plunger up and down.<br>• Open/Close the tray.<br>• Increase and decrease the visualized parameter. |
| / | Move the turret left and right. |
| **OK** | • Confirm the selection.<br>• Confirm a parameter value.<br>• Commute a signal status. |
| **Save** | Save the modifications. |
| **Next** | Go to the next page. |
| **Exit** | Exit the menu. |
| **Cancel** | Exit the page without saving the modifications. |
| **Continue** | Confirm and go to the next page. |
| **Abort** | Stop the autosampler immediately. |
| **Stop** | Pause the running operation. |
| **Menu** | Access additional options during the automatic run. |
| **Resume** | Continue a paused sequence. |
| **Terminate current** | Stop the sequence. The sequence stops only after having completed the injection in progress in the analyzer. |

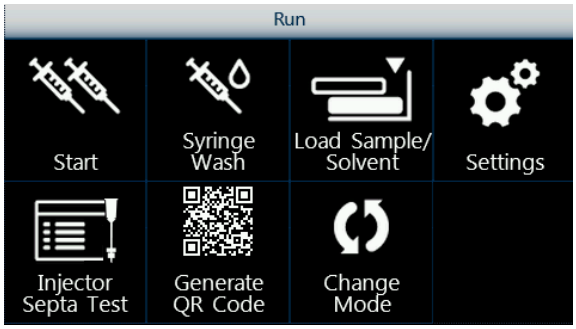
# 10.2 Main menus

## 10.2.1 Screen flowchart

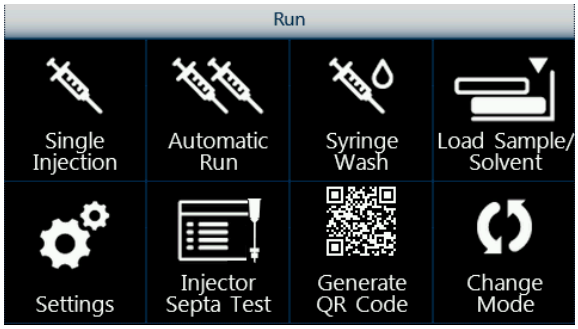


### 10.2.2 Run menu

#### Quick Start version



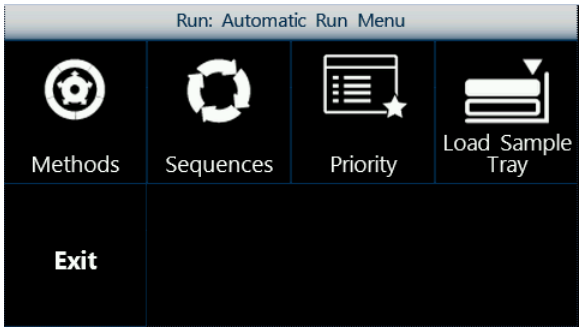

#### Standard version




| List item | Function |
|---|---|
| **Start** | Only in the quick start version. Process all the sample vials listed in all the sequence steps stored. After two consecutive empty positions, the autosampler stops. |
| **Single Injection** | Only in the standard version. Process a single sample vial.<br>For details, see 'Single Injection' on page 277. |
| **Automatic Run** | Only in the standard version. Perform a sequence of injections from different sample vials.<br>For details, see 'Automatic Run' on page 278. |
| **Syringe Wash** | Allow an extra wash of the syringe with the solvent/s.<br>For details, see 'Syringe Wash' on page 278. |
| **Load Sample/Solvent** | Open the tray to load/unload the solvent vials, sample vials and racks. |
| **Settings** | Access the **Settings** menu.<br>For details, see 'Settings' on page 279. |
| **Injector Septa Test** | Check if the syringe can pierce the injector septum easily and correctly. |
| **Generate QR code** | Open the Generate QR code wizard on the PC in the HTA Monitor. |
| **Change Mode** | Change the operation mode (Headspace or SPME). |

### 10.2.3 Automatic Run menu

*(during the automatic run) Menu*

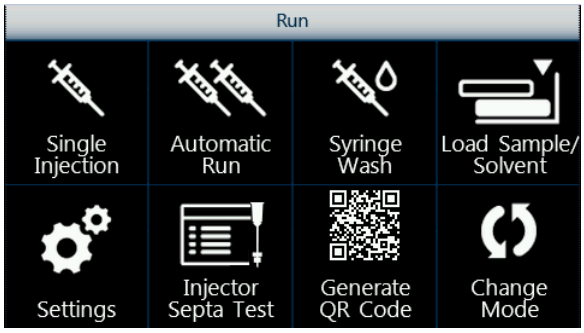


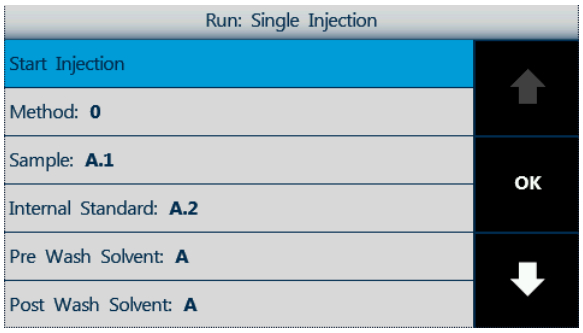

| List item | Function |
|---|---|
| **Methods** | Show the methods menu. |
| **Sequences** | Show the sequences menu. |
| **Priority** | Set a priority injection during the automatic run in progress. |
| **Load Sample Tray** | Open the tray to add sample vials. |
| **Exit** | Exit the menu and return to the summary page. |

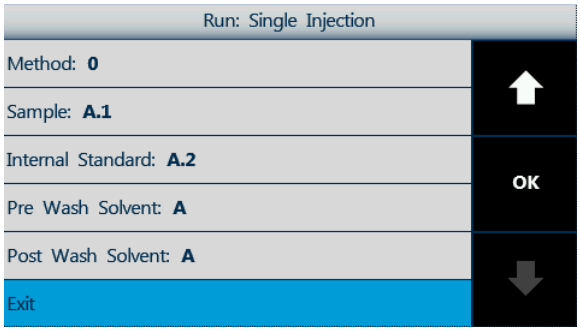
# 10.3 The Run menu (main menu)

## 10.3.1 Single Injection

*Run menu > Single Injection*



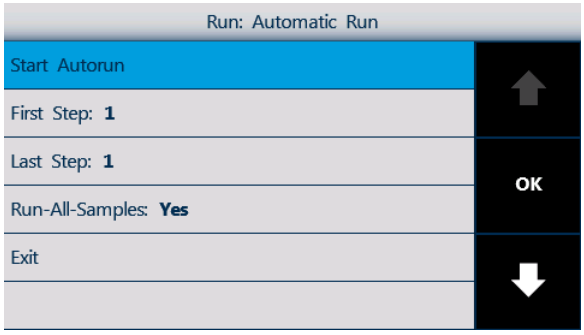




| List item | Description |
|---|---|
| **Start Injection** | Start the single injection set. |
| **Method** | From 0 to 9. |
| **Sample** | Position of the sample vial to be injected in the analyzer. |
| **Internal Standard** | Position of the internal standard vial. |
| **Pre Wash Solvent** | Position of the solvent vial/s to be used for the pre- washing operations. |
| **Post Wash Solvent** | Position of the solvent vial/s to be used for the post- washing operations. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 10.3.2 Automatic Run

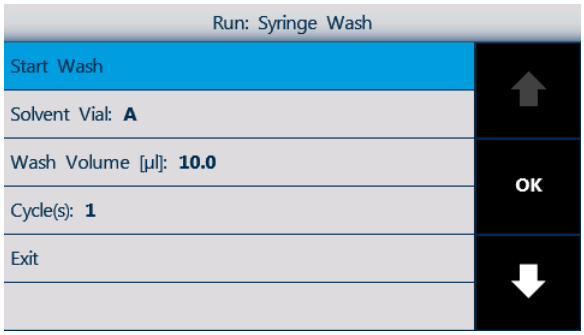
*Run menu > Automatic Run*




| List item | Function |
|---|---|
| **Start Autorun** | Start the set sequence. |
| **First Step** | Set the first step of the sequence. |
| **Last Step** | Set the last step of the sequence. |
| **Run-All-Samples** | Set the behaviour of the autosampler when it detects two consecutive empty positions:<br>• **Yes**: the autosampler stops.<br>• **No**: the autosampler searches for other sample vials. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 10.3.3 Syringe Wash

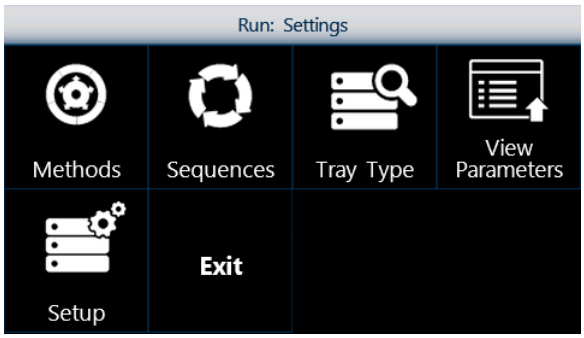
*Run menu > Syringe Wash*




| List item | Description |
|---|---|
| **Start Wash** | Run the syringe wash. |
| **Solvent Vial** | Position of the solvent vial |
| **Wash Volume [µl]** | Amount of solvent to be used for each wash cycle |
| **Cycle(s)** | Number of wash cycles |
| **Exit** | Exit the page and return to the **Run** menu. |

### 10.3.4 Settings

*Run menu > Settings*

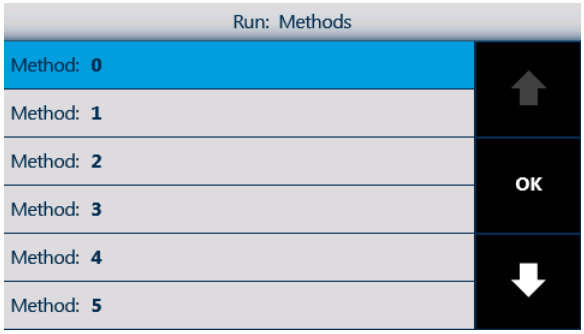


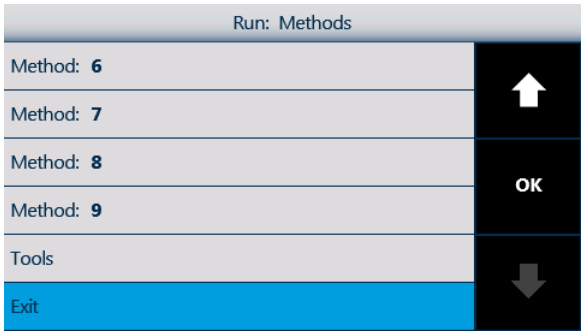

| List item | Function |
|---|---|
| **Methods** | Set the method parameters.<br>For details, see 'Methods' on page 280. |
| **Sequences** | Set the sequence parameters.<br>For details, see 'Sequences' on page 281. |
| **Tray Type** | Set the rack type to be used.<br>For details, see 'Choose the type of rack to be used' on page 172. |
| **View Parameters** | Set the autosampler parameters.<br>For details, see 'View parameters' on page 281. |
| **Setup** | Access the menu for autosampler setup.<br>For details, see 'Setup' on page 282. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 10.4 The Settings menu

## 10.4.1 Methods

*Run menu > Settings > Methods*

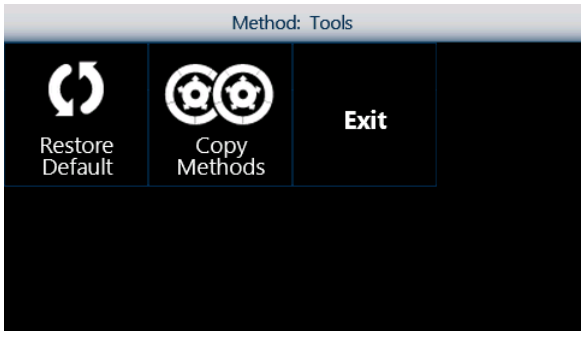



| List item | Function |
|---|---|
| **Method** | Select the method to be modified.<br>For details, see 'The method menu' on page 300. |
| **Tools** | Manage the method.<br>For details, see 'Tools' on page 280. |
| **Exit** | Exit the page and return to the **Settings** menu. |

## 10.4.2 Tools

*Run menu > Settings > Methods > Tools*

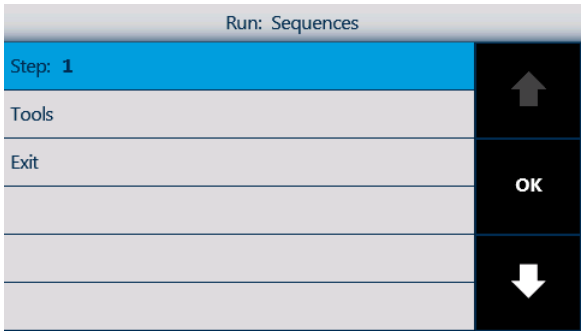



| List item | Function |
|---|---|
| **Restore Default** | Load the default settings for a method. |

| List item | Function |
|---|---|
| **Copy Methods** | Copy the parameters from one method to another. |
| **Exit** | Exit the page and return to the **Methods** menu. |

### 10.4.3 Sequences

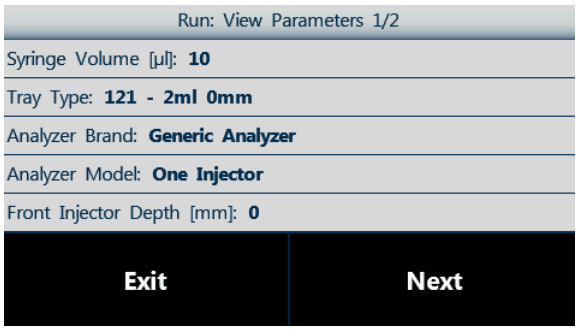
*Run menu > Settings > Sequences*

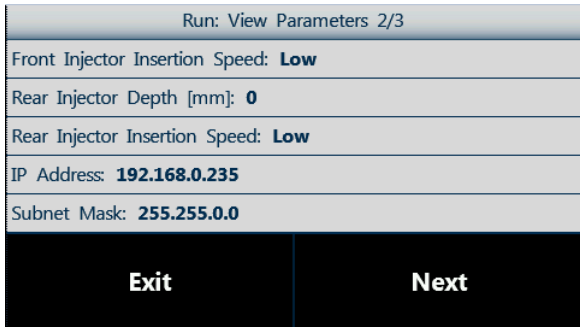



| List item | Function |
|---|---|
| **Step** | Select the desired step.<br>For details, see 'Step' on page 288. |
| **Tools** | Manage the sequence steps.<br>For details, see 'Tools' on page 289. |
| **Exit** | Exit the page and return to the **Settings** menu. |

### 10.4.4 View Parameters

*Run menu > Settings > View Parameters*

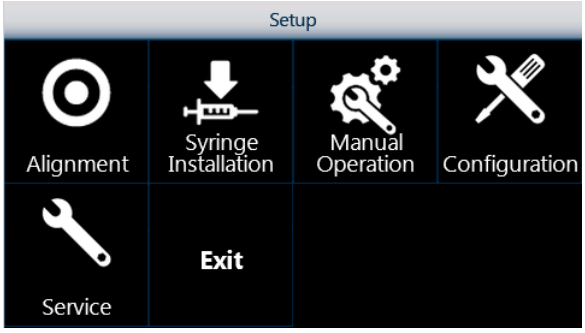



| List item | Description |
|---|---|
| **Syringe Volume [µl]** | Volume of the installed syringe. |
| **Tray Type** | Tray type installed, with number of vial positions, dimension of sample vials and needle draw depth inside the vial. |
| **Analyzer Brand** | Brand of the analyzer to which the autosampler is connected. |
| **Analyzer Model** | Model of the analyzer to which the autosampler is connected. |
| **Front Injector Depth [mm]** | Needle insertion depth into the front injector. |
| **Front Injector Insertion Speed** | Needle insertion speed into the front injector. |
| **Rear Injector Depth [mm]** | Only with rear injector. Needle insertion depth into the rear injector. |
| **Rear Injector Insertion Speed** | Only with rear injector. Needle insertion speed into the rear injector. |
| **IP Address** | LAN connection data. |
| **Subnet Mask** | |
| **Gateway** | |
| **Exit** | Exit the page and return to the **Settings** menu. |

## 10.4.5 Setup

*Run menu > Settings > Setup*



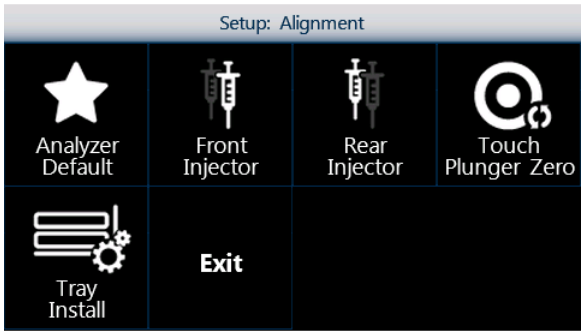

| List item | Function |
|---|---|
| **Alignment** | Access the autosampler alignment procedures to adjust the working positions.<br>For details, see 'Alignment' on page 284. |

| List item | Function |
|---|---|
| **Syringe Installation** | Install the syringe. |
| **Manual Operation** | Move the plunger, needle, turret and tray for diagnostic or emergency needs. Status:<br>• **RUN**: moving<br>• **IDLE**: not moving<br>• **BUSY**: an error impedes the movement<br>• **NEED ENC ALIGN**: the motor has not been aligned yet (only for service purpose)<br>For details, see 'Manual operation' on page 284. |
| **Configuration** | Edit the autosampler general settings.<br>For details, see 'Configuration' on page 286. |
| **Service** | Password protected. Allow service operations on the autosampler. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 10.5 The Setup menu

## 10.5.1 Alignment

*Run menu > Settings > Setup > Alignment*

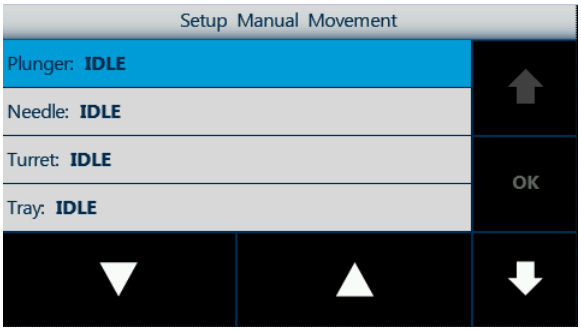


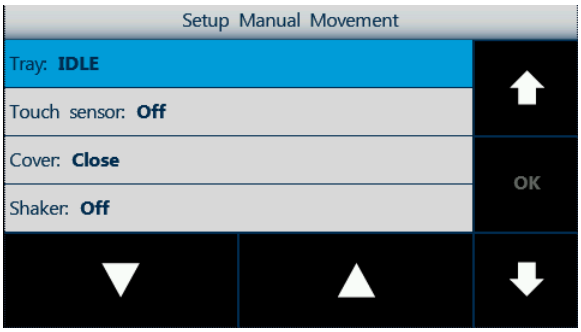

| List item | Function |
|---|---|
| **Analyzer Default** | Select the analyzer on which the autosampler is mounted. |
| **Front Injector** | Enabled only if the analyzer is selected. Align the vial locator to the front injector. |
| **Rear Injector** | Enabled only if the analyzer is selected. Align the vial locator to the rear injector. |
| **Touch Plunger Zero** | Perform the autosampler alignment procedure. |
| **Tray Install** | List the racks needed for the sequence with the related draw depth (mm) and manage the list. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

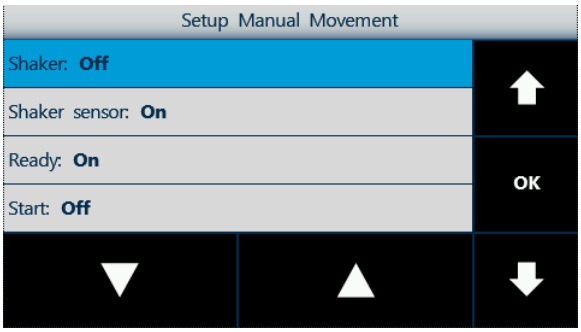
## 10.5.2 Manual Operation

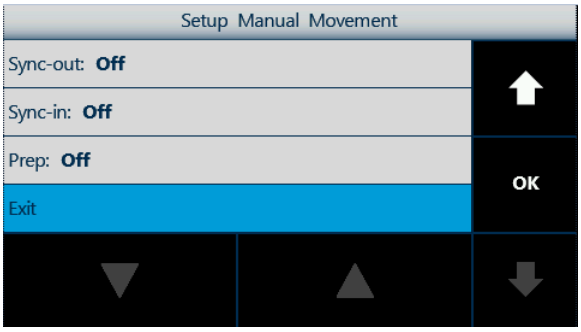
*Run menu > Settings > Setup > Manual Operation*

This page is useful for troubleshooting.





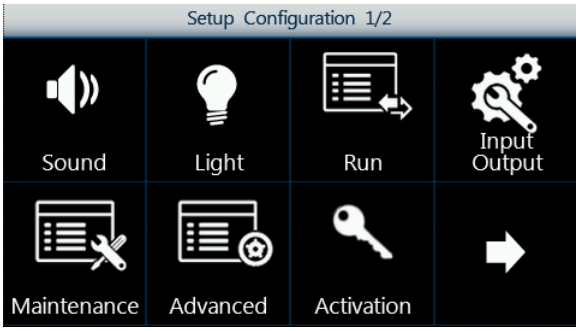

| List item | Description |
|---|---|
| **Plunger** | • Show the status sent by the plunger motor.<br>• If selected, it allows to move the plunger motor. |
| **Needle** | • Show the status sent by the needle motor.<br>• If selected, it allows to move the needle motor. |
| **Turret** | • Show the status sent by the turret motor.<br>• If selected, it allows to move the turret motor. |
| **Tray** | • Show the status sent by the tray motor.<br>• If selected, it allows to move the tray motor. |
| **Touch sensor** | Status of the touch sensor:<br>• **On**: the vial locator has detected the object.<br>• **Off**: the vial locator has not detected the object. |
| **Cover** | • Show the status sent by cover motor.<br>• If selected, it allows to move the cover motor. |
| **Shaker** | Allow to select a defined speed and, by pressing **OK** button, to activate it at the defined speed. |

| List item | Description |
|---|---|
| | It is used for service purpose. |
| **Shaker sensor** | Status of the shaker sensor:<br>• **On**: the shaker sensor is on.<br>• **Off**: the shaker sensor is off.<br>It is used for service purpose. |
| **Ready** | Signal sent by the analyzer to communicate that it has finished the analysis.<br>• **On**<br>• **Off** |
| **Start** | Signal sent by the autosampler to communicate that it has started the run.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Sync-out** | Status of the sync-out signal.<br>Select **OK** to switch the signal. |
| **Sync-in** | Status of the sync-in signal.<br>• **On**<br>• **Off** |
| **Prep** | Signal sent by the autosampler to communicate to quit the PREP status and to go in READY status.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Exit** | Exit the page and return to the **Setup** menu. |

### 10.5.3 Configuration

*Run menu > Settings > Setup > Configuration*

This menu contains general settings of the autosampler.

