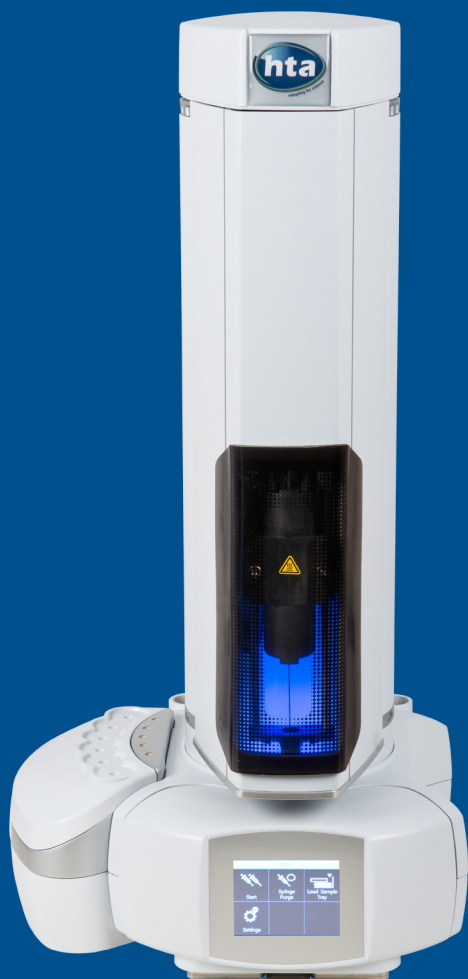




HT2000H series

HEADSPACE AUTOSAMPLERS

Made to meet the needs of static headspace injection for GC analysis.



KEY FEATURES:

- Fits all GCs and GC/MSs
- Easy to use
- The lowest total cost of ownership in the industry
- CFR 21 Part 11
- Near to zero requirement for bench space

COMPARE MODELS

	HT2100H	HT2000H	HT2000HT
Sample Capacity	14 samples: 20 or 10ml	42 samples: 20, 10 or 6ml	42 samples: 20, 10 or 6ml
Removable Rack	-	√	√
User Interface	Keypad	Touch Screen	Touch Screen
Oven Position(s)	1	6	3
Oven Temperature Range	Off; 40-150°C	Off; 40-170°C	Off; 40-300°C
Shaking Capability	YES (Sussultatory)	YES (Orbital)	YES (Orbital)
Programmable Injection Volume	√	√	√
Supported Headspace Syringe	1, 2.5 and 5ml	1, 2.5 and 5ml	1, 2.5 and 5ml
Software: HTA Autosampler Manager (Standard Version)	Included	Free trial (60 days)	Free trial (60 days)

SMART HEADSPACE FOR YOUR GC



OPERATIONS

The robotic vial processing operation allows for sample analysis in a straightforward and systematic way. The sample vials are transported into the heated incubator for preconditioning.

The sample is simultaneously heated and shaken, in order to facilitate the state change and to reach the equilibrium. A heated, gas-tight syringe is then moved over the incubator and the headspace sample is withdrawn. After sample injection, the syringe is automatically cleaned, by purging with inert gas.

PROVEN SUPERIOR TECHNOLOGY

The high performance, gas-tight heated syringe is a simple and robust system. It eliminates the dead volume and absorption effects, typical of sample loops and transfer lines, which can also impede their detection at very low levels. The HTA syringe-only concept allows for sequential injections, even with samples characterized by highly dissimilar features. Even the most chemically active compounds can be analysed, without needing to change any of the sample pathways.

Furthermore, it permits **adjustable sample volumes without loop changes**. No complicated error prone operations, such as vial pressurisation,

valve switching, loop filling or heated transfer lines are involved. Therefore, you can extract more data from the samples in less time and at the lowest possible cost per sample.

Vial leakage check - a proprietary technology¹ - **can be included in your method**. In such a scenario the pressure inside vials of the same batch is monitored by an heuristic procedure in order to check against anomalous values that are indicative of a vial leakage problem.

Finally, **to provide additional robustness of your analysis**, going beyond preventive maintenance counters, **a system integrity test¹ can be automatically performed** in every in every batch by means of an heuristic procedure.