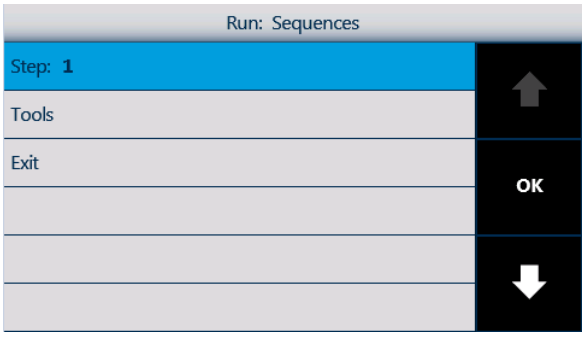


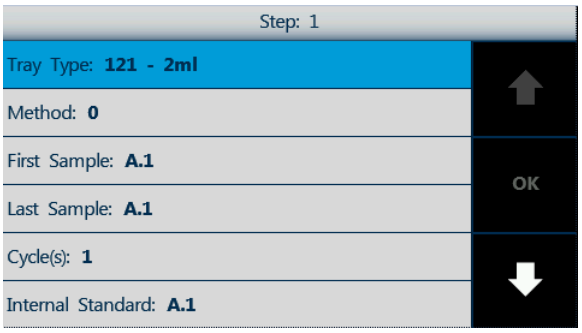

| List item | Function |
|---|---|
| **Sound** | Change the sound effects of the autosampler:<br>• **Level 2**: emit a sound when the screen is selected<br>• **Level 1**: emit a sound in the following cases:<br>○ The single injection is finished.<br>○ The sample has been injected in the analyzer.<br>○ **Save** or **Store** have been selected.<br>○ The autosampler memory has been erased.<br>• **Level 0**: no sound |
| **Light** | Change the syringe illumination settings:<br>• **On**: syringe LED on<br>• **Off**: syringe LED off<br>• **Injection**: syringe LED on during injection only |
| **Run** | Change the settings for the injection sequence.<br>For details, see 'Run' on page 290. |
| **Input Output** | Change the input/output parameters to/from the analyzer.<br>For details, see 'Input Output' on page 292. |
| **Maintenance** | Show information and allow to change the settings of the preventive maintenance counters.<br>For details, see 'Maintenance' on page 293. |
| **Advanced** | Password protected. Edit the advanced parameters of the autosampler. |
| **Activation** | Insert the password for the optional features. |
| **BCR** | Show information about the sample vial barcode and change the barcode reader settings.<br>For details, see 'BCR' on page 294. |
| **SyringeID** | Show information about the syringe ID and change the SyringeID system settings.<br>For details, see 'SyringeID' on page 295. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

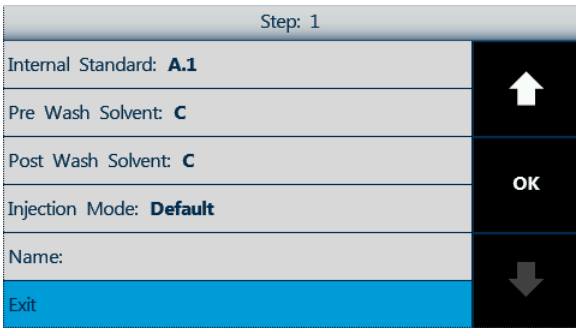
# 10.6 The Sequences page

## 10.6.1 Step

*Run menu > Settings > Sequences > Step*



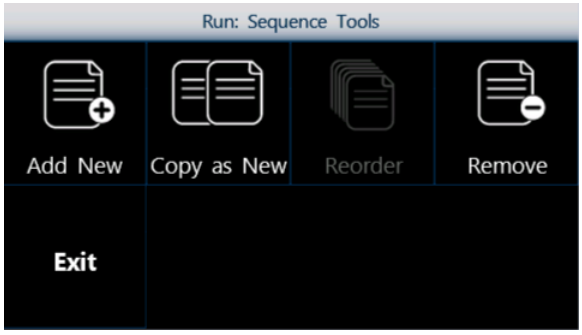




| List item | Description |
|---|---|
| **Tray Type** | Type of rack to be used. |
| **Method** | Method to be used. |
| **First Sample** | Position of the first sample vial to be processed with the selected method. |
| **Last Sample** | Position of the last sample vial to be processed with the selected method.<br>All the sample vials from the position set in **First Sample** to this one will be processed. |
| **Cycle(s)** | Number of injections of the same sample in the analyzer. |
| **Internal Standard** | Sample vial or solvent vial to be used as the internal standard. |
| **Pre Wash Solvent** | Solvent vial/s to be used for the pre- washing operations. |
| **Post Wash Solvent** | Solvent vial/s to be used for the post- washing operations. |

| List item | Description |
|---|---|
| **Injection Mode** | • **Default**: the autosampler injects in the injector defined in 'Run' on page 290.<br>• **Front**: the autosampler injects only in the front injector.<br>• **Rear**: the autosampler injects only in the rear injector.<br>• **Confirmation**: the autosampler injects the same sample in both injectors.<br>• **High throughput**: the autosampler injects different samples alternatively in the front and rear injector. |
| **Name** | Name of the sequence step.<br>Editable from HTA Autosampler Manager. |
| **Exit** | Exit the page and return to the **Sequences** page. |

### 10.6.2 Tools

*Run menu > Settings > Sequences > Tools*



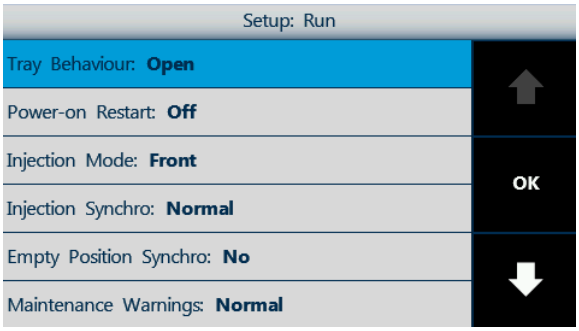

| List item | Function |
|---|---|
| **Add New** | Add a new sequence step. |
| **Copy as New** | Create a new sequence step by copying the parameters of an existing ones. |
| **Reorder** | Change the order of the sequence steps. |
| **Remove** | Remove a sequence step. |
| **Exit** | Exit the page and return to the **Sequences** page. |

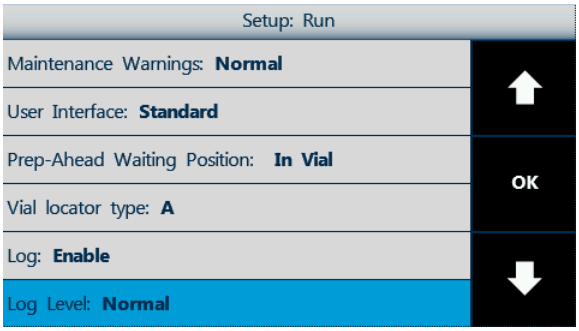
# 10.7 The Configuration menu

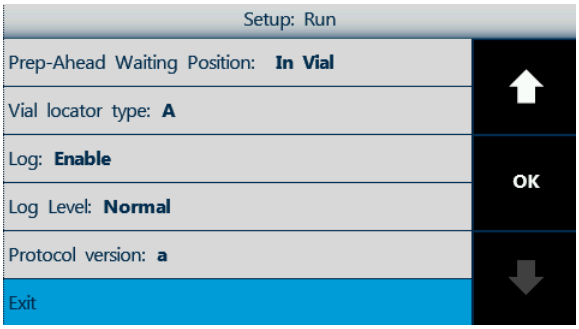
## 10.7.1 Run

*Run menu > Settings > Setup > Configuration > Run*

This page allows to change the autosampler behaviour during the run.



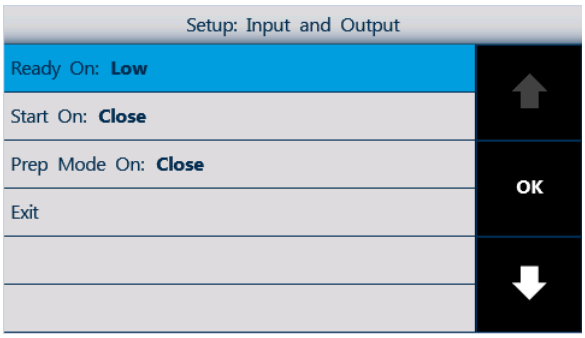




| List item | Function |
|---|---|
| **Tray Behaviour** | Set if the tray must stay open or closed during the run. |
| **Power-on Restart** | Set the autosampler restart after a power failure during the run:<br>• **On**: the run restarts.<br>• **Off**: the run does not restart and the **Run** menu appears. |
| **Injection Mode** | Only if two injectors are present. Set the default injector in which to inject the sample.<br>• **Front**: the autosampler injects only in the front injector.<br>• **Rear**: the autosampler injects only in the rear injector.<br>• **Confirmation**: the autosampler injects the same sample in both injectors.<br>• **High throughput**: the autosampler injects different samples alternatively in the |

| List item | Function |
|---|---|
| | front and rear injector. |
| **Injection Synchro** | Set the autosampler behaviour in relation to the analyzer.<br>For details, see 'Injection Synchro' on page 296. |
| **Empty Position Synchro** | Set the autosampler behaviour when a vial is missing:<br>• **Yes**: the autosampler sends the Start signal to the analyzer anyway.<br>• **No**: the autosampler does not send the Start signal to the analyzer and proceeds with the next vial. |
| **Maintenance Warning** | Set when the maintenance warning messages can appear:<br>• **Normal**: at Start up and at the beginning of each run, if the set limit is reached.<br>• **Only at Start up**: at the beginning of each run, if the set limit is reached. |
| **User Interface** | Set the version of the **Run** menu:<br>• **Standard**: version with all buttons<br>• **Quick Start**: version with less buttons |
| **Prep-Ahead Waiting Pos.** | Only if **Injection Synchro** is set to **Trigger**. Set the position of the autosampler while it is waiting the signal for injecting the sample.<br>• **In vial**: the autosampler waits with the needle in the vial.<br>• **On Injector**: the autosampler waits with the turret over the injector. |
| **Vial locator type** | Set the kind of vial locator installed.<br>Default value: A. |
| **Log** | Set if the autosampler must send the logs to HTA Monitor.<br>• **Enable**: the autosampler sends logs to HTA Monitor,<br>• **Enable w/o warnings**: the autosampler sends logs to HTA Monitor, but does not show warnings in case the PC is not connected to the autosampler.<br>• **Disable**: the autosampler does not send logs to HTA Monitor. |
| **Log Level** | Set the type of logs the autosampler sends to the HTA Monitor.<br>• **Normal**: the autosampler sends the standard logs,<br>• **Troubleshooting**: the autosampler sends more detailed logs to HTA Monitor. |
| **Protocol version** | Set the communication protocol version used by the autosampler.<br>***Note:*** *Do not change unless:*<br>○ *you operate by CDS through HTA software connectors*<br>○ *required by your third party software documentation*<br>○ *required by your Customer Representative* |
| **Exit** | Exit the page and return to the **Configuration** menu. |

## 10.7.2 Input Output

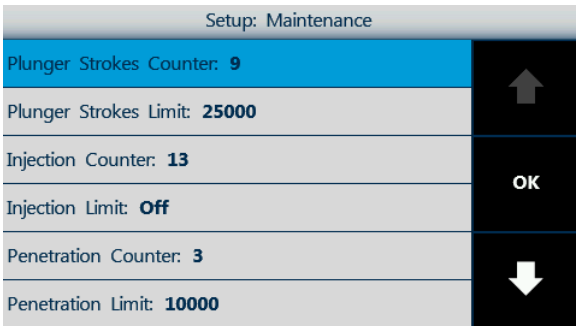
*Run menu > Settings > Setup > Configuration > Input Output*

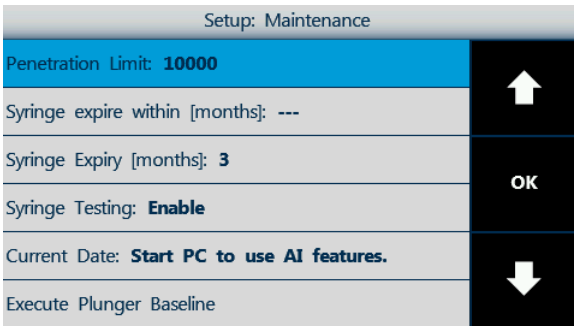


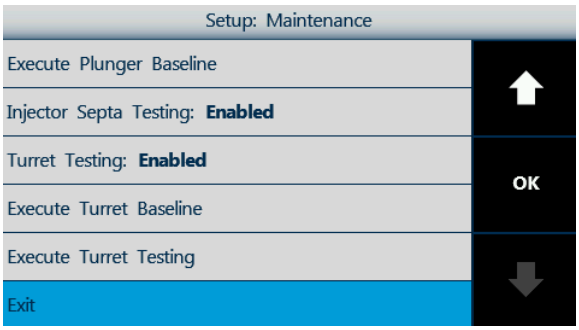

| List item | Function |
|---|---|
| **Ready On** | Set the ON state of the Ready signal. This signal is used to start the autosampler and must match the signal given by the analyzer.<br>• **Low**: the autosampler starts the injection when the analyzer provides a low logical level of voltage for the Ready signal.<br>• **High**: the autosampler starts the injection when the analyzer provides a high logical level of voltage (+5 V) for the Ready signal. |
| **Start On** | Set the ON state of the Start signal from the autosampler to the analyzer during the injection. This parameter has to be set according to the analyzer.<br>• **Open**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are open for about one second. They are closed before and after the injection.<br>• **Close**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are closed for about one second (short- circuit). They are open before and after the injection. |
| **Prep Mode On** | Set the ON state of the Prep Mode signal from the autosampler to the analyzer during the run. This parameter has to be set according to the analyzer.<br>• **Open**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are open for about one second. If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received.<br>• **Close**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are closed for about one second (short- circuit). If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received. |
| **Exit** | Exit the page and return to the Configuration menu. |

### 10.7.3 Maintenance

*Run menu > Settings > Setup > Configuration > Maintenance*




| List item | Description |
|---|---|
| **Plunger Strokes Counter** | Number of plunger strokes since the last reset. It allows to monitor the syringe wear- and- tear.<br>This counter is automatically reset after a new syringe installation. |
| **Plunger Strokes Limit** | Limit of plunger strokes. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Injection Counter** | Number of injections performed in the analyzer since the last reset. It allows to predict when the analyzer septum or injection liner should be replaced. |
| **Injection Limit** | Limit of injection number. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Penetration Counter** | Total number of perforation of the solvent and sample vial septa, and of the injector. It allows to predict when the syringe should be replaced, due to |

| List item | Description |
|---|---|
| | needle wear. |
| **Penetration Limit** | Limit of perforation of the solvent and sample vial septa, and of the injector. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Syringe expiry within [months]** | Only if connected to the HTA Monitor. Remaining months to the syringe expiration. It allows to predict when the syringe should be replaced: it is particularly relevant when the autosampler performs a few injection per day. |
| **Syringe Expiry [months]** | Only if connected to the HTA Monitor. Month in which the syringe expires. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Syringe Testing** | Initializing procedure performed by the autosampler every times it is switched on. It checks the correct movement and the syringe plunger to verify the good functioning of the syringe. Available only for syringes PN 1.23.103, 1.23.104, 1.23.106.<br>• **Enable**<br>• **Disable** |
| **Current Date** | Only if connected to the HTA Monitor. Current Date. |
| **Execute Plunger Baseline** | Perform the baseline necessary to perform the Syringe Testing. To be performed only on Customer Representative request. |
| **Injector Septa Testing** | Procedure for the syringe PN 1.23.103 to avoid damaging the syringe needle during the injection.<br>• **Enable**<br>• **Disable** |
| **Turret Testing** | Initializing procedure performed by the autosampler every times it is switched on. It checks the correct movement of the turret to verify the good functioning of the autosampler.<br>• **Enable**<br>• **Disable** |
| **Execute Turret Baseline** | Perform the baseline necessary to perform the Turret Testing. To be performed only on Customer Representative request. |
| **Execute Turret Testing** | Perform a Turret Testing. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 10.7.4 BCR

*Run menu > Settings > Setup > Configuration > BCR*

| List item | Description |
|---|---|
| **Enable** | Read the sample vial barcode and save it in the autosampler memory so that the information contained can be read by the available software:<br>• **Yes**<br>• **No** |
| **On Reading Error** | Behaviour if a reading error occurs:<br>• **Skip**: skip the run for the vial. |

| List item | Description |
|---|---|
| | • **Process**: perform the run anyway. |
| **Test** | Test the alignment of the turret in front of the barcode reader for correct reading. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 10.7.5 SyringeID

*Run menu > Settings > Setup > Configuration > SyringeID*

| List item | Description |
|---|---|
| **Enable** | Read the syringe ID and save it in the autosampler memory so that the information contained can be read by the available software:<br>• **Yes**<br>• **No** |
| **Reading** | Read the information contained in the RFID:<br>• syringe serial number<br>• syringe part number<br>• syringe volume<br>• number of plunger strokes performed<br>• number of penetration performed |
| **Exit** | Exit the page and return to the **Configuration** menu. |

# 10.8 The Run page

## 10.8.1 Injection Synchro

*Run menu > Settings > Setup > Configuration > Run > Injection Synchro*

***Note: Prep Mode** is available only for some analyzer. Check in your autosampler mounting kit instruction manual if this feature is supported on your analyzer.*

***Note**: If using **Prep Mode**, it is mandatory to start sample list on analyzer software before to start the run on the autosampler, otherwise the analysis could be not executed and/or not saved properly.*

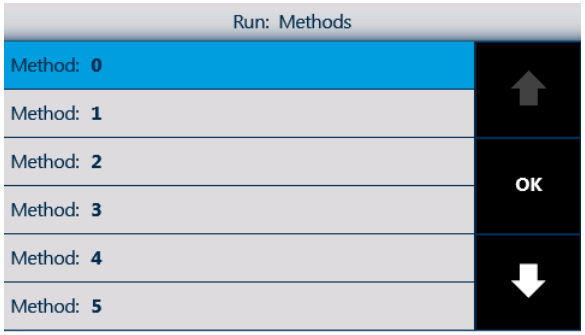
| Injection Synchro | Sample preparation start | Sample injection | Start signal to the analyzer |
|---|---|---|---|
| **Normal** | When the autosampler receives the Ready signal from the analyzer after the end of the analysis time set in the autosampler method. | After the autosampler has checked that the Ready signal is still present. | When the syringe plunger starts to move with the syringe in the injector. |
| **Trigger** | When the autosampler receives the Ready signal from the analyzer after the end of the analysis time set in the autosampler method. After ending sample preparation it activates the Sync-Out signal. | when the autosampler receives a Sync-In signal, it starts the injection and deactivates the Sync-Out signal when the Start signal is activated. | |
| **A-Start** | When the autosampler receives the Ready signal from the analyzer after the end of the analysis time set in the autosampler method. | After the autosampler has checked that the Ready signal is still present. | When the autosampler touches the injector. |
| **D-Start** | | | When the syringe plunger finishes to move with the syringe in the injector. |
| **EA** | When the autosampler receives the Ready signal from the analyzer and the Sync- in signal after the end of the analysis time set in the autosampler method. | | When the syringe plunger starts to move with the syringe in the injector. |
| **Normal w/o Rdy** | At the end of the analysis time set in the autosampler method | At the end of the sample preparation. | |
| **D-Start w/Flush** | When the autosampler receives the Ready signal from the analyzer after the end of the analysis time set in the autosampler method. | After the autosampler has checked that the Ready signal is still present. The autosampler injects the sample in two phases:<br>• first phase: it injects the flush volume<br>• second phase: when Flush Injection dwell is elapsed, it empties the syringe. | • The first Start signal after having injected the flush volume and waited for the viscosity delay.<br>• The second Start signal after having emptied the syringe and waited for the viscosity delay. |

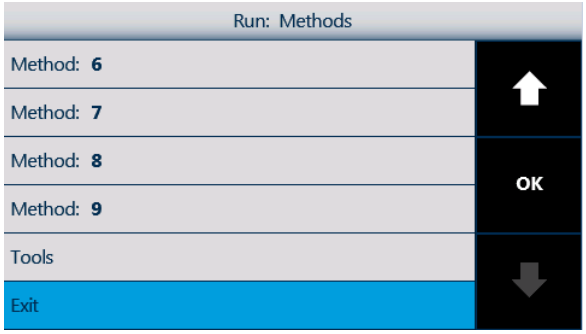
| Injection Synchro | Sample preparation start | Sample injection | Start signal to the analyzer |
|---|---|---|---|
| **Prep Mode** | At the end of the analysis time set in the autosampler method, the autosampler sends a PREP signal to the analyzer and wait for the Ready signal from the analyzer. | After the autosampler has checked that the Ready signal is still present. | When the syringe plunger starts to move with the syringe in the injector. |

# 10.9 The Method page

## 10.9.1 Method

*Run menu > Settings > Methods > (method) OK*





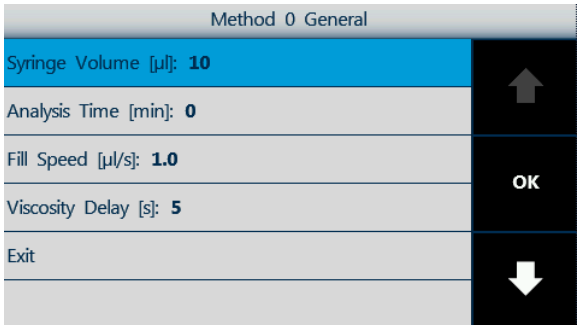
| List item | Function |
|---|---|
| **General** | Access the page for setting the general parameters of the method.<br>For details, see 'General' on page 300. |
| **Solvent Wash** | Access the page for setting the parameters of the washing solvents of the method.<br>For details, see 'Solvent Wash' on page 300. |
| **Internal Standard** | Access the page for setting the internal standard parameters of the method.<br>For details, see 'Internal Standard' on page 301. |
| **Sample** | Access the page for setting the sample parameters of the method.<br>For details, see 'Sample' on page 301. |
| **Injection** | Access the page for setting the injection parameters of the method.<br>For details, see 'Injection' on page 302. |

| List item | Function |
|---|---|
| **Exit** | Exit the menu and return to the **Methods** page. |

# 10.10 The Method menu

## 10.10.1 General

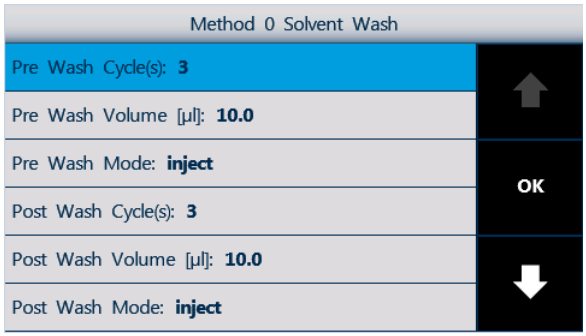
*Run menu > Settings > Methods > (method) OK > General*

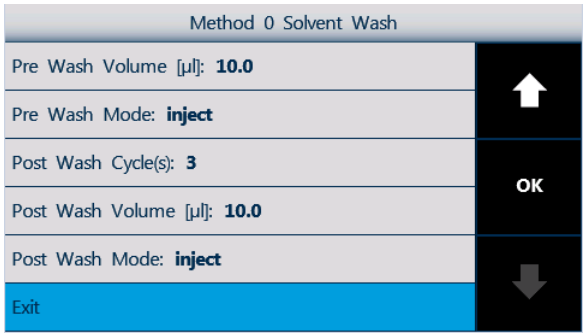



| List item | Description |
|---|---|
| **Syringe Volume [µl]** | Volume of the syringe. |
| **Analysis Time [min]** | Time between the injection and the moment in which the analyzer is ready again. |
| **Fill Speed [µl/s]** | Syringe aspiration speed. |
| **Viscosity Delay [s]** | Time the needle remains in the sample vial after the plunger has been raised. It allows viscous samples time to fill the syringe. |
| **Exit** | Exit the page and return to the selected method page. |

## 10.10.2 Solvent Wash

*Run menu > Settings > Methods > (method) OK > Solvent Wash*



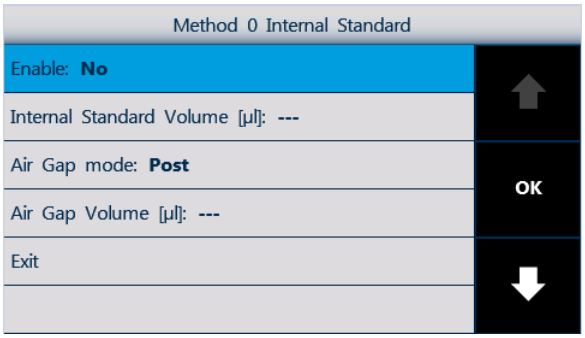




| List item | Description |
|---|---|
| **Pre Wash Cycle(s)** | Number of syringe washes before injecting the sample in the analyzer |
| **Pre Wash Volume [µl]** | Quantity of solvent to be used for each pre- washing operation |
| **Pre Wash Mode** | Frequency of the pre- washing operations:<br>• **Inject**: wash at every injection<br>• **Sample**: wash for each new vial<br>• **Step**: wash for each new step of the sequence |
| **Post Wash Cycle(s)** | Number of syringe washes after having injected the sample in the analyzer |
| **Post Wash Volume [µl]** | Quantity of solvent for each post- washing operation |

| List item | Description |
|---|---|
| **Post Wash Mode** | Frequency of the post- washing operation:<br>• **Inject**: wash at every injection<br>• **Sample**: wash for each new vial<br>• **Step**: wash for each new step of the sequence |
| **Exit** | Exit the page and return to the selected method page. |

### 10.10.3 Internal Standard

*Run menu > Settings > Methods > (method) OK > Internal Standard*

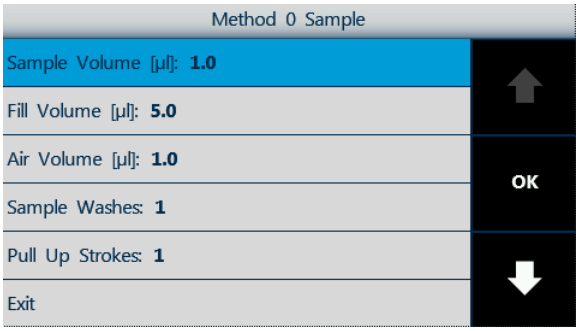



| List item | Function |
|---|---|
| **Enable** | Enable or disable the internal standard. |
| **Internal Standard Volume [µl]** | Volume of the Internal standard |
| **Air Gap Mode** | Manage the air gap in the syringe.<br>• **Post**: one air gap between the internal standard and the sample<br>• **Double**: two air gaps, one air gap between the internal standard and the sample, the second one before the internal standard |
| **Air Gap Volume [µl]** | Volume of the air gap |
| **Exit** | Exit the page and return to the selected method page. |

***Note**: See 'Use of an internal standard' on page 35*

### 10.10.4 Sample

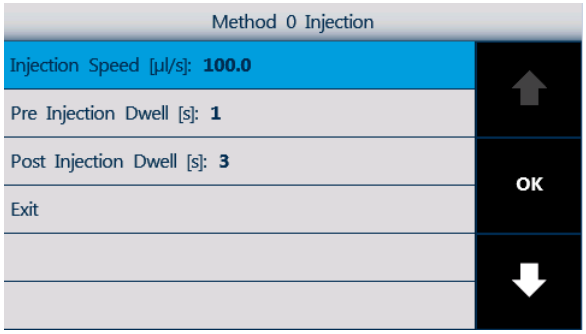
*Run menu > Settings > Methods > (method) OK > Sample*



| List item | Function |
|---|---|
| **Sample Volume [µl]** | Sample volume to be injected in the analyzer. |
| **Fill Volume [µl]** | Sample volume to be aspired for the sample wash and the pull up strokes. |
| **Air Volume [µl]** | Quantity of air to be aspired after the sample has been drawn. This prevents volatile samples evaporating from the needle. |
| **Sample Washes** | Number of sample washes from the sample vial to the waste vial. |
| **Pull Up Strokes** | Rapid up and down movements of the plunger to eliminate air bubbles from the syringe. |
| **Exit** | Exit the page and return to the selected method page. |

### 10.10.5 Injection

*Run menu > Settings > Methods > (method) OK > Injection*




| List item | Function |
|---|---|
| **Injection speed [µl/s]** | Syringe dispensation speed while injecting the sample in the analyzer. |
| **Pre Injection Dwell [s]** | Waiting time of the needle inside the injector before injecting the sample in the analyzer. This allows the syringe temperature to level with the analyzer injector temperature. |
| **Post Injection Dwell [s]** | Waiting time of the needle inside the injector after having injected the sample in the analyzer. This allows the complete evaporation of the sample. |
| **Exit** | Exit the page and return to the selected method page. |

# 11. Screen description in SPME mode

## 11.1 Screen elements

***Note:*** *The interface may be updated in future. In this case, please follow the screen instructions.*

### 11.1.1 Interacting with the touch screen

The touch screen can be tapped with a finger or a capacitive touch screen stylus.

### 11.1.2 Types of screens

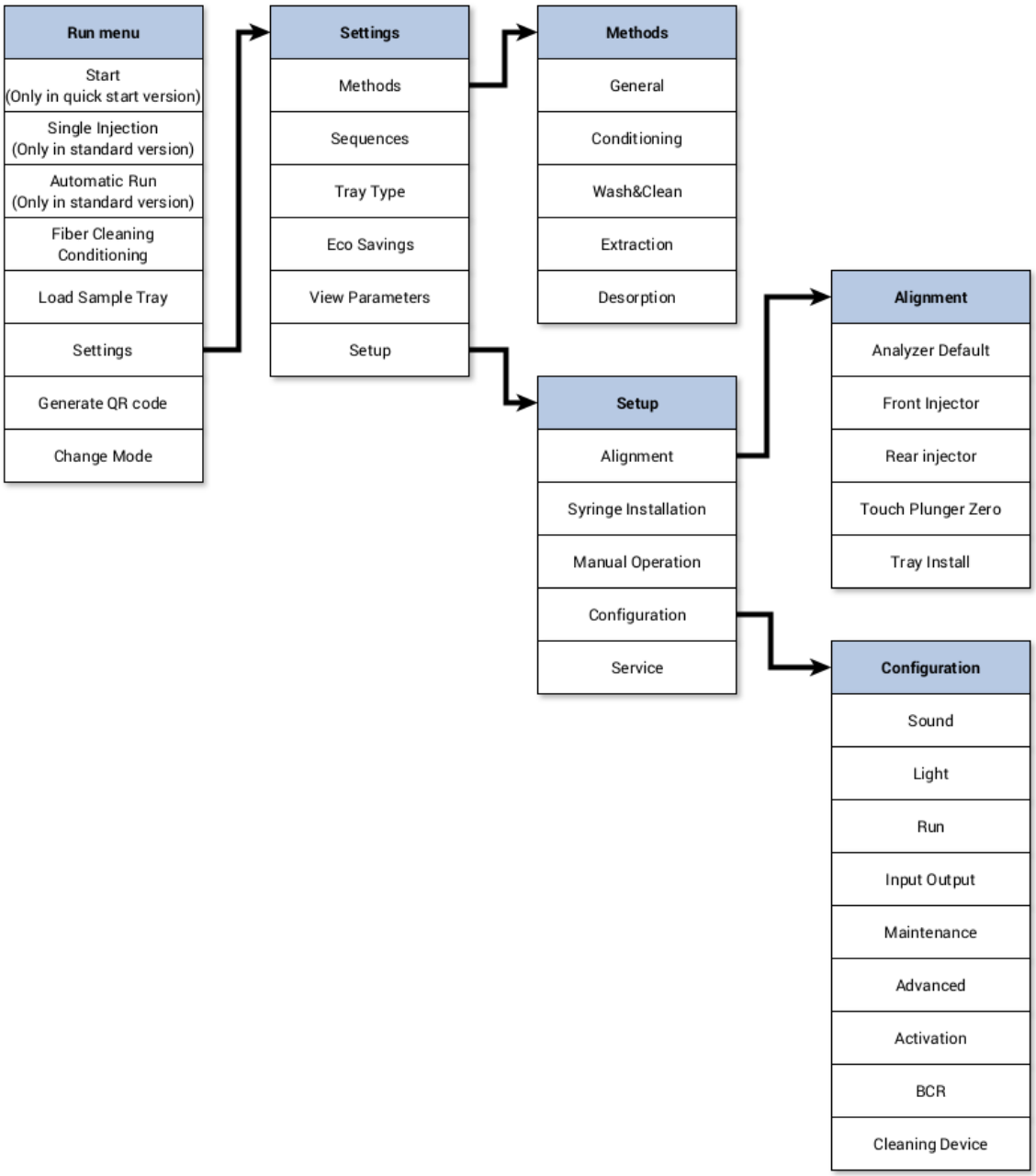
The screens of the touch screen are mainly of two types: menus, with icons, or pages, with a list.

### 11.1.3 Common buttons

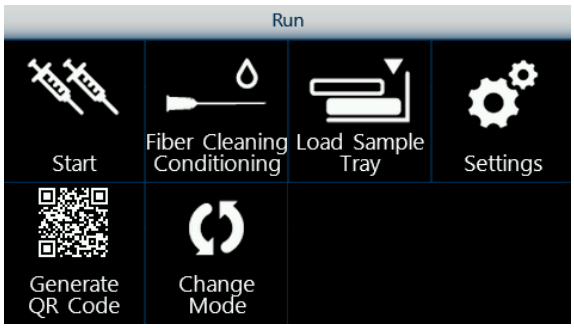
| Part | Function |
|---|---|
|  | Move up and down in a list and select an item. |
|  | • Move the needle/plunger up and down.<br>• Open/Close the tray.<br>• Increase and decrease the visualized parameter. |
|  | Move the turret left and right. |
| **OK** | • Confirm the selection.<br>• Confirm a parameter value.<br>• Commute a signal status. |
| **Save** | Save the modifications. |
| **Next** | Go to the next page. |
| **Exit** | Exit the menu. |
| **Cancel** | Exit the page without saving the modifications. |
| **Continue** | Confirm and go to the next page. |
| **Abort** | Stop the autosampler immediately. |
| **Stop** | Pause the running operation. |
| **Menu** | Access additional options during the automatic run. |
| **Resume** | Continue a paused sequence. |
| **Terminate current** | Stop the sequence. The sequence stops only after having completed the injection in progress in the analyzer. |

# 11.2 Main menus

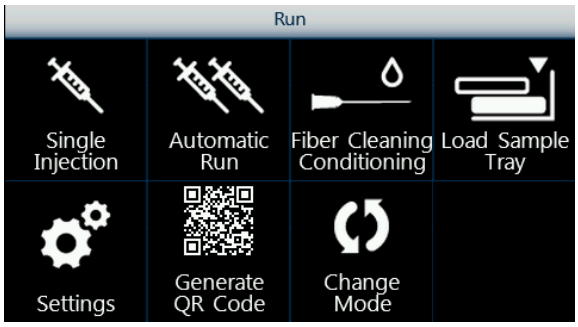
## 11.2.1 Screen flowchart



### 11.2.2 Run menu
### Quick Start version



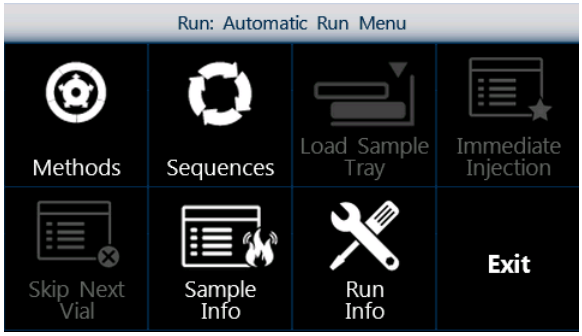

### Standard version




| List item | Function |
|---|---|
| **Start** | Only in the quick start version. Process all the sample vials listed in all the sequence steps stored. After two consecutive empty positions, the autosampler stops. |
| **Single Injection** | Only in the standard version. Process a single sample vial.<br>For details, see 'Single Injection' on page 308. |
| **Automatic Run** | Only in the standard version. Perform a sequence of injections from different sample vials.<br>For details, see 'Automatic Run' on page 308. |
| **Fiber Cleaning Conditioning** | Allow an extra fiber cleaning or conditioning.<br>For details, see 'Fiber Cleaning Conditioning' on page 309. |
| **Load Sample Tray** | Open the tray to load/unload the sample vials and racks. |
| **Settings** | Access the **Settings** menu.<br>For details, see 'Settings' on page 309. |
| **Generate QR code** | Open the Generate QR code wizard on the PC in the HTA Monitor . |
| **Change Mode** | Change the operation mode (Headspace or Liquid). |

### 11.2.3 Automatic Run menu

*(during the automatic run) Menu*

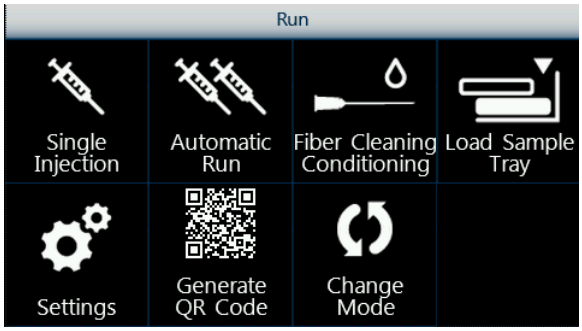


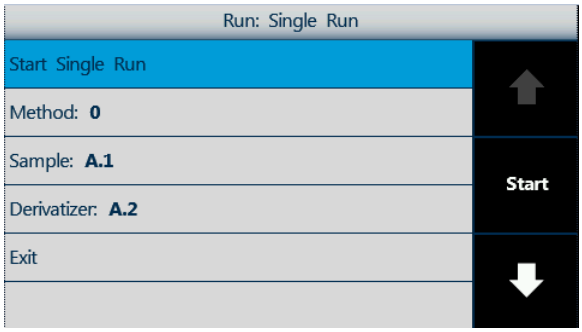

| List item | Function |
|---|---|
| **Methods** | Show the methods menu. |
| **Sequences** | Show the sequences menu. |
| **Load Sample Tray** | Open the tray to add sample vials. |
| **Immediate Injection** | Skip the remaining conditioning time and inject immediately. |
| **Skip Next Vial** | Skip the remaining conditioning time and unload the vial, without to perform the injection. |
| **Sample Info** | View the remaining conditioning time of the samples in the oven. |
| **Run Info** | View important details of the run. |
| **Exit** | Exit the menu and return to the summary page. |

# 11.3 The Run menu (main menu)

## 11.3.1 Single Injection

*Run menu > Single Injection*




| List item | Description |
|---|---|
| **Start Injection** | Start the single injection set. |
| **Method** | From 0 to 9. |
| **Sample** | Position of the sample vial to be injected in the analyzer. |
| **Derivatizer** | Position of the vial used as derivatizer (if enabled in the method). |
| **Exit** | Exit the page and return to the **Run** menu. |

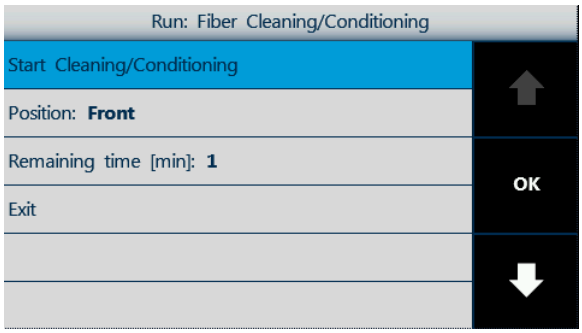
## 11.3.2 Automatic Run

*Run menu > Automatic Run*

| List item | Function |
|---|---|
| **Start Autorun** | Start the set sequence. |
| **First Step** | Set the first step of the sequence. |
| **Last Step** | Set the last step of the sequence. |
| **Run-All-Samples** | Set the behaviour of the autosampler when it detects two consecutive empty positions:<br>• **Yes**: the autosampler stops.<br>• **No**: the autosampler searches for other sample vials. |
| **Exit** | Exit the page and return to the **Run** menu. |

### 11.3.3 Fiber Cleaning Conditioning

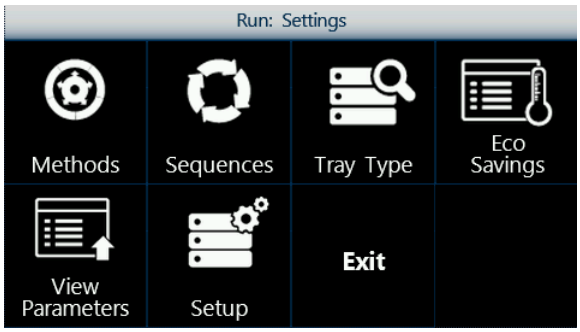
*Run menu > Fiber Cleaning Conditioning*




| List item | Description |
|---|---|
| **Start** | Start the cleaning/conditioning process. |
| **Position** | Allow to choose where to expose the fiber. |
| **Remaining time [min]** | Allow to choose for how many minutes to expose the fiber. |
| **Exit** | Exit the page and return to the selected method page. |

### 11.3.4 Settings

*Run menu > Settings*



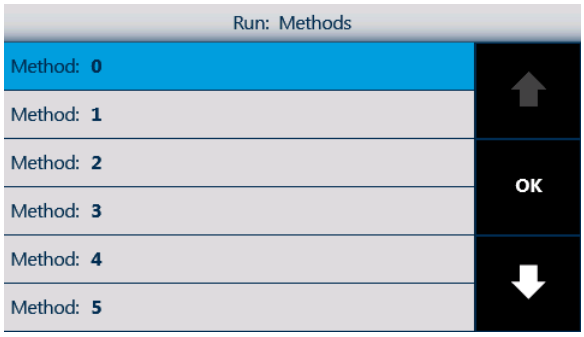

| List item | Function |
|---|---|
| **Methods** | Set the method parameters.<br>For details, see 'Methods' on page 311. |

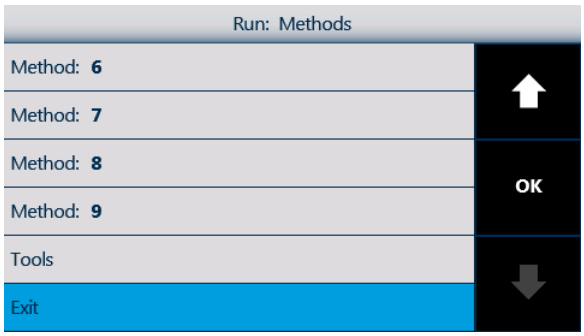
| List item | Function |
|---|---|
| **Sequences** | Set the sequence parameters.<br>For details, see 'Sequences' on page 312. |
| **Tray Type** | Set the rack type to be used.<br>For details, see 'Choose the type of rack to be used' on page 209. |
| **Eco Savings** | Set the oven stand by temperature.<br>**St-by Oven**: allow to set the oven temperature in stand-by conditions. |
| **View Parameters** | Set the autosampler parameters.<br>For details, see 'View parameters' on page 312. |
| **Setup** | Access the menu for autosampler setup.<br>For details, see 'Setup' on page 314. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 11.4 The Settings menu

## 11.4.1 Methods

*Run menu > Settings > Methods*

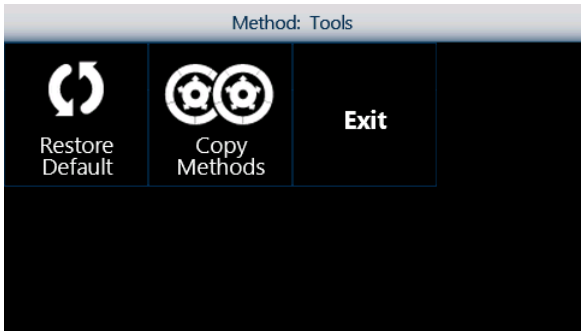



| List item | Function |
|---|---|
| **Method** | Select the method to be modified.<br>For details, see 'The method menu' on page 330. |
| **Tools** | Manage the method.<br>For details, see 'Tools' on page 311. |
| **Exit** | Exit the page and return to the **Settings** menu. |

## 11.4.2 Tools

*Run menu > Settings > Methods > Tools*

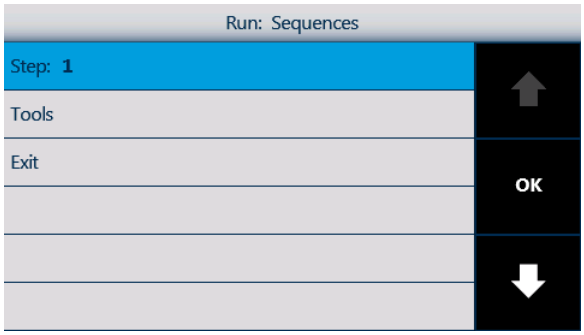



| List item | Function |
|---|---|
| **Restore Default** | Load the default settings for a method. |

| List item | Function |
|---|---|
| **Copy Methods** | Copy the parameters from one method to another. |
| **Exit** | Exit the page and return to the **Methods** menu. |

### 11.4.3 Sequences

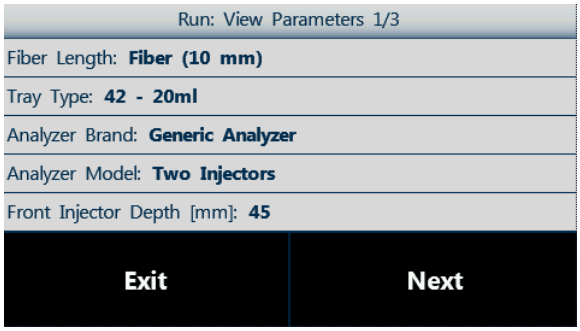
*Run menu > Settings > Sequences*

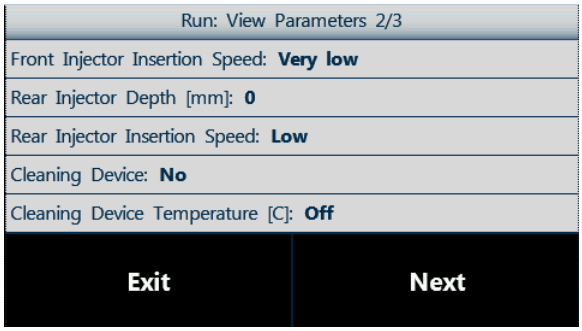



| List item | Function |
|---|---|
| **Step** | Select the desired step.<br>For details, see 'Step' on page 320. |
| **Tools** | Manage the sequence steps.<br>For details, see 'Tools' on page 321. |
| **Exit** | Exit the page and return to the **Settings** menu. |

### 11.4.4 View Parameters

*Run menu > Settings > View Parameters*



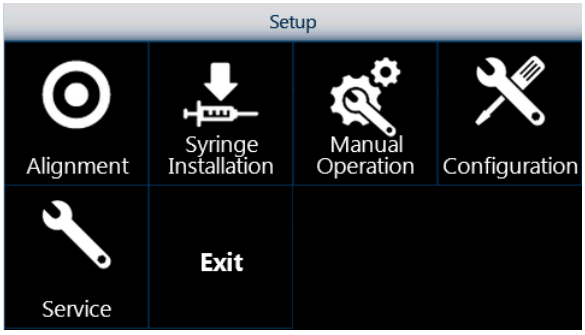




| List item | Description |
|---|---|
| **Fiber Length** | Length and type of the installed fiber. |
| **Tray Type** | Tray type installed, with number of vial positions, dimension of sample vials and needle draw depth inside the vial. |
| **Analyzer Brand** | Brand of the analyzer to which the autosampler is connected. |
| **Analyzer Model** | Model of the analyzer to which the autosampler is connected. |
| **Front Injector Depth [mm]** | Needle insertion depth into the front injector. |
| **Front Injector Insertion Speed** | Needle insertion speed into the front injector. |
| **Rear Injector Depth [mm]** | Only with rear injector. Needle insertion depth into the rear injector. |
| **Rear Injector Insertion Speed** | Only with rear injector. Needle insertion speed into the rear injector. |
| **Cleaning Device** | Cleaning device enabled or not. |
| **Cleaning Device Temperature [C]** | Temperature at which the fiber will be exposed in the cleaning device. |
| **IP Address** | LAN connection data. |
| **Subnet Mask** | |
| **Gateway** | |
| **Exit** | Exit the page and return to the **Settings** menu. |

### 11.4.5 Setup

*Run menu > Settings > Setup*

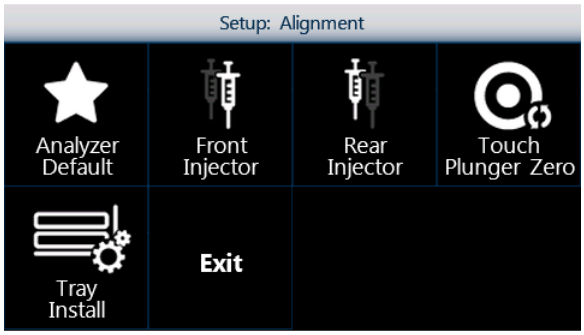



| List item | Function |
|---|---|
| **Alignment** | Access the autosampler alignment procedures to adjust the working positions.<br>For details, see 'Alignment' on page 315. |
| **Syringe Installation** | Install the syringe. |
| **Manual Operation** | Move the plunger, needle, turret and tray for diagnostic or emergency needs. Status:<br>• **RUN**: moving<br>• **IDLE**: not moving<br>• **BUSY**: an error impedes the movement<br>• **NEED ENC ALIGN**: the motor has not been aligned yet (only for service purpose)<br>For details, see 'Manual operation' on page 315. |
| **Configuration** | Edit the autosampler general settings.<br>For details, see 'Configuration' on page 318. |
| **Service** | Password protected. Allow service operations on the autosampler. |
| **Exit** | Exit the menu and return to the **Run** menu. |

# 11.5 The Setup menu

## 11.5.1 Alignment

*Run menu > Settings > Setup > Alignment*

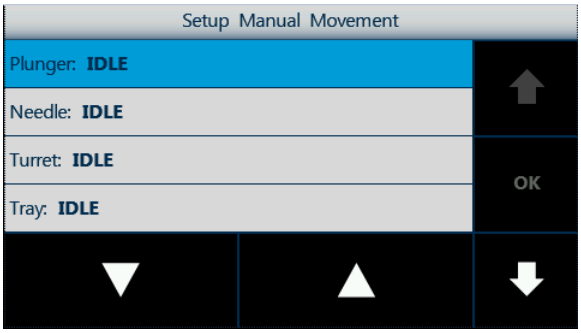


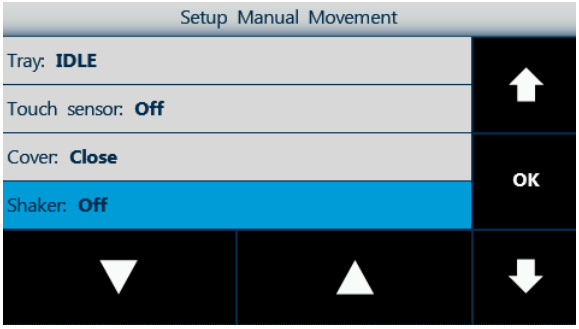

| List item | Function |
|---|---|
| **Analyzer Default** | Select the analyzer on which the autosampler is mounted. |
| **Front Injector** | Enabled only if the analyzer is selected. Align the vial locator to the front injector. |
| **Rear Injector** | Enabled only if the analyzer is selected. Align the vial locator to the rear injector. |
| **Touch Plunger Zero** | Perform the autosampler alignment procedure. |
| **Tray Install** | List the racks needed for the sequence with the related draw depth (mm) and manage the list. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

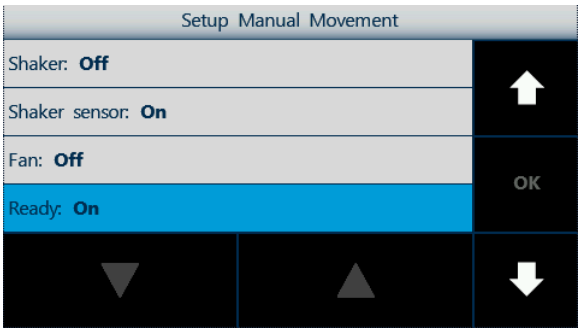
## 11.5.2 Manual Operation

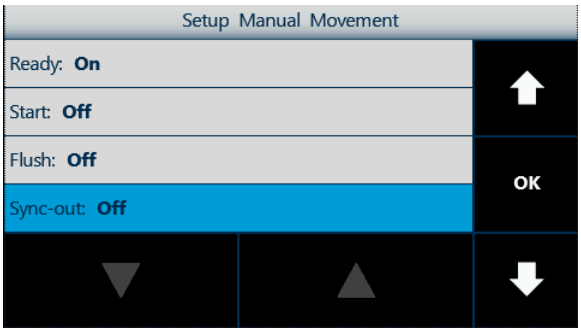
*Run menu > Settings > Setup > Manual Operation*

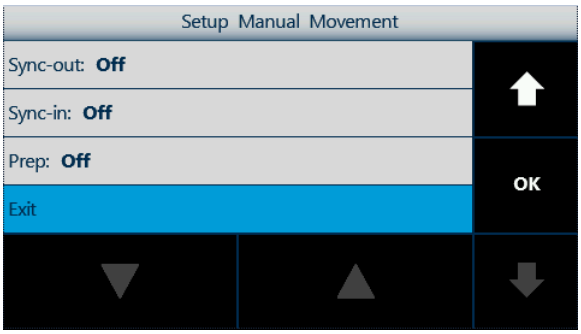
This page is useful for troubleshooting.





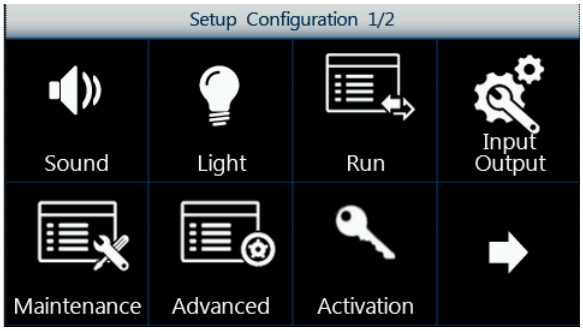

| List item | Description |
|---|---|
| **Plunger** | • Show the status sent by the plunger motor.<br>• If selected, it allows to move the plunger motor. |
| **Needle** | • Show the status sent by the needle motor.<br>• If selected, it allows to move the needle motor. |
| **Turret** | • Show the status sent by the turret motor. |

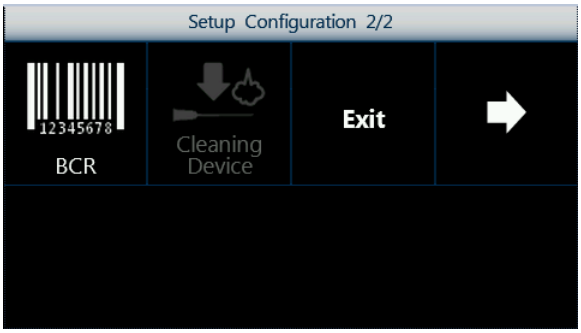
| List item | Description |
|---|---|
| | • If selected, it allows to move the turret motor. |
| **Tray** | • Show the status sent by the tray motor.<br>• If selected, it allows to move the tray motor. |
| **Touch sensor** | Status of the touch sensor:<br>• **On**: the vial locator has detected the object.<br>• **Off**: the vial locator has not detected the object. |
| **Cover** | • Show the status sent by cover motor.<br>• If selected, it allows to move the cover motor. |
| **Shaker** | Allow to select a defined speed and, by pressing **OK** button, to activate it at the defined speed.<br>It is used for service purpose. |
| **Shaker sensor** | Status of the shaker sensor:<br>• **On**: the shaker sensor is on.<br>• **Off**: the shaker sensor is off.<br>It is used for service purpose. |
| **Fan** | Allow to select a defined speed and, by pressing **OK** button, to activate it at the defined speed.<br>It is used for service purpose. |
| **Ready** | Signal sent by the analyzer to communicate that it has finished the analysis.<br>• **On**<br>• **Off** |
| **Start** | Signal sent by the autosampler to communicate that it has started the run.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Flush** | Status of the Flush valve.<br>Select **OK** to switch the Flush valve status. |
| **Sync-out** | Status of the sync-out signal.<br>Select **OK** to switch the signal. |
| **Sync-in** | Status of the sync-in signal.<br>• **On**<br>• **Off** |
| **Prep** | Signal sent by the autosampler to communicate to quit the PREP status and to go in READY status.<br>• **On**<br>• **Off**<br>Select **OK** to switch the signal. |
| **Exit** | Exit the page and return to the **Setup** menu. |

### 11.5.3 Configuration

*Run menu > Settings > Setup > Configuration*

This menu contains general settings of the autosampler.