THE LOWEST COST OF OWNERSHIP, THE GREENEST CHEMISTRY

No carrier gas is needed because gas is used only for purging between samples. No o-rings or seals to replace, saving hours of unnecessary downtime. **No magnetic or special caps are required**, because vial transport is positive and reliable.

Allows you to instruct the system to shut off heating when the run is completed, in order to reduce electrical consumption.

UNIVERSAL AND VERSATILE

HTA Headspace Autosamplers are the **most compact on the market** (with a near-to-zero requirement for bench space, as well as no requirement for GC injector modification).

They **can serve both the front and rear injector** in most supported GCs. The injector selection is made directly by the sequence list, avoiding difficult set up operations or re-installation to pass from one injector to the other.

Furthermore, the rotating head design ensures that the **injection port is always free**, for manual injections or maintenance. The system is fully **self-contained** and can be **interfaced with almost any gas chromatograph**, giving you access to HTA's proven headspace technology, regardless of the GC brand or model you have in your laboratory.

OPTIONAL SOFTWARE

The **HT2000H** series can be controlled by a PC, using the **HTA Autosampler Manager** (please see the dedicated brochure). HTA Autosampler Manager software can run in standard mode or with full **CFR 21 Part 11 compliance**.

HTA Autosampler Manager software also includes a dedicated panel for **method development**: progressive tests can be implemented in a very convenient way so that successive samples receive incremental changes in method parameter setpoints for time and temperature.

HT2000H

YOUR WORKHORSE: THE PREFERRED CHOICE OF OUR CUSTOMERS

- User friendly touch screen
- Prep ahead capability



Just load the samples and run the analysis with no extra downtime. The **full-color touch screen interface** provides easier system accessibility and usability. The touch screen eliminates drilldown, simplifying instrument control for both novices and experienced users. All system parameters and settings are graphically displayed for a quick and easy set-up requiring minimal user training.

For routine analyses, the headspace sampler features a **one-touch operation**. After loading the sample, you just need to enter a range of vial numbers and push the START button. The display shows real-time status and allows for easy stand-alone operations.

The samples can be run as fast as the GC will allow, because a sample is always ready to be injected when the previous run is completed. In fact, for maximum throughput, **HT2000H** is equipped with **six-position oven** that allows the **optimization of preparation times**.

HT2000HT

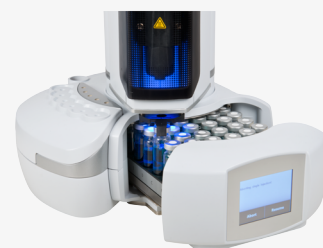
EXTEND SUPPORT TO HIGH-TEMPERATURE APPLICATIONS

- Sample incubation temperatures up to 300°C
- The ideal choice for polymer analysis

HT2000HT features an **upper sample heating temperature of 300°C**: it enables the execution of high-temperature headspace applications in a syringe-based system, therefore without the constraints and limitations induced by valve&loop systems.

HT2000HT incubation oven offers a 3-position heating and shaking chamber, allowing the simultaneous incubation of multiple samples. The incubation temperature can be set between 40° and 300°C to accommodate the widest range of applications: **the system can handle standard headspace applications** (that require temperatures lower than 150°C) while still being well-suited to **special high-temperature applications that include analysis of high-boiling compounds**, such as phthalate esters or cyclic siloxanes, **and polymers**. **HT2000HT** is the **perfect instrument for quality control of chemical product materials** and for heat-induced degradation studies.

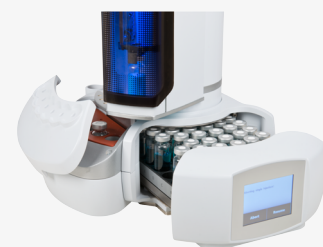
The sample conditioning process



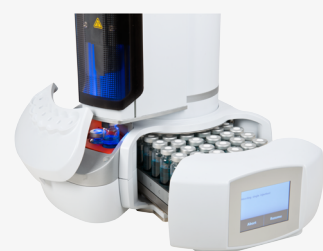
Vial checking



Vial gripping



Vial loading in the oven



Vial unloading after conditioning

HT2100H

Your ENTRY LEVEL CHOICE

- Fully Automated
- Cutting-edge technology
- Shaker included



Analysing a small number of samples? Get headspace precision and performance with a system that is the perfect size for your needs.