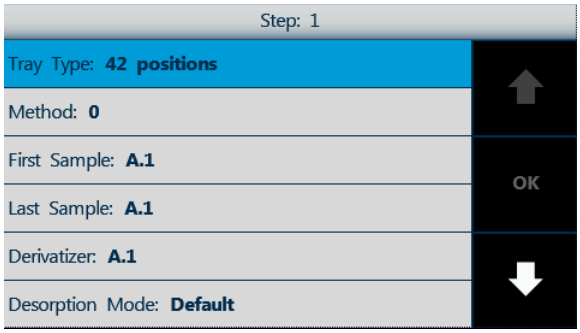

| List item | Function |
|---|---|
| **Sound** | Change the sound effects of the autosampler:<br>• **Level 2**: emit a sound when the screen is selected<br>• **Level 1**: emit a sound in the following cases:<br>  ○ The single injection is finished.<br>  ○ The sample has been injected in the analyzer.<br>  ○ **Save** or **Store** have been selected.<br>  ○ The autosampler memory has been erased.<br>• **Level 0**: no sound |
| **Light** | Change the syringe illumination settings:<br>• **On**: syringe LED on<br>• **Off**: syringe LED off<br>• **Injection**: syringe LED on during injection only |
| **Run** | Change the settings for the injection sequence.<br>For details, see 'Run' on page 322. |
| **Input Output** | Change the input/output parameters to/from the analyzer.<br>For details, see 'Input Output' on page 324. |
| **Maintenance** | Show information and allow to change the settings of the preventive maintenance counters.<br>For details, see 'Maintenance' on page 325. |
| **Advanced** | Password protected. Edit the advanced parameters of the autosampler. |

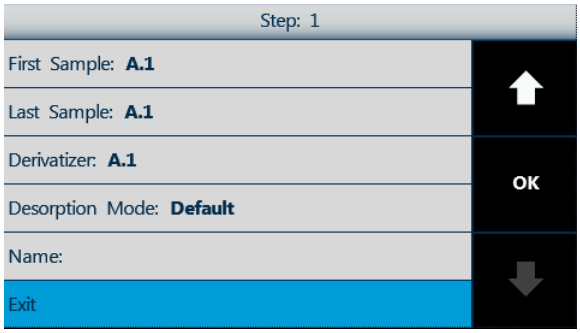
| List item | Function |
|---|---|
| **Activation** | Insert the password for the optional features. |
| **BCR** | Show information about the sample vial barcode and change the barcode reader settings.<br>For details, see 'BCR' on page 326. |
| **Cleaning Device** | NA. |
| **Exit** | Exit the menu and return to the **Setup** menu. |

# 11.6 The Sequences page

## 11.6.1 Step

*Run menu > Settings > Sequences > Step*

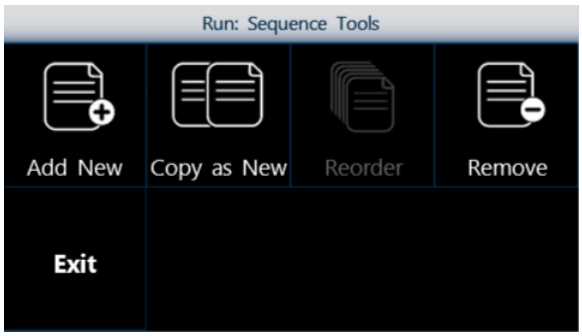



| List item | Description |
|---|---|
| **Tray Type** | Type of rack to be used. |
| **Method** | Method to be used. |
| **First Sample** | Position of the first sample vial to be processed with the selected method. |
| **Last Sample** | Position of the last sample vial to be processed with the selected method.<br>All the sample vials from the position set in **First Sample** to this one will be processed. |
| **Derivatizer** | Position of the vial used as derivatizer (if enabled in the method). |
| **Desorption Mode** | • **Default**: the autosampler injects in the injector defined in 'Run' on page 322.<br>• **Front**: the autosampler injects only in the front injector.<br>• **Rear**: the autosampler injects only in the rear injector. |
| **Name** | Name of the sequence step.<br>Editable from HTA Autosampler Manager. |
| **Exit** | Exit the page and return to the **Sequences** page. |

### 11.6.2 Tools

*Run menu > Settings > Sequences > Tools*



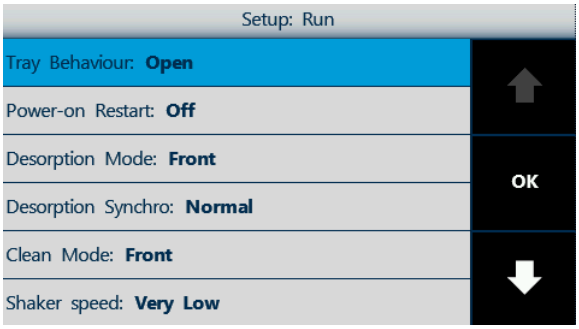

| List item | Function |
|---|---|
| **Add New** | Add a new sequence step. |
| **Copy as New** | Create a new sequence step by copying the parameters of an existing ones. |
| **Reorder** | Change the order of the sequence steps. |
| **Remove** | Remove a sequence step. |
| **Exit** | Exit the page and return to the **Sequences** page. |

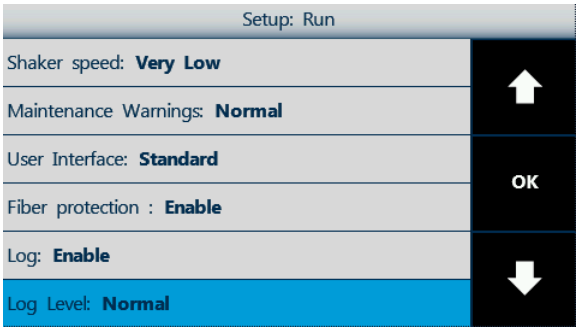
# 11.7 The Configuration menu

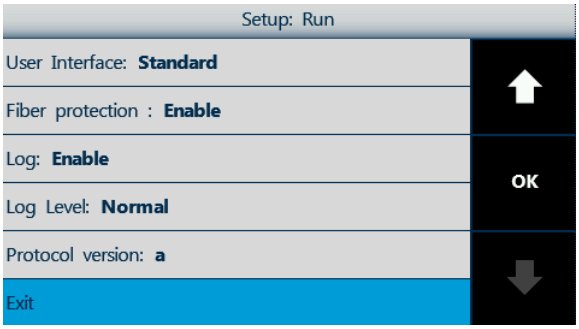
## 11.7.1 Run

*Run menu > Settings > Setup > Configuration > Run*

This page allows to change the autosampler behaviour during the run.



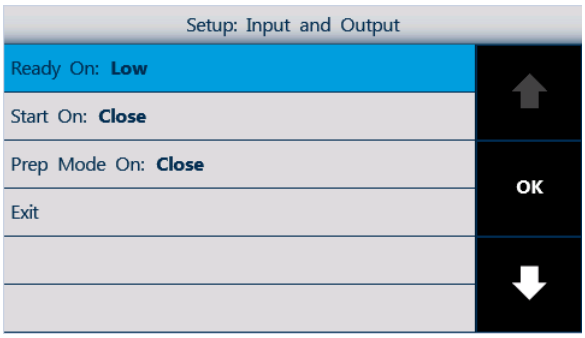




| List item | Function |
|---|---|
| **Tray Behaviour** | Set if the tray must stay open or closed during the run. |
| **Power-on Restart** | Set the autosampler restart after a power failure during the run:<br>• **On**: the run restarts.<br>• **Off**: the run does not restart and the **Run** menu appears. |
| **Desorption Mode** | Only if two injectors are present. Set the default injector in which to inject the sample.<br>• **Front:** the autosampler injects only in the front injector.<br>• **Rear:** the autosampler injects only in the rear injector. |
| **Desorption Synchro** | Set the autosampler behaviour in relation to the analyzer.<br>For details, see 'Desorption Synchro' on page 327. |

| List item | Function |
|---|---|
| **Clean Mode** | Only if two injectors are present. Set the default position in which to clean the fiber.<br>• **Front:** the autosampler executes the post-cleaning procedure in the front injector.<br>• **Rear:** the autosampler executes the post-cleaning procedure in the rear injector. |
| **Shaker Speed** | Define the shaker speed used during the run.<br>• **Very Low**<br>• **Low**<br>• **Normal**<br>• **High**<br>• **Very High** |
| **Maintenance Warning** | Set when the maintenance warning messages can appear:<br>• **Normal**: at Start up and at the beginning of each run, if the set limit is reached.<br>• **Only at Start up**: at the beginning of each run, if the set limit is reached. |
| **User Interface** | Set the version of the **Run** menu:<br>• **Standard**: version with all buttons<br>• **Quick Start**: version with less buttons |
| **Fiber Protection** | Allow to enable or not the shaker during the extraction procedure.<br>• **No:** the shaker is enabled.<br>• **Yes:** the shaker is disabled. |
| **Log** | Set if the autosampler must send the logs to HTA Monitor.<br>• **Enable**: the autosampler sends logs to HTA Monitor,<br>• **Enable w/o warnings**: the autosampler sends logs to HTA Monitor, but does not show warnings in case the PC is not connected to the autosampler.<br>• **Disable**: the autosampler does not send logs to HTA Monitor. |
| **Log Level** | Set the type of logs the autosampler sends to the HTA Monitor.<br>• **Normal**: the autosampler sends the standard logs,<br>• **Troubleshooting**: the autosampler sends more detailed logs to HTA Monitor. |
| **Protocol version** | Set the communication protocol version used by the autosampler.<br>***Note:*** *Do not change unless:*<br>○ *you operate by CDS through HTA software connectors*<br>○ *required by your third party software documentation*<br>○ *required by your Customer Representative* |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 11.7.2 Input Output

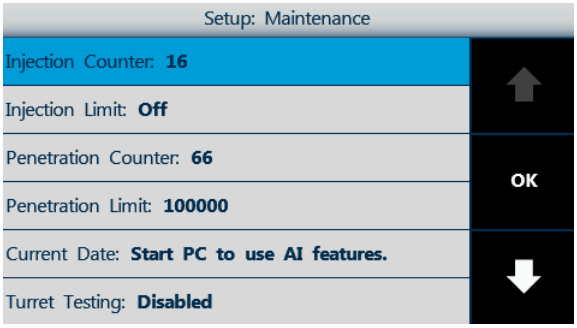
*Run menu > Settings > Setup > Configuration > Input Output*

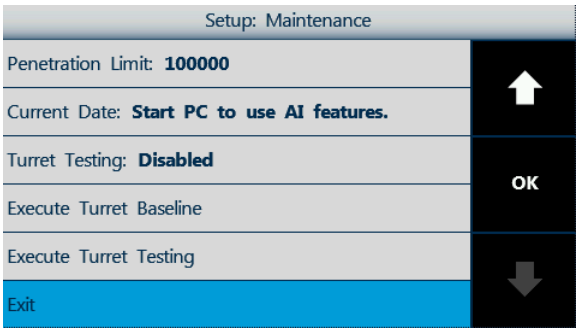



| List item | Function |
|---|---|
| **Ready On** | Set the ON state of the Ready signal. This signal is used to start the autosampler and must match the signal given by the analyzer.<br>• **Low**: the autosampler starts the injection when the analyzer provides a low logical level of voltage for the Ready signal.<br>• **High**: the autosampler starts the injection when the analyzer provides a high logical level of voltage (+5 V) for the Ready signal. |
| **Start On** | Set the ON state of the Start signal from the autosampler to the analyzer during the injection. This parameter has to be set according to the analyzer.<br>• **Open**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are open for about one second. They are closed before and after the injection.<br>• **Close**: during the injection, the pins 3 (SAMPINS- NO) and 6 (SAMPINS COM) are closed for about one second (short- circuit). They are open before and after the injection. |
| **Prep Mode On** | Set the ON state of the Prep Mode signal from the autosampler to the analyzer during the run. This parameter has to be set according to the analyzer.<br>• **Open**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are open for about one second. If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received.<br>• **Close**: before the processing of the sample vial, the pins 11 (ENDSAMP - NO) and 14 (ENDSAMP- COM) are closed for about one second (short- circuit). If within one minute the Ready signal is not received, this signal is activated again. This operation is repeated until the Ready signal is received. |
| **Exit** | Exit the page and return to the Configuration menu. |

### 11.7.3 Maintenance

*Run menu > Settings > Setup > Configuration > Maintenance*




| List item | Description |
|---|---|
| **Injection Counter** | Number of injections performed in the analyzer since the last reset. It allows to predict when the analyzer septum or injection liner should be replaced. |
| **Injection Limit** | Limit of injection number. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Penetration Counter** | Total number of perforation of the sample vial septa, and of the injector. It allows to predict when the syringe should be replaced, due to needle wear. |
| **Penetration Limit** | Limit of perforation of the sample vial septa, and of the injector. Once reached, the autosampler shows a maintenance warning message.<br>**Off**: no limit |
| **Current Date** | Only if connected to the HTA Monitor. Current Date. |
| **Turret Testing** | Initializing procedure performed by the autosampler every times it is switched on. It checks the correct movement of the turret to verify the good functioning of the autosampler.<br>• **Enable**<br>• **Disable** |
| **Execute Turret Baseline** | Perform the baseline necessary to perform the Turret Testing. To be performed only on Customer Representative request. |
| **Execute Turret Testing** | Perform a Turret Testing. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

### 11.7.4 BCR

*Run menu > Settings > Setup > Configuration > BCR*

| List item | Description |
|---|---|
| **Enable** | Read the sample vial barcode and save it in the autosampler memory so that the information contained can be read by the available software:<br>• **Yes**<br>• **No** |
| **On Reading Error** | Behaviour if a reading error occurs:<br>• **Skip**: skip the run for the vial.<br>• **Process**: perform the run anyway. |
| **Test** | Test the alignment of the turret in front of the barcode reader for correct reading. |
| **Exit** | Exit the page and return to the **Configuration** menu. |

# 11.8 The Run page

## 11.8.1 Desorption Synchro

*Run menu > Settings > Setup > Configuration > Run > Desorption Synchro*

***Note: Prep Mode** is available only for some analyzer. Check in your autosampler mounting kit instruction manual if this feature is supported on your analyzer.*

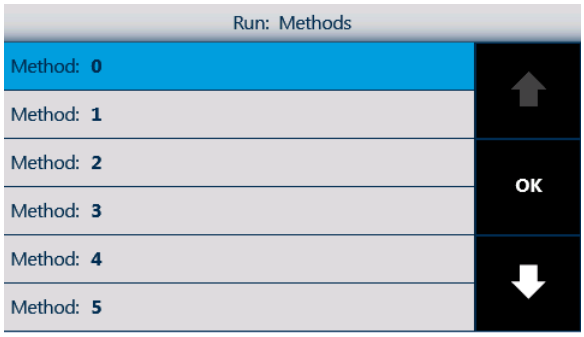
***Note**: If using **Prep Mode**, it is mandatory to start sample list on analyzer software before to start the run on the autosampler, otherwise the analysis could be not executed and/or not saved properly.*

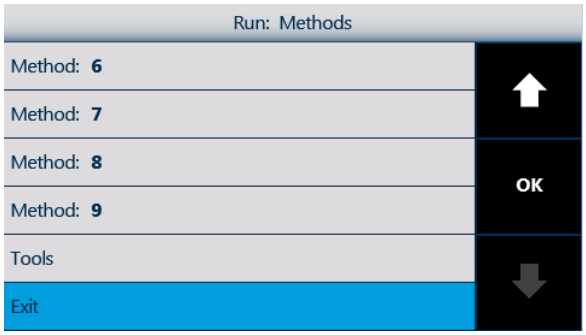
| Injection Synchro | Sample preparation start | Sample injection | Start signal to the analyzer |
|---|---|---|---|
| **Normal** | At the reception of the Ready signal from the analyzer. | After ending sample preparation the autosampler checks again the presence of the Ready signal from the analyzer and then starts the injection. | At the beginning of the plunger movement. |
| **A-Start** | | | When the autosampler touches the injector. |
| **D-Start** | | | When needle has been completely removed from the injector, after the desorption. |
| **Normal w/o Rdy** | At the end of the analysis time set in the autosampler method. | After the ending sample preparation. | At the beginning of the plunger movement. |
| **Prep Mode** | At the end of the analysis time set in the autosampler method, the autosampler sends a PREP signal to the analyzer and wait for the Ready signal from the analyzer. | After the autosampler has checked that the Ready signal is still present. | At the beginning of the plunger movement. |

# 11.9 The Method page

## 11.9.1 Method

*Run menu > Settings > Methods > (method) OK*





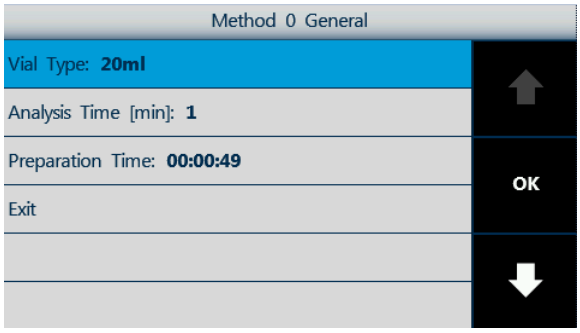
| List item | Function |
|---|---|
| **General** | Access the page for setting the general parameters of the method.<br>For details, see 'General' on page 330. |
| **Conditioning** | Access the page for setting the advanced parameters of the method.<br>For details, see 'Conditioning' on page 330. |
| **Wash&Clean** | Access the page for setting the preparation parameters of the method.<br>For details, see 'Wash&Clean' on page 331. |
| **Extraction** | Access the page for setting the sample parameters of the method.<br>For details, see 'Extraction' on page 331. |
| **Desorption** | Access the page for setting the injection parameters of the method.<br>For details, see 'Desorption' on page 332. |

| List item | Function |
|---|---|
| **Exit** | Exit the menu and return to the **Methods** page. |

# 11.10 The Method menu

## 11.10.1 General

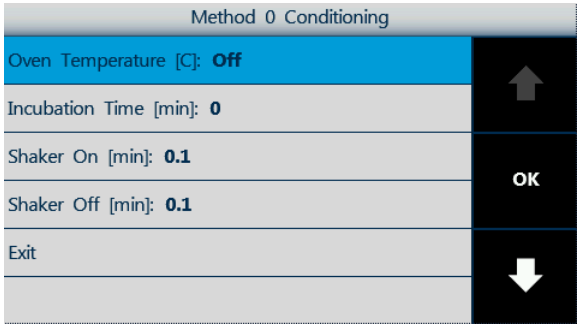
*Run menu > Settings > Methods > (method) OK > General*




| List item | Description |
|---|---|
| **Vial Type** | Type of the vial to be used. |
| **Analysis Time [min]** | Time between the injection and the moment in which the analyzer is ready again. |
| **Preparation Time** | Display how long the autosampler needs to perform a cycle. It is calculated from the instrument and is not editable (Time needed to transfer the vial from the tray to the incubator, filling time, injection time, etc.). |
| **Exit** | Exit the page and return to the selected method page. |

## 11.10.2 Conditioning

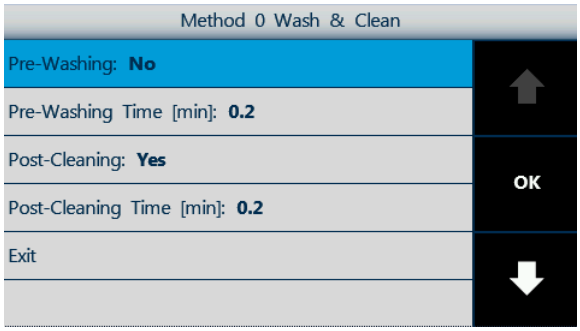
*Run menu > Settings > Methods > (method) OK > Conditioning*




| List item | Function |
|---|---|
| **Oven Temperature [°C]** | Temperature of oven conditioning. This value can be between 40°C and 170°C, or Off (inactive conditioning). |
| **Incubation Time [min]** | Sample incubation time inside the oven. |
| **Shaker On [min]** | Interval time during incubation time in which the sample is shaken. |
| **Shaker Off [min]** | Interval time during incubation time in which the sample is not shaken. |
| **Exit** | Exit the page and return to the selected method page. |

### 11.10.3 Wash&Clean

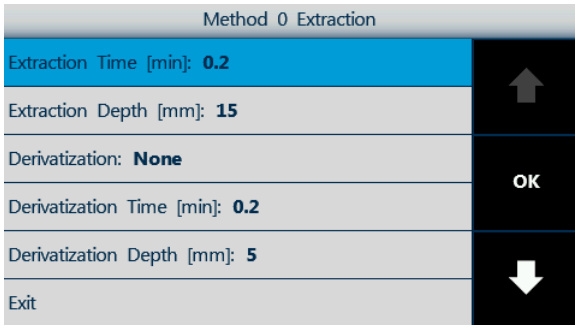
*Run menu > Settings > Methods > (method) OK > Wash&Clean*




| List item | Function |
|---|---|
| **Pre-Washing** | Enable/disable the pre-washing operation. The fiber pre-washing is performed after the extraction (before the desorption) by immersion inside a proper solution in the wash vial. |
| **Pre-Washing Time [min]** | Set the time of the pre-washing operation. |
| **Post-Cleaning** | Enable/disable the post-cleaning operation. The fiber post-cleaning is the fiber cleaning after the desorption operation. The cleaning is performed in the location specified as **'Clean mode'** in the **Setup Configuration** > **Run**. |
| **Post-Cleaning Time [min]** | Set the time of the post-cleaning operation. |
| **Exit** | Exit the page and return to the selected method page. |

### 11.10.4 Extraction

*Run menu > Settings > Methods > (method) OK > Extraction*

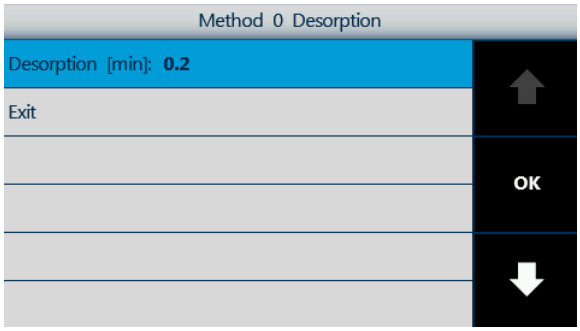



| List item | Function |
|---|---|
| **Extraction Time [min]** | Time the fiber is exposed inside the vial to absorbe the analytes. |
| **Extraction Depth [mm]** | The depth of the fiber inside the vial during the extraction phase. |
| **Derivatization** | It can have the values:<br>• **Pre:** derivatization before the extraction.<br>• **Post:** derivatization after the extraction.<br>• **None:** no derivatization. |
| **Derivatization Time** | Time the fiber is exposed to the derivatization agent. |

| List item | Function |
|---|---|
| **[min]** | |
| **Derivatization Depth [mm]** | Depth of the fiber inside the vial during the derivatization. |
| **Exit** | Exit the page and return to the selected method page. |

### 11.10.5 Desorption

*Run menu > Settings > Methods > (method) OK > Desorption*




| List item | Function |
|---|---|
| **Desorption [min]** | Time the fiber remains in the injection port to desorpt the analytes. |
| **Exit** | Exit the page and return to the selected method page. |

# 12. Maintenance

# 12.1 Preventive maintenance

## 12.1.1 Basic concepts

Maintenance requires the substitution of consumables that are subject to wear or stress (syringe, solvent vial septa, analyzer injector septa, injection liner). For this reason, the autosampler has three types of preventive maintenance features:

- **Maintenance counters**: allow to set the maximum number of times in which each consumable can be used and provides counters for each of them. Once the set limit has been reached, a warning message appears on the screen to remind that the consumable needs to be substituted. Counters are automatically reset when the warning message is cleared.
- **Self-diagnosis tests**: allow to verify the status of components subject to wear. Two self-diagnosis tests are available:

| Self-diagnosis tests | Function | When is performed if enabled |
|---|---|---|
| **Syringe testing** | Test the syringe and in particular the syringe plunger. Available only in Liquid mode and only for syringes PN 1.23.103, 1.23.104. | • At each autosampler switch on<br>• At each new syringe installation |
| **Turret testing** | Test the turret. | • At each autosampler switch on |

- **Additional tests**:

| Additional tests | Function | When is performed if enabled |
|---|---|---|
| **Injector septa test** | Available only in Headspace and Liquid mode and only for syringes PN 1.23.103, 1.23.104. Allow to prevent damaging of the syringe needle during the injection. | When user executes the test: it is suggested to execute it after installing a new injector septum. |

## 12.2 Maintain the autosampler

### 12.2.1 Test the injector septum perforation

This procedure needs to be performed after installing a new injector septum to avoid damaging the syringe needle during the injection. It is highly important to execute this test with the injector at room temperature and without pressure.

1. In the **Run** menu, select **Injector Septa Test**: the autosampler verifies the capacity of the syringe of perforating the injector septum. If **Injector Septa Test** is not available, select **Settings > Setup > Configuration > Maintenance** and enable it.
2. Select the injector(s) where to perform the test.
3. Select **Continue**.
4. Do what follows:

| If... | then... |
|---|---|
| the test passes | select **Continue**. |
| the test fails | 1. Slightly unscrew the injector septum/septa.<br>2. Select **Retry** to repeat the **Injector septa test**.<br>3. If the problem persist, change the injector septa/septum and retry the **Injector septa test**.<br>4. If the problem persist, contact your Customer Representative. |

### 12.2.2 Set the preventive maintenance counters

*Run menu > Settings > Setup > Configuration > Maintenance*

Select the desired counters and set their limit values.

### 12.2.3 Reset a counter value manually

*Run menu > Settings > Setup > Configuration > Maintenance*

Select the desired counter and select **OK**: a confirmation message appears. Select **Erase** > **Continue** to confirm.

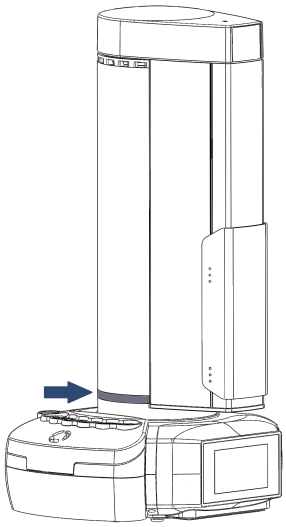
### 12.2.4 Replace septa and caps of solvent and waste vials

Change septa and caps on periodical basis. The septa should be replaced more frequently than the caps.

## 12.3 Clean the autosampler

### 12.3.1 Clean the external surfaces of the autosampler

1. Switch the autosampler OFF.
2. Disconnect the power cord from the rear.
3. Dampen a soft, lint- free or microfiber cloth with distilled water.
   ***NOTICE:*** *The cloth must not be wet. Do not use solvents nor detergents.*
4. Wipe the touch screen and all fragile parts of the autosampler gently.
5. Wipe the antifriction sticker to remove any residual.



6. Dampen another soft, lint-free or microfiber cloth with a non- abrasive detergent solution and clean the other external parts of the autosampler.
   ***NOTICE:*** *Do not use water, solvents, detergents or spray on electrical parts.*
   ***Note:*** *Alternatively, it is also possible to clean the touch screen with a screen cleaner kit that includes antistatic wipes.*
7. Dry the autosampler with a dry lint-free cloth.
8. Switch the autosampler ON.

### 12.3.2 Clean the rack and the tray

1. Open the tray and remove the rack.
2. Clean the rack and the tray with a non- abrasive detergent solution.
3. Dry the rack and the tray with a dry lint- free cloth.
4. Reposition the rack inside the tray and close the tray.

# 12.4 Autosampler packing

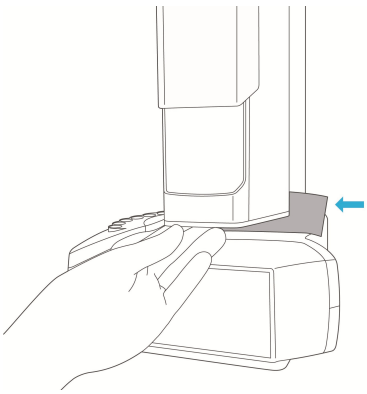
## 12.4.1 Uninstall the autosampler

1. Remove the syringe and the solvent vials, the syringe integrity tool, the external pressure regulator and the swagelok adapter from the autosampler.
2. Open the tray and remove the sample standard rack.
3. Close the tray.
4. Clean the autosampler and its components and refer to the applicable safety regulations to decontaminate them from any residual hazardous substances.
5. Loosen the safety lock.
6. Raise the vial locator completely.
7. Tighten the safety lock.
8. Lower the sliding lid.
9. Raise the syringe holder to the top using the needle motor.
10. Switch the autosampler off.
11. Disconnect the power cord from the wall socket and the power supply from the power supply socket of the autosampler.
12. Disconnect the interface cable from the autosampler port and from the analyzer.
13. Disconnect the Ethernet cable from the autosampler and from the PC or of wall jack.
14. If present, disconnect the purge gas from the connector from the autosampler rear panel.
15. Open the locking hook of the mounting plate.
16. Lift the autosampler and place it on a flat surface in a vertical position. See 'Lift the autosampler' on page 24.
17. To proceed, see 'Pack the autosampler for shipping' on page 337.

## 12.4.2 Pack the autosampler for shipping

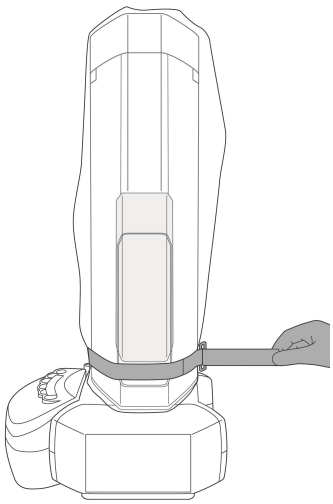
***Note:*** *The autosampler can only be shipped in its original packaging.*

1. Repack the accessories in the accessory boxes. Seal the accessory boxes with a suitable adhesive tape.
2. Reposition the turret protection.

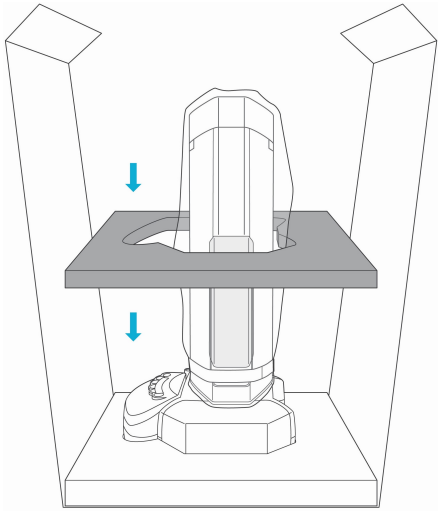


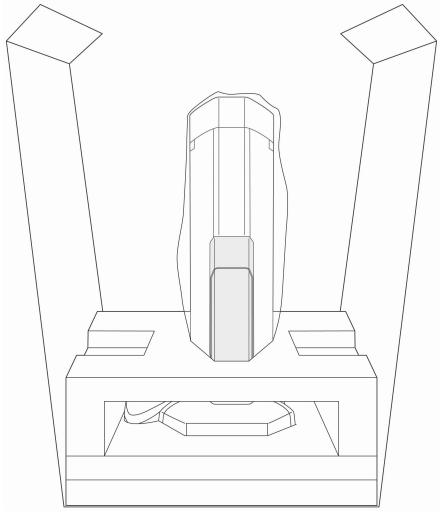
3. Reposition the polythene bag and the protection belt.

***NOTICE:*** *Lift up the sliding lid before to apply the protection belt. The protection belt must not be applied on the sliding lid.*

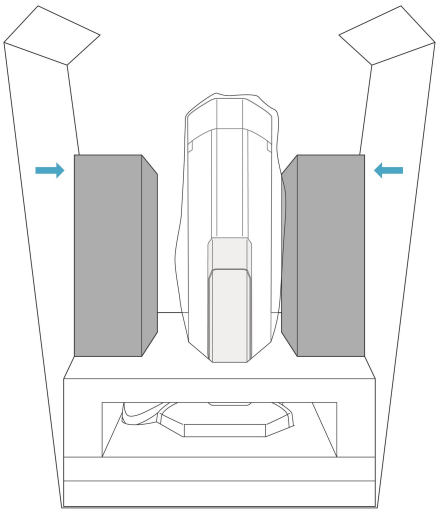


4. Position the autosampler on the cardboard, then reposition the lower package cushioning.

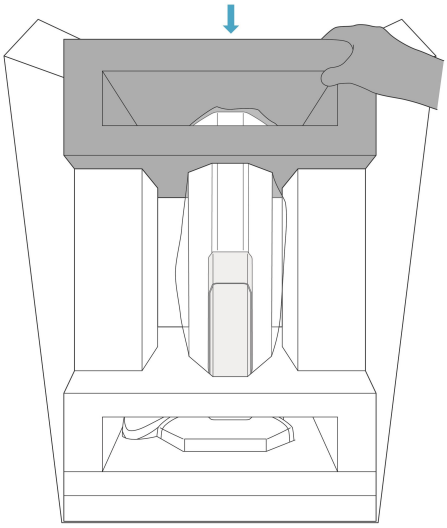




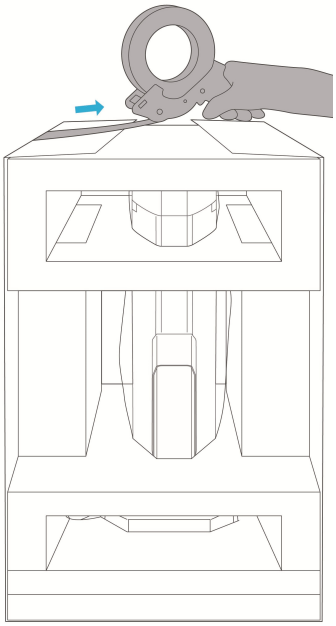
5. Reposition the sealed accessory boxes to the turret sides.



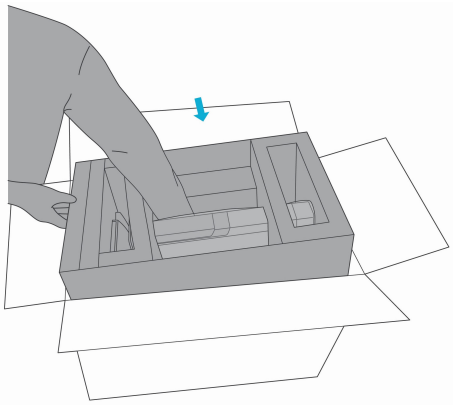
6. Reposition the upper package cushioning.



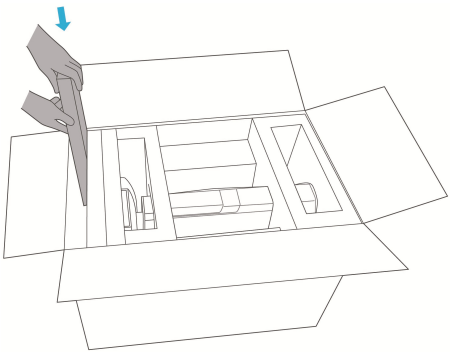
7. Close the packaging with a suitable adhesive tape.

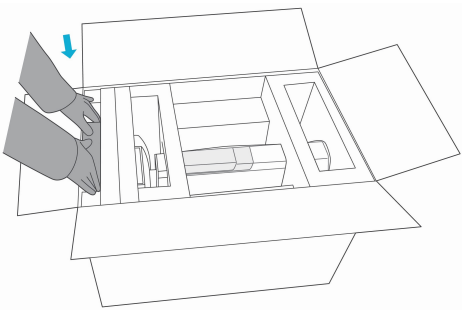


8. Reposition the autosampler in its original box.



9. Reposition the free package cushioning.





10. Close and seal the box with the suitable adhesive tape.

# 13. Troubleshooting and errors in Headspace mode

# 13.1 Troubleshooting

## 13.1.1 Analyzer reproducibility issue

***Note**: the indications given below are for gas chromatography applications and may not be suitable for other analysis techniques.*

| Problem | Cause | What to do |
|---|---|---|
| Peak area or peak retention times are not reproducible. | Injection depth | Ensure the needle is set to the correct depth for the analyzer. This is particularly important if the unit has just been installed or moved. |
| | Leak in the inlet septum | 1. If there is a leak in the inlet septum, change it.<br>2. If the inlet septum has experienced less than 100 injections, ensure what follows to avoid premature septum wear:<br>○ the syringe needle is straight<br>○ the septum retainer nut is not too tight<br>○ the syringe has been installed correctly |
| | Syringe dirty or worn | 1. Check the pressure at the external pressure regulator;<br>2. Check gas flow at needle tip during the flush phase.<br>3. Increase the syringe flush time in the method.<br>4. Set the syringe temperature 10°C above the oven temperature.<br>5. Replace syringe glass and syringe plunger. |
| | Vacuum created in sample vial | Reduce sample volume. |
| | Method parameters are not correct | Check each parameter of the method to be sure they fits your application. |
| Contamination or ghost peak issue | Purge gas is dirty | Check purge gas for impurities. |
| Peak size issue | Injection depth | Ensure the needle is set to the correct depth for the analyzer. This is particularly important if the unit has just been installed or moved. |
| | Method parameters are not correct | Check each parameter of the method to be sure they fits your application. |
| | Leak in the analyzer system | 1. Replace the injector septum and check the fitting to avoid leaks.<br>2. If the septum has experienced less than 100 injections, ensure what follows to avoid premature septum problems:<br>○ the syringe needle is straight<br>○ the septum retainer nut is not too tight<br>○ the syringe has been installed correctly |
| | GC injection liner not suitable | Check the liner geometry according to the recommendations of the GC manufacturer. |
| | GC related parameters | Any parameter like injector, oven or detector temperature can contribute to bad peak shape. Check the column type and connections (square cut connections). Check the troubleshooting guide of the GC manufacturer. |

| Problem | Cause | What to do |
|---|---|---|
| Carry over issue | Syringe dirty or worn | 1. Check the pressure at the external pressure regulator;<br>2. Check gas flow at needle tip during the flush phase.<br>3. Increase the syringe flush time in the method.<br>4. Set the syringe temperature 10°C above the oven temperature.<br>5. Replace syringe glass and syringe plunger. |
| No signal/no peak | Syringe is not working properly | Replace syringe glass and syringe plunger. |
| | Injection depth too high | Ensure the needle goes deep enough into the analyzer injector. |
| | Injection in the wrong injector | Select the correct injection mode in the **Setup** menu and **Sequences** page. |

### 13.1.2 Communication with analyzer issues

| Problem | Cause | What to do |
|---|---|---|
| The autosampler starts also if the analyzer is "Not Ready". | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The autosampler doesn't start. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer doesn't start the analysis when the autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer starts the analysis before that autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |

### 13.1.3 Usage

Below is a list of possible problems happening and their potential solutions. Some of these are hypothetical as these problems have not occurred.

| Problem | Cause | What to do |
|---|---|---|
| During the instrument research procedure, no instrument appears on the list | Firewall is blocking HTA Monitor | Be sure that the firewall is allowing HTA Monitor to work. In details, be sure that HTA Monitor could communicate on both Public and Private net.<br>For example, with Windows 10:<br>1. Reach Windows Defender Firewall (Control Panel)<br>2. Select **Allow an application...**<br>3. Select both **Public** and **Private** for HTA Monitor app |

| Problem | Cause | What to do |
|---|---|---|
| | | 4. Retry |

### 13.1.4 Configuration issues

| Problem | Cause | What to do |
|---|---|---|
| **Bad alignment on the injector position(s)** | Injector adapter is missing. | Install the proper injector adapter. |
| | **Injector alignment** is needed. | Execute **Injector alignment.** See 'Realign injectors' on page 145. |
| **The autosampler injects in the wrong injector** | Injection Mode in **Step** is wrong. | In the **Run** menu, select **Settings** > **Sequences** > **Step** to set the correct injector. See 'Step' on page 259. |
| | Injection Mode in **Run** is wrong. | In the **Run** menu, select **Settings** > **Setup** > **Configuration** > **Run** to set the correct injector. See 'Run' on page 261. |
| **Missing: front injector alignment** | The front injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Front Injector** to align the autosampler to the front injector. See 'Realign injectors' on page 145. |
| **Missing: rear injector alignment** | The rear injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Rear Injector** to align the autosampler to the rear injector. See 'Realign injectors' on page 145. |
| **Missing: touch & plunger zero** | The **Touch & Plunger Zero** procedure has not been performed. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Touch & Plunger Zero** to perform the alignment procedure. See 'Reset the position of the vial' on page 147. |
| **WARNING**<br>**Check Touch Sensor then execute Touch & Plunger Zero.** | A syringe with a longer needle is installed and touch and plunger zero procedure is not performed. | 1. Select **Continue**.<br>2. Select **Touch Plunger Zero.**<br>See 'Reset the position of the vial' on page 147. |

### 13.1.5 Consumables/syringe issues

| Element | Problem | Cause | What to do |
|---|---|---|---|
| **Syringe** | Syringe needle damaged. | Use of incorrect vials or injection septum or incorrect syringe installation/configuration. | 1. Identify the cause of the damage and the position in which it occurs.<br>2. Ensure the alignment on the oven cover and on the injector/s is correct.<br>3. Check that the septa of sample vials and injectors are suitable and correctly pierced.<br>4. Check that there are no obstacles in the vials, such as an insert. |

| Element | Problem | Cause | What to do |
|---|---|---|---|
| | | | 5. Replace the syringe glass. See 'Syringe management' on page 131. |
| | Needle breaking. | Needle not set up correctly. | Align vial locator to needle tip (see 'Align the vial locator to the needle tip' on page 139) and execute **Touch & Plunger Zero** (see 'Reset the position of the vial' on page 147). |
| | Needle obstructed. | Pieces of septum inside needle. | Check quality of septum of sample vial and injector. |
| | | Pieces of septum inside needle. | Check that sample vials are not overcrimped: this may result in septum damaging. |
| | | Sample full of dirt. | Check sample quality or modify tray depth to draw at higher level. |
| **Sample vials** | Unit picks up and drops vials. | Safety lock and/or needle height regulator aren't installed properly. | Align the vial locator to the needle tip and execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 147. |
| | | Vial locator and its two steel bars can't move along the syringe needle. | Check if the safety lock and the needle height regulator are fixed correctly; they should not be fixed in a non-parallel position. |
| | | Septum is too tight. | Check if crimping or screwing is performed correctly. |

## 13.2 Start up errors

### 13.2.1 Generic start-up errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 1 1<br>• Plunger error: Code 1 2<br>• Plunger error: Code 1 4<br>• Plunger error: Code 2 1<br>• Plunger error: Code 2 2<br>• Plunger error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Syringe is damaged or not installed properly. | Remove the syringe and press **Retry**; then, execute the syringe installation procedure properly. See 'Syringe management' on page 131. |
| • Needle error: Code 1 1<br>• Needle error: Code 1 2<br>• Needle error: Code 1 4<br>• Needle error: Code 2 1<br>• Needle error: Code 2 2<br>• Needle error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Instrument is in shipping position. | Press **Disengage**, set the autosampler in operating position and press **Exit**. |
| • Turret error: Code 1 1<br>• Turret error: Code 1 2<br>• Turret error: Code 1 4<br>• Turret error: Code 2 1<br>• Turret error: Code 2 2<br>• Turret error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| • Tray error: Code 1 1<br>• Tray error: Code 1 2<br>• Tray error: Code 1 4<br>• Tray error: Code 2 1<br>• Tray error: Code 2 2<br>• Tray error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial; press **Exit** to retry the start-up. |
| | The rack is not positioned properly. | Press **Disengage** to open the tray and reposition the rack correctly; press **Exit** to retry the start-up. |
| Unit power up in Service mode: a PIN code is required. | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |
| Error: "Timeout communication from peripheral: plunger / needle / tray / turret". | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |

### 13.2.2 Safety lock errors

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The syringe location has not been prepared. | 1. Switch the autosampler off.<br>2. See 'Prepare the syringe location' on page 62. |

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The touch sensor is not working correctly. | 1. Ensure to have prepared the syringe location properly. See 'Prepare the syringe location' on page 62.<br>2. If the problem persists, select **Yes** and then **Run** menu > **Settings** > **Setup** > **Manual Operation**.<br>3. Select the needle and raise it.<br>4. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>5. Select **Exit**. |

### 13.2.3 Vial locator errors

| Error message | Cause | Solution |
|---|---|---|
| Attention! Vial locator in critical position! Press Disengage and move the vial locator to a safe position, then press Exit. | Unexpected switching off of the autosampler while the vial locator was picking up/replacing a vial. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. If present, remove the vial from the vial locator and place it back to its original position.<br>4. Check that all the vials are correctly positioned in the rack.<br>5. Select **Exit**. |

### 13.2.4 Memory errors

| Error message | Cause | Solution |
|---|---|---|
| **Error Reading Border mark-out!** | The autosampler cannot read the Border Mark Out parameters. | 1. Select **Continue**: the **Service** page appears.<br>2. Contact your Customer Representative to solve the problem. |
| **Error Reading Methods!** | The autosampler cannot read the parameters of the saved methods. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |
| **Error Reading Sequence!** | The autosampler cannot read the parameters of the saved sequences. | |
| **Error Reading Features!** | The autosampler cannot read the features. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |

## 13.3 Run issues / errors

### 13.3.1 Generic run errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 4 2<br>• Plunger error: Code 4 4<br>• Plunger error: Code 4 8<br>• Plunger error: Code 10 7 | Plunger locker is in incorrect position. | Install correctly the plunger locker and execute the **Syringe Installation** procedure. See 'Syringe management' on page 131. |
| | The syringe was installed without to perform completely the **Syringe Installation** procedure. | Execute completely the **Syringe Installation** procedure. See 'Syringe management' on page 131. |
| | Syringe is not installed correctly. | Install correctly the syringe and perform **Syringe Installation** procedure. See 'Syringe management' on page 131. |
| | Damaged syringe or worn out syringe. | Change the syringe and perform **Syringe Installation** procedure. See 'Syringe management' on page 131. |
| • Needle error: Code 4 2<br>• Needle error: Code 4 4<br>• Needle error: Code 4 8<br>• Needle error: Code 10 7 | Safety lock or needle height regulator loosen/not fasten properly. | Fasten completely the loosen part and press **Retry**; to align the vial locator at the needle tip may be required. See 'Align the vial locator to the needle tip' on page 139. |
| | Injector depth too high, not reachable with the syringe needle in use. | Change injector depth according to the syringe needle in use or change the syringe with a syringe with longer needle. |
| • Turret error: Code 4 2<br>• Turret error: Code 4 4<br>• Turret error: Code 4 8<br>• Turret error: Code 10 7 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | The anti-friction sticker needs to be cleaned. | Wipe the anti-friction sticker with a soft, lint-free or microfiber cloth dampen with distilled water. |
| • Tray error: Code 4 2<br>• Tray error: Code 4 4<br>• Tray error: Code 4 8<br>• Tray error: Code 10 7 | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial. |
| | The rack is not positioned properly. | Press **Disengage** to open the tray and correct rack position. |
| • Cover error: Code 7 1 | A vial has fallen during vial transport and blocks the cover to move. | Remove the vial, and check 'Vial transport problem' on page 349. |
| • Shaker error: Code 7 1 | Something is blocking the shaker to move. | Remove the obstacle and press **Retry**. |
| • Oven error: Code 8 1<br>• Oven error: Code 8 2<br>• Oven error: Code 8 3<br>• Oven error: Code 8 4 | The oven cannot reach or keep the desired temperature. | Contact your customer representative. |
| • Syringe error: Code 8 1<br>• Syringe error: Code 8 2<br>• Syringe error: Code 8 3<br>• Syringe error: Code 8 4 | The syringe warmer is not installed or not installed properly. | Install the syringe warmer, if already installed try to remove it and install it again. |
| | The syringe cannot reach or keep the desired temperature. | Contact your customer representative. |

### 13.3.2 Touch sensor error

| Error message | Cause | Solution |
|---|---|---|
| **WARNING Check Touch Sensor!** | The touch sensor is off and/or it is not working correctly. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>4. Select **Exit**. |

### 13.3.3 Vial transport problem

| Error | Cause | Solution |
|---|---|---|
| Falling vials | Sample vials not prepared properly. | 1. Check the external status of vial, cap and septa.<br>2. Be sure they are not overcrimped. |
| | Vial locator damaged. | Contact customer representative. |

### 13.3.4 Vial detection problem

<table>
<tr><th>Error message</th><th>Cause</th><th>Solution</th></tr>
<tr><td>Warning: Obstacle found over [x]! Try to remove the obstacle</td><td>The autosampler found an obstacle over the indicated position.</td><td>1. Remove the obstacle.<br>2. To open the Manual Operation page, select Disengage.<br>3. Select the desired item and move its motor and unlock the system.<br>4. To restart the automatic run from the point of interruption select Retry. Otherwise, select Exit.<br>5. If error persists, execute Touch & Plunger Zero. See 'Reset the position of the vial' on page 147.</td></tr>
<tr><td>Warning: [x] missing! Insert the vial, then press Retry</td><td>Missing vial in the indicated position.</td><td>Do what follows:
<table>
<tr><th>If you...</th><th>Then...</th></tr>
<tr><td>can access the desired position</td><td>1. Insert the missing vial.<br>2. Select Retry.</td></tr>
<tr><td>cannot access the desired position</td><td>1. To open the Manual Operation page, select Disengage.<br>2. Select the desired item, move its motor and unlock the system.<br>3. Insert the missing vial.<br>4. Select Exit: automatic run restarts from the point of interruption.</td></tr>
</table>
If error persists, execute Touch & Plunger Zero. See 'Reset the position of the vial' on page 147.</td></tr>
</table>

| Error message | Cause | Solution |
|---|---|---|
| **Bad alignment on the sample vials OR oven cover OR oven locations**:<br>• autosampler touches more times the vial before recognizing it<br>• **Obstacole Found** error appears | **Touch & Plunger Zero** is needed. | Execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 147. |

## 13.4 System Integrity test errors

| Error | Cause | Solution |
|---|---|---|
| Integrity test has failed. Check for clogged needle. | Needle is clogged | Replace the syringe glass. |
| Integrity test has failed. Check for syringe or System Integrity Tool. | System Integrity Tool has not been placed in its site | Place the System Integrity Tool. |
| | Syringe damaged | Change the syringe plunger (more probable) or syringe glass. |
| | System Integrity Tool with damaged septum | Replace system integrity septum. |

## 13.5 Mismatch errors

<table>
<tr><th>Error message</th><th>Cause</th><th>Solution</th></tr>
<tr><td>Change [x] parameter. Unknown value.</td><td>Inconsistency between the parameter and the Protocol version set.</td><td>Contact your Customer Representative.</td></tr>
<tr><td>Warning: Run Error parameters<br><br>Step [i]: Set Meth [x] Anatime>0 or change Injection Synchro</td><td>Inconsistency between the Analysis Time and the Injection Synchro set.</td><td>1. Select Abort.<br>2. In the Run menu select Settings > Methods and modify the methods setting Analysis Time to a value higher than 0.</td></tr>
<tr><td>Warning: Run Error parameters<br><br>Step [x]: Injection Mode mismatch</td><td>Inconsistency between the injection mode set in Settings > Sequences > Step and the injector type/number (visible in Settings > View Parameters).</td><td>1. Select Exit.<br>2. In the Run menu, select Settings > Sequences > Step and modify the injection mode. Otherwise, select Settings > Setup > Alignment and modify the injector type/number. See 'Realign injectors' on page 145.</td></tr>
<tr><td>Warning: Run Error Parameters<br><br>Method [x] Syringe Volume mismatch in Method [x]</td><td>Inconsistency between the syringe volume set during installation and the syringe volume set in the method.</td><td>1. Select Exit.2. Do what follows:<table><tr><th>If the installed syringe...</th><th>Then...</th></tr><tr><td>is correct</td><td>1. in the Run menu select Settings > Methods > (method) OK > General and check the value of Syringe Volume. If not correct, modify it and save the method.<br>2. in the Run menu select Settings > View Parameter and check the value of Syringe Volume. If not correct, execute Syringe Installation procedure taking care to select the correct syringe volume. See 'Syringe management' on page 131.</td></tr><tr><td>is not correct</td><td>Replace the syringe. See 'Syringe management' on page 131.</td></tr></table></td></tr>
</table>