The **HT2100H** is an inexpensive, simple-to-use, as well as reliable headspace unit. With all the quality and reliability you expect, the **HT2100H** headspace sampler offers exactly the features you need — at a price to fit your budget.

The **HT2100H** offers **automation for processing up to 14 unattended samples**. The vials are individually lifted up into the heating zone to ensure constant heating time and are immediately returned to their position after injection. Furthermore, a vial can be heated during the GC run of the previous vial specified in the sequence, resulting in a decrease in time between two consecutive GC runs.



The **HT2100H** is a **quality, cost-effective alternative to manual headspace**. While manual sampling techniques are simple and inexpensive, they are also tedious, subject to human error and they are not able to provide robust and consistent data. Automation, on the other hand, **ensures consistent and reliable results**, while also freeing up laboratory personnel for more

productive tasks.

In addition, the uniformed heat distribution along the barrel prevents cold spots from forming. Sample and syringe heating means no sample condensation. The proprietary, heated, gas-tight syringe offers superior performance; as well as the ability to switch across methods that have different heating temperatures. Furthermore **a cleaning system is integrated in the unit for automated and consistent purging procedures** between different samples.



Easy-to-use controls for minimal operator training. A simple, easy to use keypad lets you start your analysis by just pushing the START button. All the samples in your rack will be automatically processed. Quick sets of autosampler parameters can be done by the free PC control, **HTA Autosampler Manager**, provided together with the **HT2100H**, while all the routine operations such as analysis start, sample loading and extra purging, can be managed by using the dedicated keypad.

With **HT2100H** free software "HTA Autosampler Manager (Standard Version)" is provided for PC control; upgrade to "HTA Autosampler Manager (CFR 21 Part 11 Version)" should be purchased separately. PC is required for setup, service, method and sequence editing.

TECHNICAL SPECIFICATIONS

General features

Syringe volume:	2.5ml (standard); optional: 1 and 5ml
Cleaning system:	Inert gas flush (inlet: 1/8"; max pressure: 1bar)
Maintenance:	Preventive counters available; System integrity check ¹
Electrical control:	LAN and TTL; optional: RS232 (HT2000H)
Target illumination:	Yes

Tray capacity

HT2000H/HT2000HT:	42 vials (20ml); optional: 6 and 10ml (1 removable rack)
HT2100H:	14 vials (20ml); optional: 10ml

Conditioning

Oven positions:	1 (HT2100H) 6 (HT2000H) 3 (HT2000HT)
Oven temperature:	off; 40-150°C (HT2100H) off; 40-170°C (HT2000H) off; 40-300°C (HT2000HT)
Shaking method:	sussultatory (HT2100H) orbital (HT2000H and HT2000HT)
Shaker speed:	from very low to very high
Shaking cycles:	on/off 0-9.9min
Incubation time:	0-999min

Sampling

Syringe temperature:	off; 40-150°C (HT2000H and HT2100H) off; 40-150°C (HT2000HT)
Sample volume:	steps of 0.01ml
Sample homogenization:	up to 15
Sample speed:	0.1-100ml/min

Injection

Injection speed:	0.5-100ml/min
Pre/Post dwell time:	0-99sec
Enrichment:	up to 15
Dwell time between injections:	0-100min

Physical features

Dimensions (WxHxD):	280x640x320mm (HT2100H) 330x640x320mm (HT2000H and HT2000HT) ² 8.0kg (HT2100H) 10.0kg (HT2000H and HT2000HT)
Weight:	100-240±10%Vac; 50-60Hz; 60W (HT2100H) 100-240±10%Vac; 50-60Hz; 120W (HT2000H and HT2000HT)
Power supply:	

¹ Patented technology

² Tray and oven cover in closed position

The following functionalities are only available when using the HTA Autosampler Manager: progressive mode, vial leakage check and CFR 21 Part 11.



When it comes to designing and manufacturing robotics solutions, there's no company more dedicated, experienced and knowledgeable in the scientific industry than HTA. We offer an extensive collection of analyzer front-ends and sample preparation workstations designed to fit applications in analytical chemistry, life sciences and clinical laboratories; this even includes GC, LC and ICP autosamplers. HTA manufactures in Italy under a certified UNI EN ISO 9001:2015 and 13485:2016 quality management systems.

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