## 13.6 Preventive maintenance warnings

| Error message | Cause | Solution |
|---|---|---|
| **FAIL. [Injector position] injector septum/septa is/are not suitable for injection. Check septum/septa and retry.** | Injector septa test failed. Septa too tightened or too hard for the injection. | 1. Slightly unscrew the injector septum/septa.<br>2. Select **Retry** to repeat the **Injector septa test**.<br>3. If the problem persist, change the injector septa/septum and retry the **Injector septa test**.<br>4. If the problem persist, contact your Customer Representative. |
| | Injector septa test failed: the test was execute with injector not at room temperature and/or with pressure inside the injector. | 1. Cool down the injector to room temperature.<br>2. Set injector pressure to OFF/0 bar.<br>3. Select **Retry** to repeat the **Injector septa test**.<br>4. If the problem persists, change the injector septa/septum and retry the **Injector septa test**.<br>5. If the problem persists, contact your Customer Representative. |
| **Injection limit reached.** | Injection counter reached injection limit set. | Select **Ok** and replace the injector septum. |
| **Penetrations limit reached. Replace your syringe.** | Penetration counter reached penetration limit set. | Select **Replace** and replace the syringe. |
| **Plunger strokes limit reached. Replace your syringe.** | Plunger strokes counter reached plunger strokes limit set. | Select **Replace** and replace the syringe. |
| **Syringe is expired. Replace your syringe.** | Syringe reached syringe expire date set. | Select **Replace** and replace the syringe. |
| **Turret assembly requires maintenance. Contact your Service Rep. This is a predictive maintenance warning. You can continue to operate the device safely in the meantime. ([Code])** | Turret testing failed. Turret worn. | Contact your Customer Representative indicating the error message and the error code. |
| **Missing Turret baseline.** | Turret baseline is missing (required to perform turret testing). | 1. Select **Execute**.<br>2. Select **Continue**. |
| **Switch off and on the autosampler to perform the preventive** | The autosampler has not been turned off and on for more than 24 hours. | Switch the autosampler off and then switch it on, or select **Cancel** to close the message. |

| Error message | Cause | Solution |
|---|---|---|
| **maintenance task.** | | |

# 14. Troubleshooting and errors in Liquid mode

# 14.1 Troubleshooting

## 14.1.1 Analyzer reproducibility issue

***Note**: the indications given below are for gas chromatography applications and may not be suitable for other analysis techniques.*

| Problem | Cause | What to do |
|---|---|---|
| Peak area or peak retention times are not reproducible | Injection depth | Ensure the needle is set to the correct depth for the analyzer. This is particularly important if the unit has just been installed or moved. |
| | Leak in the inlet septum | 1. If there is a leak in the inlet septum, change it.<br>2. If the inlet septum has experienced less than 100 injections, ensure what follows to avoid premature septum wear:<br>○ the syringe needle is straight<br>○ the septum retainer nut is not too tight<br>○ the syringe has been installed correctly |
| | Syringe dirty or worn | Clean the syringe according to the manufacturer's cleaning instructions. |
| | Sample volume in the vial is not correct. | Adjust the sample volume so that it corresponds to half of the vial nominal volume. |
| | Sample vials are not closed properly. | Ensure the vial caps are not loosen. |
| | Sample instability | Check the stability of the samples, and ensure they are not sensitive to light or heat. |
| | Sample size variation and syringe probably imprecise or worn | Change the syringe. See 'Syringe management' on page 173. |
| | Air bubbles inside the syringe | 1. If the samples is viscous, dilute it in a proper low-viscosity solvent.<br>2. In the **Run** menu, select **Settings** > **Methods** > **(method) OK** > **General** and modify the fill speed and the viscosity delay.<br>3. Select **Exit**: the selected method page appears.<br>4. Select **Injection** and modify the injection speed.<br>5. Increase the pull-ups. |
| | Drop on waste vial cap or on the vial locator | Change the waste vial septum with a pre- slit septum or with a low maintenance septum. |
| Contamination or ghost peak issue | Small fragments of the solvent cap septum dissolved in the sample. | 1. Inject several blanks to check for ghost peaks persistence or elimination.<br>2. Check what follows:<br>○ the syringe needle has not burrs that can cause septum cutting<br>○ the septum resistance to the solvent in use<br>○ the septum is flat and not damaged |
| | Contamination in sample vials | Use new or clean vials and store new vials in a contaminant- free place. |

| Problem | Cause | What to do |
|---|---|---|
| | Sample instability | Check the stability of the samples, and ensure they are not sensitive to light or heat. Ensure they are stored correctly. |
| | Drop on waste vial cap or on the vial locator | Change waste vial septum with a pre- slit septum or with a low maintenance septum. |
| Peak size issue | Leak in the analyzer system | 1. Replace the injector septum and check the fitting to avoid leaks.<br>2. If the septum has experienced less than 100 injections, ensure what follows to avoid premature septum problems:<br>○ the syringe needle is straight<br>○ the septum retainer nut is not too tight<br>○ the syringe has been installed correctly |
| | Sample instability | Check the stability of the samples, and ensure they are not sensitive to light or heat. Ensure they are stored correctly. |
| | The vials are not closed properly | Ensure the vial caps are not loosed. |
| | Drop on waste vial cap or on the vial locator | Change waste vial septum with a pre- slit septum or with a low maintenance septum. |
| Carry over issue | Type or number of washes are inappropriate. | Check if the washing modalities are suitable for your specific application. |
| | Solvent almost finished | • Top up the solvent vial.<br>• If the waste vial is almost full, replace it or empty it. |
| | Syringe dirty or worn | Clean the syringe according to the manufacturer's cleaning instructions. |
| | Samples are immiscible. | In this case the washes should not rinse properly the syringe. Increase the wash number or use solvents that can rinse different types of samples. |
| | Drop on waste vial cap or on the vial locator | Change waste vial septum with a pre- slit septum or with a low maintenance septum. |
| | Damaged solvent septa: not compatible with solvent (e.g. acetone). | Use low maintenance septa. |
| No signal/no peak | Syringe plunger is not working properly. | 1. Ensure the plunger is secured by the plunger locker.<br>2. Ensure the syringe needle is not plugged. If needed, replace or clean the syringe. |
| | Sample volume is insufficient | Top up the sample volume in the vial or change the needle draw depth inside the sample vial. See 'Set the characteristics of the rack to be used' on page 172. |
| | Sample is viscous | In the **Run** menu, select **Settings** > **Methods** > **(method) OK** > **General** and modify the fill speed and the viscosity delay or dilute the sample in a proper low viscosity solvent. |
| | Injection depth too high | Ensure the needle goes deep enough into the analyzer injector. |
| | Injection in the wrong injector | Select the correct injection mode in the **Setup** menu and **Sequences** page. |

| Problem | Cause | What to do |
|---|---|---|
| | Drop on waste vial cap or on the vial locator | Change waste vial septum with a pre- slit septum or with a low maintenance septum. |

### 14.1.2 Communication with analyzer issues

| Problem | Cause | What to do |
|---|---|---|
| The autosampler starts also if the analyzer is "Not Ready". | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The autosampler doesn't start. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer doesn't start the analysis when the autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer starts the analysis before that autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |

### 14.1.3 Usage

Below is a list of possible problems happening and their potential solutions. Some of these are hypothetical as these problems have not occurred.

| Problem | Cause | What to do |
|---|---|---|
| During the instrument research procedure, no instrument appears on the list | Firewall is blocking HTA Monitor | Be sure that the firewall is allowing HTA Monitor to work. In details, be sure that HTA Monitor could communicate on both Public and Private net.<br>For example, with Windows 10:<br>1. Reach Windows Defender Firewall (Control Panel)<br>2. Select **Allow an application...**<br>3. Select both **Public** and **Private** for HTA Monitor app<br>4. Retry |

### 14.1.4 Configuration issues

| Problem | Cause | What to do |
|---|---|---|
| **Bad alignment on the injector position(s)** | Injector adapter is missing. | Install the proper injector adapter. |
| | **Injector alignment** is needed. | Execute **Injector alignment.** See 'Realign injectors' on page 181. |
| **The autosampler injects in the wrong injector** | Injection Mode in **Step** is wrong. | In the **Run** menu, select **Settings** > **Sequences** > **Step** to set the correct injector. See 'Step' on |

| Problem | Cause | What to do |
|---|---|---|
| | | page 288. |
| | Injection Mode in **Run** is wrong. | In the **Run** menu, select **Settings** > **Setup** > **Configuration** > **Run** to set the correct injector. See 'Run' on page 290. |
| **Missing: front injector alignment** | The front injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Front Injector** to align the autosampler to the front injector. See 'Realign injectors' on page 181. |
| **Missing: rear injector alignment** | The rear injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Rear Injector** to align the autosampler to the rear injector. See 'Realign injectors' on page 181. |
| **Missing: touch & plunger zero** | The **Touch & Plunger Zero** procedure has not been performed. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Touch & Plunger Zero** to perform the alignment procedure. See 'Reset the position of the vial' on page 183. |
| **WARNING**<br>**Check Touch Sensor then execute Touch & Plunger Zero.** | A syringe with a longer needle is installed and touch and plunger zero procedure is not performed. | 1. Select **Continue**.<br>2. Select **Touch Plunger Zero.**<br>'Reset the position of the vial' on page 183. |

### 14.1.5 Consumables/syringe issues

| Element | Problem | Cause | What to do |
|---|---|---|---|
| **Syringe** | Syringe needle damaged. | Use of incorrect vials, syringes, needles or injection septum or incorrect syringe installation/configuration. | 1. Identify the cause of the damage and the position in which it occurs.<br>2. Ensure the alignment on the sample vials and on the injector/s is correct.<br>3. Check that the septa of sample vials and injectors are suitable and correctly pierced.<br>4. Check that there are no obstacles in the vials, such as an insert.<br>5. Replace the syringe. See 'Syringe management' on page 173. |
| | Syringe is sucking up air. | Too much sample is being drawn at one time and is causing cavitation. | Use pre-slit septa. Use multiple injections if possible. |
| | | Fill speed too high. | In the **Run** menu, select **Settings** > **Methods** > **(method) OK** > **General** and modify the fill speed. |
| | | Tray depth not proper (needle tip is not below liquid level). | Correct tray depth. See 'Set the characteristics of the rack to be used' on page 172. |
| | Needle breaking. | Needle not set up | Align vial locator to needle tip (see 'Align |

| Element | Problem | Cause | What to do |
|---|---|---|---|
| | | correctly. | the vial locator to the needle tip' on page 176) and execute **Touch & Plunger Zero** (see 'Reset the position of the vial' on page 183). |
| | Needle obstructed. | Pieces of septum inside needle. | Check quality of septum of sample vial and injector. |
| | | Pieces of septum inside needle. | Check that sample vials are not overcrimped/overtighten: this may result in septum damaging. |
| | | Sample full of dirt. | Check sample quality or modify tray depth to draw at higher level. |
| | **Plunger does not touch the bottom of the syringe barrel.**<br><br>If the plunger does not rest at the bottom of the syringe barrel the unit will not operate correctly and will inject air into the system (the volume of sample may also be inaccurate). | Plunger locker inserted wrong way. | Insert plunger locker in the correct way and execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| | | Incorrect **Touch & Plunger Zero** / **Syringe Installation**. | Repeat **Touch & Plunger Zero** or **Syringe Installation**. |
| | | Incompatible syringe. | Change syringe. |
| **Sample vials** | Unit picks up and drops vials. | Safety lock and/or needle height regulator aren't installed properly. | Align the vial locator to the needle tip and execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| | | Vial locator and its two steel bars can't move along the syringe needle. | Check if the safety lock and the needle height regulator are fixed correctly; they should not be fixed in a non-parallel position. |
| | | Septum is too tight. | Check if crimping or screwing is performed correctly. |
| | Vial locator wet and/or liquid on solvent caps. | Waste is without septum or with not pre-slit septum. | Use pre-slit septum. |
| **Solvent vials** | Solvent vials caps do not stay in the correct position. | Solvent vial septa have been put upside down. | Remount septa. Red layer should face down. |
| | Plastic parts inside solvent vials. | Solvent vial septa have been used for too many times. | Replace solvent vial septa. |
| | Needle touches vial bottom during wash. | Missing septa. | Remount septa. |
| | | **Touch & Plunger Zero** missing. | Execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| | | Waste vial in different configuration (septum/cap) compared to solvent vial | Install the same type of septum / cap on Solvent and waste vial and execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |

| Element | Problem | Cause | What to do |
|---|---|---|---|
| | | configuration. | |
| | | Brand/type of vial has changed since last execution of touch plunger zero. | Execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| | Vial locator wet and/or liquid on solvent caps. | Waste is without septum or with not pre-slit septum. | Use pre-slit septum. |

## 14.2 Start up errors

### 14.2.1 Generic start-up errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 1 1<br>• Plunger error: Code 1 2<br>• Plunger error: Code 1 4<br>• Plunger error: Code 2 1<br>• Plunger error: Code 2 2<br>• Plunger error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Syringe is damaged or not installed properly. | Remove the syringe and press **Retry**; then, execute the syringe installation procedure properly. See 'Syringe management' on page 173. |
| • Needle error: Code 1 1<br>• Needle error: Code 1 2<br>• Needle error: Code 1 4<br>• Needle error: Code 2 1<br>• Needle error: Code 2 2<br>• Needle error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Instrument is in shipping position. | Press **Disengage**, set the autosampler in operating position and press **Exit**. |
| • Turret error: Code 1 1<br>• Turret error: Code 1 2<br>• Turret error: Code 1 4<br>• Turret error: Code 2 1<br>• Turret error: Code 2 2<br>• Turret error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| • Tray error: Code 1 1<br>• Tray error: Code 1 2<br>• Tray error: Code 1 4<br>• Tray error: Code 2 1<br>• Tray error: Code 2 2<br>• Tray error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial; press **Exit** to retry the start-up. |
| | The rack is not positioned properly. | Press **Disengage** to open the tray and reposition the rack correctly; press **Exit** to retry the start-up. |
| Unit power up in Service mode: a PIN code is required. | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |
| Error: "Timeout communication from peripheral: plunger / needle / tray / turret". | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |

### 14.2.2 Safety lock errors

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The syringe location has not been prepared. | 1. Switch the autosampler off.<br>2. See 'Prepare the syringe location' on page 62. |

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The touch sensor is not working correctly. | 1. Ensure to have prepared the syringe location properly. See 'Prepare the syringe location' on page 62.<br>2. If the problem persists, select **Yes** and then **Run** menu > **Settings** > **Setup** > **Manual Operation**.<br>3. Select the needle and raise it.<br>4. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>5. Select **Exit**. |

### 14.2.3 Vial locator errors

| Error message | Cause | Solution |
|---|---|---|
| Attention! Vial locator in critical position! Press Disengage and move the vial locator to a safe position, then press Exit. | Unexpected switching off of the autosampler while the vial locator was picking up/replacing a vial. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. If present, remove the vial from the vial locator and place it back to its original position.<br>4. Check that all the vials are correctly positioned in the rack.<br>5. Select **Exit**. |

### 14.2.4 Memory errors

| Error message | Cause | Solution |
|---|---|---|
| **Error Reading Border mark-out!** | The autosampler cannot read the Border Mark Out parameters. | 1. Select **Continue**: the **Service** page appears.<br>2. Contact your Customer Representative to solve the problem. |
| **Error Reading Methods!** | The autosampler cannot read the parameters of the saved methods. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |
| **Error Reading Sequence!** | The autosampler cannot read the parameters of the saved sequences. | |
| **Error Reading Features!** | The autosampler cannot read the features. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |

## 14.3 Run issues / errors

### 14.3.1 Generic run errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 4 2<br>• Plunger error: Code 4 4<br>• Plunger error: Code 4 8<br>• Plunger error: Code 10 7 | Plunger locker is in incorrect position. | Install correctly the plunger locker and execute the **Syringe Installation** procedure. See 'Syringe management' on page 173. |
| | The syringe was installed without to perform completely the **Syringe Installation** procedure. | Execute completely the **Syringe Installation** procedure. See 'Syringe management' on page 173. |
| | Syringe is not installed correctly. | Install correctly the syringe and perform **Syringe Installation** procedure. See 'Syringe management' on page 173. |
| | Damaged syringe or worn out syringe. | Change the syringe and perform **Syringe Installation** procedure. See 'Syringe management' on page 173. |
| • Needle error: Code 4 2<br>• Needle error: Code 4 4<br>• Needle error: Code 4 8<br>• Needle error: Code 10 7 | Safety lock or needle height regulator loosen/not fasten properly. | Fasten completely the loosen part and press **Retry**; to align the vial locator at the needle tip may be required. See 'Align the vial locator to the needle tip' on page 176. |
| | Microinserts are present inside the sample vials and vial depth is too high. | Install a new tray with the proper vial depth or change the vial depth in the tray in use. See 'Racks management' on page 172. |
| | The vial locator is not aligned with needle tip, therefore the syringe hits the vial locator when inserting the needle in solvent vial or in the injector. | Align the vial locator at the needle tip. See 'Align the vial locator to the needle tip' on page 176. |
| | Injector depth too high, not reachable with the syringe needle in use. | Change injector depth according to the syringe needle in use or change the syringe with a syringe with longer needle. |
| • Turret error: Code 4 2<br>• Turret error: Code 4 4<br>• Turret error: Code 4 8<br>• Turret error: Code 10 7 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | The anti-friction sticker needs to be cleaned. | Wipe the anti-friction sticker with a soft, lint-free or microfiber cloth dampen with distilled water. |
| • Tray error: Code 4 2<br>• Tray error: Code 4 4<br>• Tray error: Code 4 8<br>• Tray error: Code 10 7 | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial. |
| | The rack is not positioned properly. | Press **Disengage** to open the tray and correct rack position. |

### 14.3.2 Touch sensor error

| Error message | Cause | Solution |
|---|---|---|
| **WARNING Check Touch Sensor!** | The touch sensor is off and/or it is not working correctly. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>4. Select **Exit**. |

### 14.3.3 Vial detection problem

| Error message | Cause | Solution |
|---|---|---|
| **Warning: Obstacle found over [x]! Try to remove the obstacle** | The autosampler found an obstacle over the indicated position. | 1. Remove the obstacle.<br>2. To open the **Manual Operation** page, select **Disengage**.<br>3. Select the desired item and move its motor and unlock the system.<br>4. To restart the automatic run from the point of interruption select **Retry**. Otherwise, select **Exit**.<br>5. If error persists, execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| **Warning: [x] missing! Insert the vial, then press Retry** | Missing vial in the indicated position. | Do what follows:<br>**If you...** / **Then...**<br>can access the desired position: 1. Insert the missing vial. 2. Select **Retry**.<br>cannot access the desired position: 1. To open the **Manual Operation** page, select **Disengage**. 2. Select the desired item, move its motor and unlock the system. 3. Insert the missing vial. 4. Select **Exit**: automatic run restarts from the point of interruption.<br>If error persists, execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |
| **Bad alignment on the sample vials OR solvent vials OR waste vialOR oven cover OR oven locations**:<br>• autosampler touches more times the vial before recognizing it<br>• **Obstacole Found** error appears | **Touch & Plunger Zero** is needed. | Execute **Touch & Plunger Zero**. See 'Reset the position of the vial' on page 183. |

| Error message | Cause | Solution |
|---|---|---|
| **Vial not found. Insert proper vial in position C, then continue** | The vial in the oven is missing or not inserted in position C. | Insert the vial in position C. |
| | The vial is a 10 ml or 6 ml, but the spacer used is the one for liquid mode (the black one). | Get the proper spacers kit to work with 10 ml vials or 6 ml vials. |

## 14.4 Mismatch errors

<table>
<tr><th>Error message</th><th>Cause</th><th>Solution</th></tr>
<tr><td>Change [x] parameter. Unknown value.</td><td>Inconsistency between the parameter and the Protocol version set.</td><td>Contact your Customer Representative.</td></tr>
<tr><td>Please add a volume for Fill Volume or set to 0 Pull Up Strokes</td><td>Inconsistency between the number of pull up strokes and the fill volume set.</td><td>1. Select Continue: the Sample page appears.<br>2. Do what follows:<table><tr><th>If you want to...</th><th>Then...</th></tr><tr><td>avoid the pull up strokes</td><td>set Pull Up Strokes to 0.</td></tr><tr><td>perform the pull up strokes</td><td>set Fill Volume to a value different from 0.</td></tr></table>3. Select Exit > Exit and Save if necessary.</td></tr>
<tr><td>Please add a volume for Fill Volume or set to 0 Sample Washes</td><td>Inconsistency between the number of sample washes and the fill volume set.</td><td>1. Select Continue: the Sample page appears.<br>2. Do what follows:<table><tr><th>If you want to...</th><th>Then...</th></tr><tr><td>avoid the sample washes</td><td>set Sample Washes to 0.</td></tr><tr><td>perform the sample washes</td><td>set Fill Volume to a value different from 0.</td></tr></table>3. Select Exit > Exit and Save if necessary.</td></tr>
<tr><td>Please add a volume for Internal Standard or disable Internal Standard</td><td>The internal standard is enabled, but its volume is not set.</td><td>1. Select Continue: the Internal Standard page appears.<br>2. Do what follows:<table><tr><th>If you want to...</th><th>Then...</th></tr><tr><td>set the volume</td><td>select Internal Standard Volume and set it to a value different from 0.</td></tr><tr><td>disable the internal standard</td><td>select Enable and set it to NO.</td></tr></table>3. Select Exit > Exit and Save if necessary.</td></tr>
<tr><td>Warning: Run Error parameters<br><br>Step [i]: Set Meth [x] Anatime>0 or change Injection Synchro</td><td>Inconsistency between the Analysis Time and the Injection Synchro set.</td><td>1. Select Abort.<br>2. In the Run menu select Settings > Methods and modify the methods setting Analysis Time to a value higher than 0.</td></tr>
<tr><td>Warning: Run Error parameters<br><br>Step [x]: Injection Mode mismatch</td><td>Inconsistency between the injection mode set in Settings > Sequences > Step and the injector type/number (visible in Settings > View Parameters).</td><td>1. Select Exit.<br>2. In the Run menu, select Settings > Sequences > Step and modify the injection mode. Otherwise, select Settings > Setup > Alignment and modify the injector type/number. See 'Realign injectors' on page 181.</td></tr>
<tr><td>Warning: Run Error Parameters</td><td>Inconsistency between the syringe volume set during installation and the syringe volume set in the method.</td><td>1. Select Exit.<br>2. Do what follows:</td></tr>
</table>

<table>
<tr><th>Error message</th><th>Cause</th><th colspan="2">Solution</th></tr>
<tr><td rowspan="3">Method [x] Syringe Volume mismatch in Method [x]</td><td rowspan="3"></td><td>If the installed syringe...</td><td>Then...</td></tr>
<tr><td>is correct</td><td>1. in the Run menu select Settings > Methods > (method) OK > General and check the value of Syringe Volume. If not correct, modify it and save the method.<br>2. in the Run menu select Settings > View Parameter and check the value of Syringe Volume. If not correct, execute Syringe Installation procedure taking care to select the correct syringe volume. See 'Syringe management' on page 173.</td></tr>
<tr><td>is not correct</td><td>Replace the syringe. See 'Syringe management' on page 173.</td></tr>
<tr><td>Step [i]: Change [x] parameter. Unknown value</td><td>The parameter is not compatible with the 'protocol' parameter.</td><td colspan="2">Contact your Customer Representative to solve the problem.</td></tr>
<tr><td>Step [i]: Tray in sequence is not installed</td><td>The tray chosen in the sequence menu is not the installed one.</td><td colspan="2">Change the tray in Tray Type menu or change the tray in Sequence menu.</td></tr>
<tr><td>Step [i]: Syringe Volume mismatch in Method [Y]</td><td>The method is created for a syringe different than the installed one.</td><td colspan="2">Install the proper syringe or change the syringe volume in the method.</td></tr>
<tr><td>Rear injector not installed</td><td>The autosampler is set to work just with one (front) injector and it can’t inject in the second (rear) injector.</td><td colspan="2">Change the injector in the sequence or add and align the rear injector.</td></tr>
</table>

## 14.5 Preventive maintenance warnings

| Error message | Cause | Solution |
|---|---|---|
| **FAIL. [Injector position] injector septum/septa is/are not suitable for injection. Check septum/septa and retry.** | Injector septa test failed. Septa too tightened or too hard for the injection. | 1. Slightly unscrew the injector septum/septa.<br>2. Select **Retry** to repeat the **Injector septa test**.<br>3. If the problem persist, change the injector septa/septum and retry the **Injector septa test**.<br>4. If the problem persist, contact your Customer Representative. |
| | Injector septa test failed: the test was execute with injector not at room temperature and/or with pressure inside the injector. | 1. Cool down the injector to room temperature.<br>2. Set injector pressure to OFF/0 bar.<br>3. Select **Retry** to repeat the **Injector septa test**.<br>4. If the problem persists, change the injector septa/septum and retry the **Injector septa test**.<br>5. If the problem persists, contact your Customer Representative. |
| **Injection limit reached.** | Injection counter reached injection limit set. | Select **Ok** and replace the injector septum. |
| **Penetrations limit reached. Replace your syringe.** | Penetration counter reached penetration limit set. | Select **Replace** and replace the syringe. |
| **Plunger strokes limit reached. Replace your syringe.** | Plunger strokes counter reached plunger strokes limit set. | Select **Replace** and replace the syringe. |
| **Syringe is expired. Replace your syringe.** | Syringe reached syringe expire date set. | Select **Replace** and replace the syringe. |
| **Syringe requires attention. Syringe plunger hard to move.**<br>**Clean or replace syringe.** | Syringe testing failed. Syringe plunger hard to move. | 1. Remove the syringe and check it for plunger stickiness or binding. Slide the syringe plunger up and down a few times. It should move smoothly without sticking and binding.<br>2. If the syringe plunger is sticky, remove the plunger and clean it with solvent.<br>3. Select **Replace** and replace the syringe if necessary.<br>4. If the problem persists, contact your Customer Representative. |
| **Turret assembly requires maintenance. Contact your Service Rep. This is a predictive maintenance warning. You can** | Turret testing failed. Turret worn. | Contact your Customer Representative indicating the error message and the error code. |

| Error message | Cause | Solution |
|---|---|---|
| **continue to operate the device safely in the meantime. ([Code])** | | |
| **Missing Plunger baseline.** | Plunger baseline is missing (required to perform syringe testing). | 1. Select **Execute**.<br>2. Remove the syringe if necessary.<br>3. Select **Continue**.<br>4. Select **Continue**. |
| **Missing Turret baseline.** | Turret baseline is missing (required to perform turret testing). | 1. Select **Execute**.<br>2. Select **Continue**. |
| **Switch off and on the autosampler to perform the preventive maintenance task.** | The autosampler has not been turned off and on for more than 24 hours. | Switch the autosampler off and then switch it on, or select **Cancel** to close the message. |

# 15. Troubleshooting and errors in SPME mode

# 15.1 Troubleshooting

## 15.1.1 Analyzer reproducibility issue

***Note**: the indications given below are for gas chromatography applications and may not be suitable for other analysis techniques.*

| Problem | Cause | What to do |
|---|---|---|
| Peak area or peak retention times are not reproducible. | Injection depth | Ensure the fiber is set to the correct depth for the analyzer. This is particularly important if the unit has just been installed or moved. |
| | Leak in the inlet septum | 1. If there is a leak in the inlet septum, change it.<br>2. If the inlet septum has experienced less than 100 injections, ensure what follows to avoid premature septum wear:<br>○ the fiber needle is straight<br>○ the septum retainer nut is not too tight<br>○ the fiber and fiber holder have been installed correctly |
| | Fiber dirty or worn | 1. Replace the fiber.<br>2. Increase the desorption time (autosamsampler method).<br>3. Increase the post cleaning time (autosampler method).<br>4. Increase the injector temperature (GC setup). |
| | Vacuum created in sample vial | Reduce sample volume. |
| | Method parameters are not correct | Check each parameter of the method to be sure they fits your application. |
| Peak size issue | Injection depth | Ensure the fiber is set to the correct depth for the analyzer. This is particularly important if the unit has just been installed or moved. |
| | Method parameters are not correct | Check each parameter of the method to be sure they fits your application. |
| | Leak in the analyzer system | 1. Replace the injector septum and check the fitting to avoid leaks.<br>2. If the septum has experienced less than 100 injections, ensure what follows to avoid premature septum problems:<br>○ the fiber needle is straight<br>○ the septum retainer nut is not too tight<br>○ the fiber and fiber holder have been installed correctly |
| | GC injection liner not suitable | Check the liner geometry according to the recommendations of the GC manufacturer. |
| | GC related parameters | Any parameter like injector, oven or detector temperature can contribute to bad peak shape. Check the column type and connections (square cut connections). Check the troubleshooting guide of the GC manufacturer. |
| Carry over issue | Fiber dirty or worn | 1. Replace syringe glass and syringe plunger. |

| Problem | Cause | What to do |
|---|---|---|
| | | 2. Increase the desorption time (autosamsampler method).<br>3. Increase the post clening time (autosampler method).<br>4. Increase the injector temperature (GC setup). |
| No signal/no peak | Syringe is not working properly | Replace syringe glass and syringe plunger. |
| | Injection depth too high | Ensure the fiber goes deep enough into the analyzer injector. |
| | Injection in the wrong injector | Select the correct injection mode in the **Setup** menu and **Sequences** page. |

### 15.1.2 Communication with analyzer issues

| Problem | Cause | What to do |
|---|---|---|
| The autosampler starts also if the analyzer is "Not Ready". | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The autosampler doesn't start. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer doesn't start the analysis when the autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |
| The analyzer starts the analysis before that autosampler injects. | Interface cable is not properly connected. | Check if cable is installed properly. |
| | Wrong analyzer or autosampler settings. | Check installation manual for the specific analyzer. |

### 15.1.3 Usage

Below is a list of possible problems happening and their potential solutions. Some of these are hypothetical as these problems have not occurred.

| Problem | Cause | What to do |
|---|---|---|
| During the instrument research procedure, no instrument appears on the list | Firewall is blocking HTA Monitor | Be sure that the firewall is allowing HTA Monitor to work. In details, be sure that HTA Monitor could communicate on both Public and Private net.<br>For example, with Windows 10:<br>1. Reach Windows Defender Firewall (Control Panel)<br>2. Select **Allow an application...**<br>3. Select both **Public** and **Private** for HTA Monitor app<br>4. Retry |

### 15.1.4 Configuration issues

| Problem | Cause | What to do |
|---|---|---|
| **Bad alignment on the injector position(s)** | Injector adapter is missing. | Install the proper injector adapter. |
| | **Injector alignment** is needed. | Execute **Injector alignment.** See 'Realign injectors' on page 234. |
| **The autosampler injects in the wrong injector** | Injection Mode in **Step** is wrong. | In the **Run** menu, select **Settings** > **Sequences** > **Step** to set the correct injector. See 'Step' on page 320. |
| | Injection Mode in **Run** is wrong. | In the **Run** menu, select **Settings** > **Setup** > **Configuration** > **Run** to set the correct injector. See 'Run' on page 322. |
| **Missing: front injector alignment** | The front injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Front Injector** to align the autosampler to the front injector. See 'Realign injectors' on page 234. |
| **Missing: rear injector alignment** | The rear injector alignment has not been performed after having changed the analyzer brand or model. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Rear Injector** to align the autosampler to the rear injector. See 'Realign injectors' on page 234. |
| **Missing: touch & plunger zero** | The **Touch & Plunger Zero** procedure has not been performed. | In the **Run** menu, select **Settings** > **Setup** > **Alignment** > **Touch & Plunger Zero** to perform the alignment procedure. See 'Reset the position of the vial' on page 236. |
| **WARNING**<br>**Check Touch Sensor then execute Touch & Plunger Zero.** | A syringe with a longer needle is installed and touch and plunger zero procedure is not performed. | 1. Select **Continue**.<br>2. Select **Touch Plunger Zero.**<br>See 'Reset the position of the vial' on page 236. |

### 15.1.5 Consumables/fiber issues

| Element | Problem | Cause | What to do |
|---|---|---|---|
| **Fiber** | Fiber damaged. | Use of incorrect vials or injection septum or incorrect syringe installation/configuration. | 1. Identify the cause of the damage and the position in which it occurs.<br>2. Ensure the alignment on the oven cover and on the injector/s is correct.<br>3. Check that the septa of sample vials and injectors are suitable and correctly pierced.<br>4. Check that there are no obstacles in the vials, such as an insert.<br>5. Replace the fiber. See 'Fiber management' on page 210. |
| | Fiber breaking. | Fiber not set up correctly. | Align vial locator to fiber tip (see 'Align the vial locator to the needle tip' on page 217) and execute **Touch & Fiber Zero** (see 'Reset the position of the vial' on page 236). |

| Element | Problem | Cause | What to do |
|---|---|---|---|
| | | Pieces of septum inside needle. | Check quality of septum of sample vial and injector. |
| | | Pieces of septum inside needle. | Check that sample vials are not overcrimped: this may result in septum damaging. |
| | | Sample full of dirt. | Check sample quality or modify extraction depth to sample at higher level. |
| **Sample vials** | Unit picks up and drops vials. | Safety lock and/or needle height regulator aren't installed properly. | Align the vial locator to the fiber tip and execute **Touch & Fiber Zero**. See 'Reset the position of the vial' on page 236. |
| | | Vial locator and its two steel bars can't move along the fiber needle. | Check if the safety lock and the needle height regulator are fixed correctly; they should not be fixed in a non-parallel position. |
| | | Septum is too tight. | Check if crimping or screwing is performed correctly. |

## 15.2 Start up errors

### 15.2.1 Generic start-up errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 1 1<br>• Plunger error: Code 1 2<br>• Plunger error: Code 1 4<br>• Plunger error: Code 2 1<br>• Plunger error: Code 2 2<br>• Plunger error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Fiber is damaged or not installed properly. | Remove the fiber and fiber holder and press **Retry**; then, execute the syringe installation procedure properly. See 'Fiber management' on page 210. |
| • Needle error: Code 1 1<br>• Needle error: Code 1 2<br>• Needle error: Code 1 4<br>• Needle error: Code 2 1<br>• Needle error: Code 2 2<br>• Needle error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | Instrument is in shipping position. | Press **Disengage**, set the autosampler in operating position and press **Exit**. |
| • Turret error: Code 1 1<br>• Turret error: Code 1 2<br>• Turret error: Code 1 4<br>• Turret error: Code 2 1<br>• Turret error: Code 2 2<br>• Turret error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| • Tray error: Code 1 1<br>• Tray error: Code 1 2<br>• Tray error: Code 1 4<br>• Tray error: Code 2 1<br>• Tray error: Code 2 2<br>• Tray error: Code 2 4 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial; press **Exit** to retry the start-up. |
| | The rack is not positioned properly. | Press **Disengage** to open the tray and reposition the rack correctly; press **Exit** to retry the start-up. |
| Unit power up in Service mode: a PIN code is required. | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |
| Error: "Timeout communication from peripheral: plunger / needle / tray / turret". | Problem during instrument start-up. | Swtich off and on the autosampler to retry the start-up. |

### 15.2.2 Safety lock errors

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The syringe location has not been prepared. | 1. Switch the autosampler off.<br>2. See 'Prepare the syringe location' on page 62. |

| Error message | Cause | Solution |
|---|---|---|
| Is safety lock in operating position? If NO, switch off and check user manual. | The touch sensor is not working correctly. | 1. Ensure to have prepared the syringe location properly. See 'Prepare the syringe location' on page 62.<br>2. If the problem persists, select **Yes** and then **Run** menu > **Settings** > **Setup** > **Manual Operation**.<br>3. Select the needle and raise it.<br>4. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>5. Select **Exit**. |

### 15.2.3 Vial locator errors

| Error message | Cause | Solution |
|---|---|---|
| Attention! Vial locator in critical position! Press Disengage and move the vial locator to a safe position, then press Exit. | Unexpected switching off of the autosampler while the vial locator was picking up/replacing a vial. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. If present, remove the vial from the vial locator and place it back to its original position.<br>4. Check that all the vials are correctly positioned in the rack.<br>5. Select **Exit**. |

### 15.2.4 Memory errors

| Error message | Cause | Solution |
|---|---|---|
| **Error Reading Border mark-out!** | The autosampler cannot read the Border Mark Out parameters. | 1. Select **Continue**: the **Service** page appears.<br>2. Contact your Customer Representative to solve the problem. |
| **Error Reading Methods!** | The autosampler cannot read the parameters of the saved methods. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |
| **Error Reading Sequence!** | The autosampler cannot read the parameters of the saved sequences. | |
| **Error Reading Features!** | The autosampler cannot read the features. | 1. Select **Continue**.<br>2. Switch the autosampler off and on.<br>3. If the error message appears again, contact your Customer Representative to solve the problem. |

# 15.3 Run issues / errors

## 15.3.1 Generic run errors

| Error message | Cause | Solution |
|---|---|---|
| • Plunger error: Code 4 2<br>• Plunger error: Code 4 4<br>• Plunger error: Code 4 8<br>• Plunger error: Code 10 7 | Plunger locker is not present. | Install correctly the plunger locker and execute the **Fiber/Seal Tip Installation** procedure. See 'Fiber management' on page 210. |
| | The fiber and fiber holder were installed without to perform completely the **Syringe Installation** procedure. | Execute completely the **Syringe Installation** procedure. See 'Fiber management' on page 210. |
| | Syringe is not installed correctly. | Install correctly the syringe and perform **Syringe Installation** procedure. See 'Fiber management' on page 210. |
| | Damaged syringe or worn out syringe. | Change the syringe and perform **Fiber/Seal Tip Installation** procedure. See 'Fiber management' on page 210. |
| • Needle error: Code 4 2<br>• Needle error: Code 4 4<br>• Needle error: Code 4 8<br>• Needle error: Code 10 7 | Safety lock or needle height regulator loosen/not fasten properly. | Fasten completely the loosen part and press **Retry**; to align the vial locator at the needle tip may be required. See 'Align the vial locator to the needle tip' on page 217. |
| • Turret error: Code 4 2<br>• Turret error: Code 4 4<br>• Turret error: Code 4 8<br>• Turret error: Code 10 7 | An obstacle does not allow the motor to run for all its possible movement. | Remove the obstacle and press **Retry**. |
| | The anti-friction sticker needs to be cleaned. | Wipe the anti-friction sticker with a soft, lint-free or microfiber cloth dampen with distilled water. |
| • Tray error: Code 4 2<br>• Tray error: Code 4 4 | A sample vial fell between frontal panel and rack support. | Press **Disengage** to open the tray and remove the sample vial. |
| • Tray error: Code 4 8<br>• Tray error: Code 10 7 | The rack is not positioned properly. | Press **Disengage** to open the tray and correct rack position. |
| • Cover error: Code 7 1 | A vial has fallen during vial transport and blocks the cover to move. | Remove the vial, and check 'Vial transport problem' on page 349. |
| • Shaker error: Code 7 1 | Something is blocking the shaker to move. | Remove the obstacle and press **Retry**. |
| • Oven error: Code 8 1<br>• Oven error: Code 8 2<br>• Oven error: Code 8 3<br>• Oven error: Code 8 4 | The oven cannot reach or keep the desired temperature. | Contact your customer representative. |

### 15.3.2 Touch sensor error

| Error message | Cause | Solution |
|---|---|---|
| **WARNING Check Touch Sensor!** | The touch sensor is off and/or it is not working correctly. | 1. Select **Disengage**: the **Manual Operation** page appears.<br>2. Select the needle and raise it.<br>3. Ensure that the vial locator can move up and down freely and that the safety lock is higher than the needle height regulator.<br>4. Select **Exit**. |

### 15.3.3 Vial transport problem

| Error | Cause | Solution |
|---|---|---|
| Falling vials | Sample vials not prepared properly. | 1. Check the external status of vial, cap and septa.<br>2. Be sure they are not overcrimped. |
| | Vial locator damaged. | Contact customer representative. |

### 15.3.4 Vial detection problem

| Error message | Cause | Solution |
|---|---|---|
| **Warning: Obstacle found over [x]! Try to remove the obstacle** | The autosampler found an obstacle over the indicated position. | 1. Remove the obstacle.<br>2. To open the **Manual Operation** page, select **Disengage**.<br>3. Select the desired item and move its motor and unlock the system.<br>4. To restart the automatic run from the point of interruption select **Retry**. Otherwise, select **Exit**.<br>5. If error persists, execute **Touch & Fiber Zero**. See 'Reset the position of the vial' on page 236. |
| **Warning: [x] missing! Insert the vial, then press Retry** | Missing vial in the indicated position. | Do what follows:<br>**If you...** / **Then...**<br>can access the desired position: 1. Insert the missing vial. 2. Select **Retry**.<br>cannot access the desired position: 1. To open the **Manual Operation** page, select **Disengage**. 2. Select the desired item, move its motor and unlock the system. 3. Insert the missing vial. 4. Select **Exit**: automatic run restarts from the point of interruption.<br>If error persists, execute **Touch & Fiber Zero**. See 'Reset the position of the vial' on page 236. |

| Error message | Cause | Solution |
|---|---|---|
| **Bad alignment on the sample vials OR wash vials OR oven cover OR oven locations**:<br>• autosampler touches more times the vial before recognizing it<br>• **Obstacole Found** error appears | **Touch & Plunger Zero** is needed. | Execute **Touch & Fiber Zero**. See 'Reset the position of the vial' on page 236. |
| **Vial not found. Insert proper vial in position C, then continue** | The vial in the oven is missing or not inserted in position C. | Insert the vial in position C. |
| | The vial is a 10 ml or 6 ml, but the spacer used is the one for liquid mode (the black one). | Get the proper spacers kit to work with 10 ml vials or 6 ml vials. |

## 15.4 Mismatch errors

| Error message | Cause | Solution |
|---|---|---|
| **Change [x] parameter. Unknown value.** | Inconsistency between the parameter and the **Protocol version** set. | Contact your Customer Representative. |
| **Warning: Run Error parameters**<br><br>**Step [i]: Set Meth [x] Anatime>0 or change Injection Synchro** | Inconsistency between the **Analysis Time** and the **Injection Synchro** set. | 1. Select **Abort**.<br>2. In the **Run** menu select **Settings > Methods** and modify the methods setting **Analysis Time** to a value higher than 0. |
| **Warning: Run Error parameters**<br><br>**Step [x]: Injection Mode mismatch** | Inconsistency between the injection mode set in **Settings** > **Sequences** > **Step** and the injector type/number (visible in **Settings > View Parameters**). | 1. Select **Exit**.<br>2. In the **Run** menu, select **Settings** > **Sequences** > **Step** and modify the injection mode. Otherwise, select **Settings** > **Setup** > **Alignment** and modify the injector type/number. See 'Realign injectors' on page 234. |

## 15.5 Preventive maintenance warnings

| Error message | Cause | Solution |
|---|---|---|
| **Injection limit reached.** | Injection counter reached injection limit set. | Select **Ok** and replace the injector septum. |
| **Penetrations limit reached. Replace your syringe.** | Penetration counter reached penetration limit set. | Select **Replace** and replace the syringe. |
| **Turret assembly requires maintenance. Contact your Service Rep. This is a predictive maintenance warning. You can continue to operate the device safely in the meantime. ([Code])** | Turret testing failed. Turret worn. | Contact your Customer Representative indicating the error message and the error code. |
| **Missing Turret baseline.** | Turret baseline is missing (required to perform turret testing). | 1. Select **Execute**.<br>2. Select **Continue**. |
| **Switch off and on the autosampler to perform the preventive maintenance task.** | The autosampler has not been turned off and on for more than 24 hours. | Switch the autosampler off and then switch it on, or select **Cancel** to close the message. |

# 16. Manage unsolved errors

## 16.1 Deal with unsolved errors

For errors and problems that cannot be solved, contact your Customer Representative.

## 16.2 Send log files to your Customer Representative

1. In the taskbar, right click  and click **Generate QR Code**: the **QR Code Wizard** window opens.
2. Follow the wizard instructions: the QR Code appears.
3. Scan the QR code using a dedicated QR reader app on your shamrtphone: a pre-filled email appears.
4. Send the email.

## 16.3 Tray emergency release

If tray doesn't open automatically (and samples are inside), please proceed as follows:

1. Switch the autosampler OFF.
2. Wait 30 sec.
3. Switch it ON again.
4. Try to open the tray by selecting the tray icon in the home screen. If its not possible to access the home screen, try to access the manual operation screen.
5. If this fails, switch the autosampler OFF.
6. Disconnect it from main power.
7. Pull the tray out gently using both hands. The tray opening must be performed by hand only if it is strictly necessary.
   ***Note:*** *Do not pull the tray with only one hand.*
   *Do not pull the tray with the power switched on.*

# 17. Software related errors

## 17.1 HTA Monitor related errors

| Error message | Cause | Solution |
|---|---|---|
| **HTA Monitor is not active. Start PC and press Continue to use HTA Monitor.** | PC is switched off | 1. Switch on the PC. Wait for the PC startup.<br>2. Select **Continue**. |
| | HTA Monitor is not running. | 1. Start HTA Monitor.<br>2. Select **Continue**. |
| | Communication problem | 1. Check that all the autosampler and PC cables are correctly connected and that the autosampler is ON.<br>2. Open HTA Monitor, select **Install** and check that instrument appears in the list: if not, press **Add new** and follow the wizard.<br>3. Contact your Customer Representative. |

## 17.2 HTA Autosampler Manager related errors

| Problem | Cause | What to do |
|---|---|---|
| HTA Autosampler Manager cannot connect to the autosampler. | Communication problem | 1. Check that all the autosampler and PC cables are correctly connected and that the autosampler is ON.<br>2. Check that PC is working with a Static (fixed) IP. Contact your network administrator if necessary.<br>3. Check that no firewall is blocking the HTA Autosampler Manager software nor the ports 20101 (TCP), 20102 (TCP) and 20201 (UDP). Contact your network administrator if necessary.<br>4. Click **Modify network configuration of autosampler** and **Proceed**: the new suggested network parameters for the autosampler appear.<br>5. Contact your network administrator to check the compatibility of the suggested network parameters with your network.<br>6. To start the automatic assignment of the suggested network parameters, click **Next**.<br>7. If the problem persists, contact your Customer representative. |

# 18. Technical features

# 18.1 Technical data

## 18.1.1 Features

| | |
|---|---|
| **Dimensions** | • Width (closed oven cover): 33 cm (13″)<br>• Width (open oven cover): 35 cm (13.8″)<br>• Depth with closed tray: 32 cm (12.6″)<br>• Depth with open tray: 52 cm (20.5″)<br>• Height: 64 cm (25.2″) |
| **Weight** | 10 kg (22 lb) |
| **Clearance from the instrument** | 10 cm (3.9″) |

## 18.1.2 Moving parts

| | |
|---|---|
| **Turret** | Maximum rotation: 320° |
| **Needle** | Up to 26.7 cm (10.51″) vertically |
| **Plunger** | Up to 6.54 cm (2.57″) in the syringe |
| **Tray** | Up to 22 cm (8.66″) outside the autosampler |

## 18.1.3 Hardware

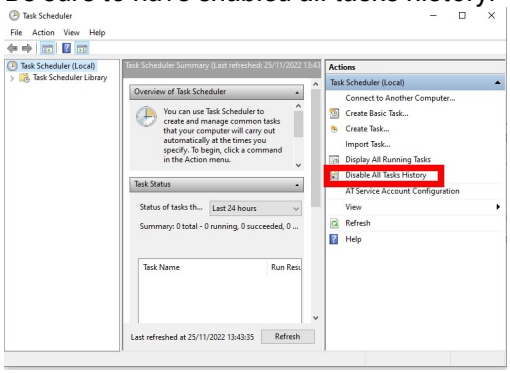
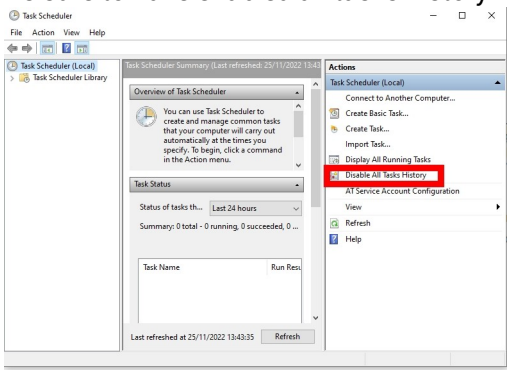
| | |
|---|---|
| **Touch screen** | 4.3″ TFT Capacitive Full Viewing Angle |
| **PC requirements (for HTA Monitor)** | • Operating system: Windows 7, Windows 8.1, Windows 10, Windows 11. PC Edition only (excluding mobile devices and appliances). PC are expected to run Windows OS with the latest update installed (unless differently specified).<br>• Administrator account (just for SW installation: then, any type of account will be able to run the software).<br>• Additionally required software: Microsoft .NET Framework 4.5.2<br>• 1 Ethernet connector 10/100 available on PC or on a switch<br>• Minimum screen resolution: 1024x768<br>• Internet: Internet functionality requires Internet access (fees may apply).<br>• The software install the SQL Express component. Considering this component the PC requirements are: |

| If you are using... | Then... |
|---|---|
| Windows 7 or Windows 8.1 O.S. * | • RAM: 2 GB minimum, 4 GB suggested<br>• Disk space: 6 GB<br>• Processor: 1.0 GHz or faster<br>• Further requirements are available at the Microsoft SQL Server 2014 Express webpage |
| Windows 10 or Windows 11* | • RAM: 2 GB minimum, 4 GB suggested<br>• Disk space: 8 GB<br>• Processor: x64 2.0 GHz or faster<br>• Further requirements are available at the Microsoft |

| If you are using... | Then... |
|---|---|
| | SQL Server 2019 webpage |

* Software is tested under English Operative System (ISO/IEC 8859-Part 1 “Latin-1 Western European”), 32-bit (for Windows 7) and 64-bit (Windows 8.1 or higher) updated to the last service pack and/or versions.

- OS general settings:

| If you are using... | Then... |
|---|---|
| Windows 7, 8 and 10 | 1. Reach the following menu: **Control Panel** > **System and Security** > **Administrative tool** > **Task scheduler**.<br>2. Be sure to have enabled all tasks history:<br>  |
| Windows 11 | 1. Reach the following menu: **Control Panel** > **System and Security** > **Windows tool** > **Task scheduler**.<br>2. Be sure to have enabled all tasks history:<br>  |

- OS special settings with multi-user installation, if you want to use HTA Monitor from any user of the PC:

| If you are using... | Then... |
|---|---|
| Windows 10 | 1. Reach the following menu: **Settings** > **Accounts** > **Sign-in options**.<br>2. Set "Use my sign-in info to autostart finish setting up my device after an update or restart" to **OFF.**<br>3. Repeat this operation for any user you want to |

| | | |
|---|---|---|
| | **If you are using...** | **Then...** |
| | | use. |
| | Windows 11 | 1. Reach the following menu: **Settings** > **Accounts** > **Sign-in options**.<br>2. Set "Use my sign-in info to autostart finish setting up my device after an update" to **OFF**. |
| **PC requirements (for HTA Autosampler Manager)** | • Operating system: Windows Vista, Windows 7, Windows 8.1, Windows 10, Windows 11. PC Edition only (excluding mobile devices and appliances).<br>PC are expected to run Windows OS with the latest update installed (unless differently specified).<br>Software is tested under English Operative System (ISO/IEC 8859-Part 1 “Latin-1 Western European”), 32-bit (for Windows 7 or lower) and 64-bit (Windows 8.1 or higher) updated to the last service pack and/or versions.<br>• Administrator account<br>• RAM: 1 GB minimum<br>• Disk space: 100 MB (for installation)<br>• Additionally required software: Microsoft .NET Framework 4.5.2<br>• 1 Ethernet connector 10/100 available on PC or on a switch<br>• Minimum screen resolution: 1152x864 | |

### 18.1.4 Electrical data

| | |
|---|---|
| **Power supply voltage** | 100- 240 V AC.<br>Connection cable included. |
| **Power supply voltage fluctuation** | Not to exceed ± 10% of nominal voltage |
| **Clearance from the instrument** | 10 cm (3.9") |
| **Frequency** | 50- 60 Hz |
| **Power connection** | 1.4 A |
| **Autosampler voltage** | 24 V DC |
| **Autosampler power consumption** | 120 W |
| **Overvoltage category** | II |
| **Relay specification** | • $V_{max}$ = 24 V<br>• $I_{max}$ = 1 A |

### 18.1.5 Interface specifications

| | |
|---|---|
| **To the analyzer** | TTL |
| **To the PC** | Ethernet 10/100 |
| **Interface cable category** | 5 or higher |
| **Factory Ethernet configuration of the** | • IP Address: 192.168.0.207 |

| | |
|---|---|
| **autosampler** | • Subnet Mask: 255.255.0.0<br>• Gateway: 192.168.0.1<br>• Ports: 20101 (TCP), 20102 (TCP), 20201 (UDP) |

### 18.1.6 Environmental storage conditions

***Note**: The following conditions are valid only if the product is stored intact and in its original packaging.*

| | |
|---|---|
| **Temperature** | From - 20 °C to 60 °C (from - 4 °F to 140 °F) |
| **Relative humidity** | From 5% to 80% |

### 18.1.7 Environmental conditions of use

| | |
|---|---|
| **Ambience** | Only for use indoors.<br>Pollution degree 2, laboratories and normal indoor environment (IEC CEI 60664- 1). |
| **Room temperature limits** | From 15°C to 40°C (from 59°F to 104°F) |
| **Ambient humidity limits** | From 20% to 80% (non- condensable) |
| **Altitude** | Up to 2 000 m (6 561.7 ft) |
| **Atmosphere** | No ATEX. Avoid source of fire close to the instrument. |
| **Permitted cleaning products** | • For the touch screen and all fragile parts: distilled water.<br>• Other parts of the autosampler: non- abrasive detergent solution |
| **Sound pressure level** | Maximum measured level: 60 dBA (below the limits of 85 dBA defined by the regulations in force) |

### 18.1.8 Analytical parameters for Headspace technique

| | |
|---|---|
| **Volume increment/decrement** | According to the syringe type |
| **Pull-up strokes** | Up to 15 strokes |
| **Sampling withdrawal** | • Sample volume, air volume and aspiration speed: according to the syringe type<br>• Viscosity time: from 0 to 15 s |
| **Injection speed** | According to the syringe type |
| **Waiting time before and after the injection** | From 0 to 99 s |
| **Enrichment cycles** | Up to 15 |
| **Dwell time between enrichment cycles** | From 0 to 100min |
| **Syringe temperature** | Off; From 40°C to 150°C |
| **Oven positions** | 6 |
| **Oven temperature** | Off; From 40°C to 170°C |
| **Shaking method** | Orbital shaker |
| **Shaking speed** | From very low to very high |
| **Shaking cycles** | On/Off, from 0 to 9.9min |

### 18.1.9 Analytical parameters for Liquid technique

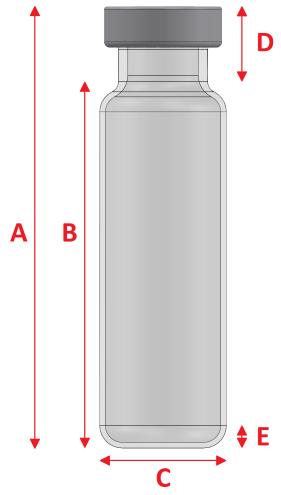
| | |
|---|---|
| **Volume increment/decrement** | According to the syringe type |
| **Number of pre and post washes** | Up to 15 |
| **Wash mode** | Each injection, each sampler or step |
| **Sample wash** | Up to 15 |
| **Bubble elimination** | Up to 15 strokes |
| **Sampling withdrawal** | • Sample volume, air volume and aspiration speed: according to the syringe type<br>• Viscosity time: from 0 to 15 s |
| **Injection speed** | According to the syringe type |
| **Waiting time before and after the injection** | From 0 to 99 s |
| **Internal Standard Technique mode** | No, post or double |

### 18.1.10 Analytical parameters for SPME technique

| | |
|---|---|
| **Extraction mode** | Liquid phase / Headspace vapors |
| **Fiber type** | 10mm, 20mm, Sealed tip |
| **Oven positions** | 6 |
| **Oven temperature** | Off; From 40°C to 170°C |
| **Incubation time** | From 0 to 999min step 1min |
| **Shaking method** | Orbital shaker |
| **Shaking speed** | From very low to very high |
| **Shaking cycles** | On/Off, from 0 to 9.9min |

### 18.1.11 Sample vial specifications for Headspace and SPME technique

***Note**: Correct sample vial dimensions are essential for proper operation.*

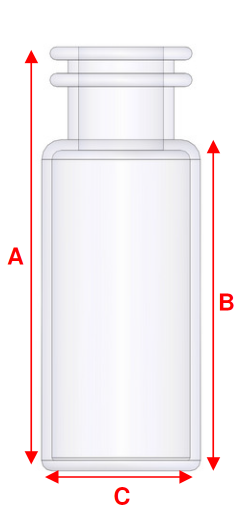



| Part | Description | Value |
|---|---|---|
| **A** | Vial height | • 20ml vial: from 77 mm to 79 mm (from 3.03" to 3.11") |

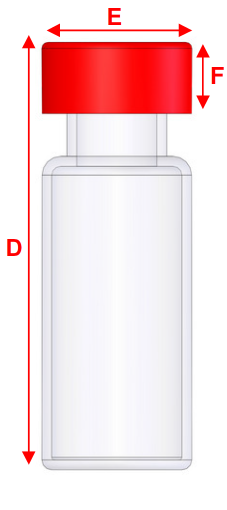
| Part | Description | Value |
|---|---|---|
| | | • 10ml vial: from 48 mm to 50 mm (from 1.89" to 1.97")<br>• 6ml vial: from 40.2 mm to 42.2 mm (from 1.58" to 1.66") |
| **B** | Maximum vial body height | • 20ml vial: 67 mm (2.64")<br>• 10ml vial: 38 mm (1.50")<br>• 6ml vial: 30.2 mm (1.19") |
| **C** | Vial diameter | • 20ml vial: from 22.4 mm to 23.0 mm (from 0.88" to 0.91")<br>• 10ml vial: from 22.4 mm to 23.0 mm (from 0.88" to 0.91")<br>• 6ml vial: from 21.5 mm to 23.0 mm (from 0.85" to 0.91") |
| **D** | Vial top part | • 20ml vial: 10 mm (0.39")<br>• 10ml vial: 10 mm (0.39")<br>• 6ml vial: 10 mm (0.39") |
| **E** | Vial rounded bottom | • 20ml vial: 2 mm (0.08")<br>• 10ml vial: 2 mm (0.08")<br>• 6ml vial: 2 mm (0.08") |

### 18.1.12 Sample vial specifications for Liquid technique

***Note**: Correct sample vial dimensions are essential for proper operation.*




**Sample vial**




**Sample vial with cap**

| Part | Description | Value |
|---|---|---|
| **A** | Vial without cap height | From 31.5 mm to 32.5 mm (from 1.24" to 1.28") |
| **B** | Maximum vial body height | 25 mm (0.98") |
| **C** | Vial diameter | From 11.5 mm to 11.8 mm (from 0.45" to 0.46") |
| **D** | Vial with cap height | From 33 mm to 35 mm (from 1.30" to 1.38") |
| **E** | Cap diameter | From 11.5 mm to 12.5 mm (from 0.45" to 0.49") |
| **F** | Cap height | From 5 mm to 6.5 mm (from 0.20" to 0.26") |

### 18.1.13 Cap specifications for Headspace and SPME technique

The autosampler uses sample vials with crimp caps.

The Minimum diameter of the pierceable area is 9mm.

In general, do not use crimp caps more than once for Headspace and SPME analysis.

### 18.1.14 Septa specifications for Headspace technique

| Septum material | Compatible with | Incompatible with | Thickness |
|---|---|---|---|
| PTFE/silicone rubber | PTFE resistance until punctured, then septa will have the compatibility of silicone (alcohol, acetone, ether, DMF, DMSO) | ACN, THF, benzene, chloroform, pyridine, toluene, hexane, heptane | 2-3mm |

For more detailed compatibility data refer to the manufacturer's recommendations. In general, do not use septa more than once for headspace analysis.

### 18.1.15 Septa specifications for SPME technique

| Septum material | Compatible with | Incompatible with | Thickness |
|---|---|---|---|
| PTFE/silicone rubber | PTFE resistance until punctured, then septa will have the compatibility of silicone (alcohol, acetone, ether, DMF, DMSO) | ACN, THF, benzene, chloroform, pyridine, toluene, hexane, heptane | 1.5mm ± 0.2mm |

For more detailed compatibility data refer to the manufacturer's recommendations. In general, do not use septa more than once for SPME analysis.

### 18.1.16 Purge line specifications for Headspace technique

| | |
|---|---|
| **Gas connection** | • Use inlet 1/8" on the rear of the autosampler.<br>• The inlet gas has to be regulated by using a pressure regulator (only provided as an optional accessory).<br>• The gas should be at room temperature. |
| **Maximum pressure** | 2 bar (29psi or 200kPa) |
| **Acceptable purge gas** | • Helium (Hydrocarbon free)<br>• Nitrogen<br>***Note:*** *Purge gas must be 99.9995% pure. It is recommended that high quality traps are used in order to remove hydrocarbons, water and oxygen*. |

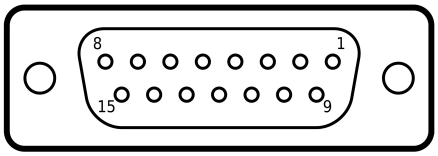
## External pressure regulator

This optional accessory is used to regulate the pressure of the gas used for the syringe flushing. For more details, see 'Accessories installation' on page 109.

| Parameter | Value |
|---|---|
| Input pressure | Lower than 10 bar (145 psi or 1000 kPa) |
| Output pressure | 2 bar maximum (29psi or 200kPa) |

## 18.2 Electrical connections

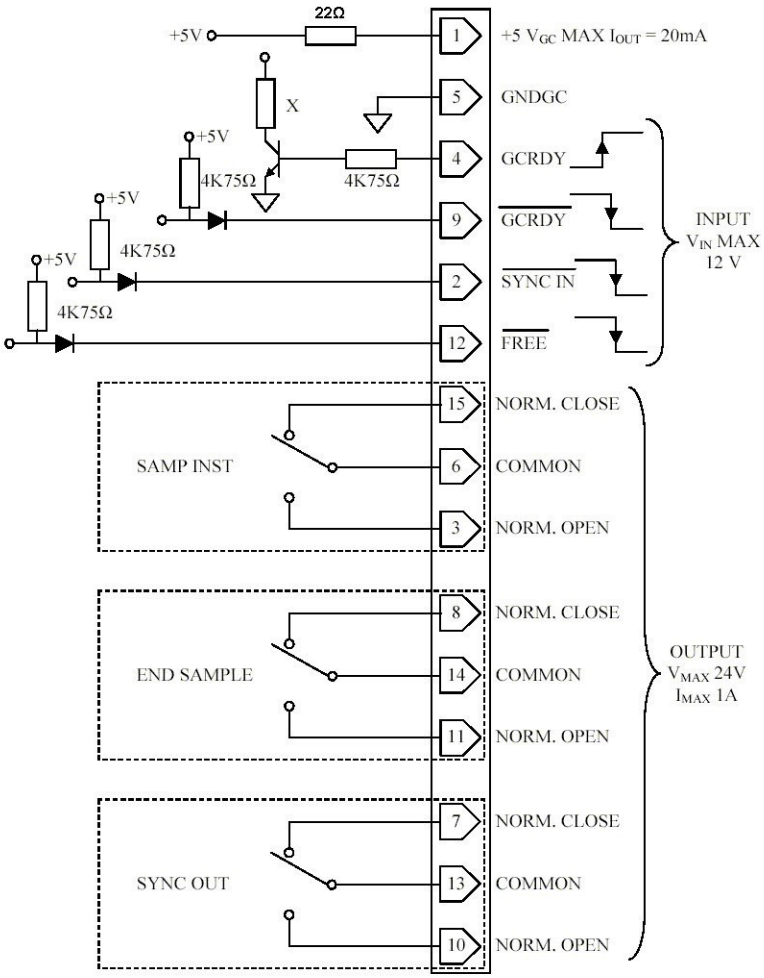
### 18.2.1 Structure of the interface cable connector



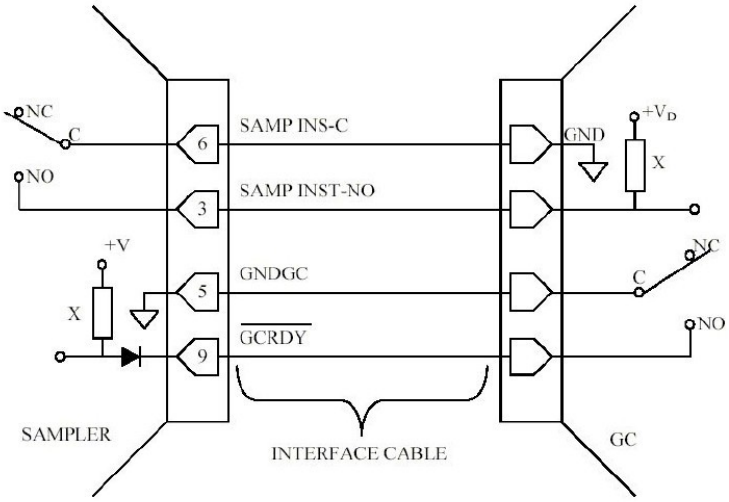

| Pin | Name | Note |
|---|---|---|
| **1** | +5 Volts | Max. 20 mA |
| **2** | FREE3-IN | Signal input (true low); Low-level = 0÷0.5 V Hi-level = 4÷12 V |
| **3** | START - NO | Signal out = Relay contact (open by default) |
| **4** | GCRDY | Signal input (true high); Low-Level = 0÷0.5 V Hi-level = 4÷12 V |
| **5** | GND GC | Ground |
| **6** | START - COM | Relay common contact |
| **7** | FREE1-NC | Signal out = Relay contact (closed by default) |
| **8** | ENDSAMP-NC | Signal out = Relay contact (closed by default) |
| **9** | READY | Signal input (true low); Low-Level = 0÷0.5 V Hi-level = 4÷12 V |
| **10** | FREE1-NO | Signal out = Relay contact (open by default) |
| **11** | ENDSAMPL-NO | Signal out = Relay contact (open by default) |
| **12** | FREE2 | Signal input (true low); Low-Level = 0÷0.5 V Hi-level = 4÷12 V |
| **13** | FREE1-COM | Relay common contact |
| **14** | ENDSAMPL-COM | Relay common contact |
| **15** | START - NC | Signal out = Relay contact (closed by default) |

## 18.2.2 Circuit diagrams

Interface cable connector:




Typical connection with the analyzer:


NC
C
NO
+V
X
SAMP INS-C
SAMP INST-NO
GNDGC
GCRDY
6
3
5
9
SAMPLER
INTERFACE CABLE
GND
+VD
X
NC
C
NO
GC

## 18.3 Ordering information

### 18.3.1 Consumables for Headspace technique

Original HTA consumables are the following:

| Name | Code |
|---|---|
| Vial 6ml: clear, round bottom (100pcs/pk) | 1.29.949 |
| Vial 10ml: clear, round bottom (100pcs/pk) | 1.29.941 |
| Vial 20ml: clear, round bottom (100pcs/pk) | 1.29.942 |
| SIL/PTFE Septa & Crimp caps for headspace vial (100pcs/pk) - (-40°C - +200°C) | 1.29.940 |

### 18.3.2 Syringes for Headspace technique

The following syringes can be provided by HTA.

| Syringe volume | Description | Code | Syringe type and warmer assembly |
|---|---|---|---|
| 1 ml | Glass Barrel | 3.21.027 | Standard version 1.93.841 |
| 1 ml | Plunger | 3.21.025 | |
| 2,5 ml | Glass Barrel | 3.21.400 | |
| 2,5 ml | Plunger | 3.21.300 | |

### 18.3.3 Syringe kit for Headspace technique

| Name | Characteristic | Code |
|---|---|---|
| Syringe kit 1ml for Headspace autosampler | Syringe kit for specific syringe code. See 'Syringes for Headspace technique' on page 402.<br>It contains:<br>- mechanical parts to use 1 ml syringe;<br>- N°1 syringe glass;<br>- N°1 syringe plunger. | 1.91.280 |

### 18.3.4 Consumables for Liquid technique

Original HTA consumables are the following:

| Name | Code |
|---|---|
| Caps 11 mm (10 pieces) | 1.29.945 |
| Sample vials 1.5 ml with snap cap (12x32) (100 pieces) | 1.29.961 |
| Sample vials 1.5 ml clear with screw cap and septum (100 pieces) | 1.28.064 |
| Caps for solvent vials and waste vials (20 pieces, without septa) | 1.29.965 |
| Solvent & waste vial septa - low maintenance (20 pieces) | 1.93.882 |
| Solvent vials 10 ml (100 pieces, without caps and septa) | 1.29.941 |
| Vial assembly low maintenance (solvent): clear vial + septum + cap (6pc/pk) | 1.29.967 |

### 18.3.5 Syringes for Liquid technique

The following syringes can be provided by HTA.

| Syringe size | Needle kind | Syringe holder | Plunger with PTFE cover | Needle length (mm) | Gauge | Notes | Code |
|---|---|---|---|---|---|---|---|
| 0.5 µl | Removable, conical tip | Standard | No | 50 | G23 | - | 1.23.109 |
| 5 µl | Fixed, conical tip | Standard | No | 50 | G26 | - | 1.23.102 |
| | Fixed, conical tip | Long needles syringe holder | No | 80 | G26 (reinforced) | - | 1.23.110 |
| 10 µl | Fixed, conical tip | Standard | No | 50 | G26 | Standard syringe | 1.23.103 |
| | Fixed, conical tip | Long needles syringe holder | No | 80 | G26 | - | 1.23.104 |
| | Fixed, conical tip | Long needles syringe holder | No | 80 | G22 | - | 1.23.105 |
| | Fixed, conical tip | Long needles syringe holder | No | 80 | G23 | - | 1.23.106 |
| | Removable, conical tip | Standard | No | 51 | G26 | - | 1.23.165 |
| | Removable, conical tip | Standard | No | 51 | G26 | Standard syringe, with Syringe ID | 1.96.089 |
| | Fixed, conical tip | Long needles syringe holder | No | 80 | G26 (reinforced) | - | 3.10.013 |
| 25 µl | Fixed, conical tip | Standard | Yes | 50 | G23 | - | 1.23.161 |
| 100 µl | Fixed, conical tip | Long needles syringe holder | No | 80 | G23 | - | 1.23.120 |

### 18.3.6 Needles for Liquid technique

The following needles can be provided by HTA.

| Needle kind | Needle length (mm) | Gauge | Notes | HTA Code |
|---|---|---|---|---|
| Conical tip | 51 | G26 | - | 1.23.170 |
| Conical tip | 80 | G23 | - | 1.23.116 |

### 18.3.7 Consumables for SPME technique

Original HTA consumables are the following:

| Name | Code |
|---|---|
| 20ml SPME vial clear, crimp neck, round bottom (100pcs) | 1.29.948 |
| Septa & Crimp Caps for SPME vial (100pcs) | 1.29.947 |

### 18.3.8 Fibers for SPME technique

| Type of used fibers | Fibers/extraction devices |
|---|---|
| Standard SPME fibers | The supplied fiber holder must be used with suitable fibers/extraction devices. It is required that these fibers/extraction devices are original (i.e. of authorized production) as they are subject to industrial property rights.<br>Refer to the Sigma Aldrich/Supelco/Merck local office for the SPME Fibers. Always use Fibers for automatic use. 2800T can handle SPME Fibers of 1cm or 2cm long.<br>The metal Fibers are preferred if they suit your specific applications. |
| Other suitable fibers/extraction devices | The supplied fiber holder must be used with suitable fibers/extraction devices. It is required that these fibers/extraction devices are original (i.e. of authorized production) as they are subject to industrial property rights.<br>2800T can handle Sealed tip fibers of 1.1mm diameter and of 1.5mm diameter. |

### 18.3.9 Accessories

Original HTA accessories are the following:

| Name | Code |
|---|---|
| SPME kit: standard fibers | 1.91.716 |
| SPME kit: standard fibers (no fibers included) | 1.91.737 |
| SPME kit: fibers S1.1/1.5mm (no fibers included) | 1.91.780 |
| External Pressure Regulator | 3.23.000 |
| Swagelok adapter | 1.93.822 |
| Spacers kit for 10ml vial (6pc/pk) for Headspace and SPME technique | 1.93.820 |
| Spacers kit for 6ml vial (6pc/pk) for Headspace and SPME technique | 1.93.828 |
| System integrity kit (Headspace): verify the syringe integrity at the beginning of each batch in a heuristic approach. | 1.93.824 |
| Manual Crimper for 20mm Caps | C00028 |
| Manual De-Crimper for 20mm Caps | C00029 |

### 18.3.10 Spare parts

Only use original spare parts provided by HTA.

| Name | Code |
|---|---|
| Ethernet cable | 1.93.802 |
| Power cord | 1.28.013 |
| Power supply 120 W | 1.97.060 |

| Name | Code |
|---|---|
| Sample standard rack for Headspace and SPME technique | 1.91.050 |
| Sample standard rack for Liquid technique | 1.90.050 |
| Syringe pointer | 1.97.138 |
| Vial locator for Liquid technique (green o-ring) | 1.97.161 |
| Vial locator for Headspace technique (red o-ring) | 3.10.005 |
| Vial locator for Headspace technique and SPME for standard fibers technique (blue o-ring) | 1.91.767 |
| Vial locator for SPME for 1.1 fibers / 1.5 fibers technique (yellow o-ring) | 1.91.772 |

### 18.3.11 HTA Autosampler Manager activation keys

| Name | Notes | Code |
|---|---|---|
| Activation key standard version (full license) | Standard license to control the autosampler. | 1.90.499 |
| Activation key CFR 21 Part 11 version | In addition to the full license, enable the HTA Autosampler Manager software to work according to CFR 21 part 11 compliance. | 1.90.503 |

### 18.3.12 HTA software connectors

| Name | Notes | Code |
|---|---|---|
| Driver for 28x0T autosampler: Agilent OpenLAB CDS ChemStation for GC rev. C | Compatible with:<br>• Openlab CDS Chemstation edition<br>• Openlab Chemstation edition | 1.90.465 |
| Driver for 28x0T autosampler: Agilent OpenLab CDS 2 | Compatible with:<br>• Openlab CDS | 1.90.456 |
| Driver for 28x0T autosampler: ICF (for Scion Compass CDS release 4.1 or higher) | Compatible with:<br>• Scion Compass CDS | 1.90.455 |

## 18.4 Disposal

### 18.4.1 Disposal liability

As specified by the European Directive 2012/19/EU, never dispose of the product as standard urban waste.

The owner is responsible for disposing both these products and any other electronic or electrical equipment via the specific waste collection centers as specified by the government or local public authorities, or by returning the products when purchasing new replacements.

Correct disposal and recycling will contribute to the prevention of potentially harmful consequences for the environment and personal health. Incorrect disposal of the product will be subject to local administrative fines.

For more detailed information on disposal, contact your Customer Representative, visit https://www.hta- it.com/support/weee.html or send an email to weee@hta- it.com

# 19. Conformity

# 19.1 Declarations

## 19.1.1 Declaration of conformity

Following is the list of EU Directives and standards the product meets:

Conformity
- 2014/35/EU (Low- Voltage Directive)
- 2014/30/EU (Electromagnetic Compatibility Directive)
- 2006/42/EC (MD - Machinery)
- 2011/65/EU (RoHS - Hazardous substances in electrical and electronic equipment)
- 2015/863/EU (Delegated Directive amending Annex II to Directive 2011/65/EU regards the list of restricted substances (Restriction of DEHP, BBP, DBP and DIBP))

Reference standards
- EN 61010- 1: 2010/A1:2019 (Safety Requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements)
- EN 61010-2-010:2020 (Safety requirements for electrical equipment for measurement, control and laboratory use Part 2-010: Particular requirements for laboratory equipment for the heating of materials)
- EN 61010- 2- 081:2020 (Safety Requirements for electrical equipment for measurement, control and laboratory use Part 2- 081: Particular requirements for automatic and semiautomatic laboratory equipment for analysis and other purposes)
- EN 61326- 1:2021 (Electrical equipment for measurement, control and laboratory use. EMC Requirements Part 1: General Requirements)
- EN 63000:2018 (Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances)
- The instrument is designed and manufactured under a quality system registered to ISO 9001

Following is the list of the applicable UK regulations:

Regulations
- Electrical Equipment (Safety) Regulations 2016
- Electromagnetic Compatibility Regulations 2016
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The autosampler has been tested to and complies with IECEE CB Scheme, including USA and Canadian national deviations. In particular, the following standards are covered:

Standards
- UL 61010- 1
- CSA C22.2 No. 61010- 1
- EN 61010- 1

The autosampler has been tested to and complies with the following Electromagnetic Compatibility (EMC) standards:

Standards
- EN 61326- 1, EMC Requirements for Electrical Equipment for Measurement, Control and Laboratory Use – Part 1: General Requirements.
- FCC CFR 47 Part 15, Code of Federal Regulations, Title 47 Part 15 Radio Frequency Devices Subpart B, Unintentional radiation.
- Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This autosampler has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The autosampler is CAN ICES- 3 (A)/NMB- 3(A) following the ICES- 003 regulation.

The autosampler is also compliant with China Administrative Measure on the Control of Pollution Caused by Electronic Information Products regulation (China RoHS):

危险物质名称和浓度表

**Table of hazardous substances' name and concentration**

| 组件名称 **Component name** | 铅 **(Pb)** | 汞 **(Hg)** | 镉 **(Cd)** | 六价铬 **(Cr6+)** | 多溴化联苯 **(PBB)** | 多溴联苯醚 **(PBDE)** |
|---|---|---|---|---|---|---|
| 金属零件 Metal parts | O | O | O | O | O | O |
| 塑胶零件 Plastic parts | O | O | O | O | O | O |
| 电子零件 Electronic parts | O | O | O | O | O | O |
| 马达 Motors | O | O | O | O | O | O |
| 电源供应 Power supply | O | O | O | O | O | O |
| 电缆线 Cables | O | O | O | O | O | O |
| 其他部分 Other parts | O | O | O | O | O | O |

**O:** 表明此有毒或有害物质包含在本部分的所有均质材料中，根据 EIP- A, EIP- B, EIP- C低於極限要求 JS/T11363- 2014

**O:** Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP- A, EIP- B, EIP- C, is below the limit requirement in JS/T11363- 2014.

**X:** 表明此有毒或有害物质包含在本部分的所有均质材料中，根据 EIP- A, EIP- B, EIP- C超过限额要求 JS/T11363- 2014.

**X:** Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP- A, EIP- B, EIP- C, is above the limit requirement in JS/T11363- 2014.

***Note:*** *The full EU declaration of conformity text is in the autosampler package.*

# 20. Warranty and service

# 20.1 Warranty

## 20.1.1 Terms of warranty

The product is covered by warranty. The full warranty text is available in the product paper in the autosampler package.

## 20.1.2 Limited Warranty

Due to technology constrains, the touch screen display may have a minor defect. A minor defect refers to a defect which is not considered to be able to substantially degrade the product application or a defect that deviates from existing standards almost unrelated to the effective use of the product or its operation, such as black spot, white spot, bright spot, pinhole, black line, white line, contrast variation, glass defect, polarizer defect, etc. The minor defects do not give right to repair or part substitution under warranty, unless the number of minor defects substantially degrades the product application.

## 20.2 Service

### 20.2.1 Customer service

In the event of malfunction, fault or to obtain information and return the product, contact your Customer Representative.

# 21. Glossary of terms

## A

### air gap

Air cushion that can be inserted in the Internal Standard technique. The air gap can be between the internal standard and the sample (Post mode), or after both the internal standard and the sample (Double mode).

## C

### confirmation mode

Among the available injection modes, the autosampler injects the same sample into two injectors to confirm the analysis. The analyzer is started on the first injection.

## F

### front injector

Among the available analyzer injector, injector that is closest to the user.

## R

### rear injector

Analyzer injector that is furthest to the user.

## S

### sequence

A sequence is an ordered series of sample vials to prepare and inject, including the method needed to prepare each vial.

### syringe draw depth

Millimeters under the septum of the sample vial cap where the syringe needle must be positioned to aspirate the sample.

### system integrity test

It is used to verify the syringe integrity. If this test is enabled, at the beginning of each batch the system performs a check to verify the syringe integrity through a heuristic procedure. This test is carried out using the system integrity tool. The septum of this tool should be replaced periodically. This check can verify if it is better to replace the syringe (barrel and plunger). Please note that this check does not replace the necessary periodic validations you have to program for the instrument qualification. If the test fails, a warning message appears.

## T

### touch sensor

Sensor in the vial locator that detects that an object has been touched by the vial locator.

# H

## head space technique

It is an indirect method to inject components with low boiling points from liquid or solid samples, based on the analysis of vapours released from a sample that has been incubated at a constant temperature for a given period of time. -this technique has some advantages compared to other techniques: quick preparation time compared to analysis time, possibility to analyse samples that cannot be analysed in liquid or in solid state, less cross contamination problems and higher sensitivity, as this procedure can be considered as a pre-concentration step before injection.

## high throughput

Among the available injection modes, the autosampler injects different samples into two separate injection port. The analyzer is started on the first injection.

# V

## vial leakage check

This function can only be enabled by the HTA Autosampler Manager (Setup-Options). If this option is enabled, the pressure inside vials is monitored by a heuristic procedure in order to check against anomalous values that are indicative of a vial leakage problem. The Vial leakage test can discriminate samples correctly sealed vs. bad crimping or missing septa. Each sample is marked with PASS or FAIL information in HTA Autosampler Manager Windows.

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