

	HT2100H	HT2000H	HT2000HT
Sample Capacity	14 samples: 20 or 10ml	42 samples: 20, 10 or 6ml (1 removable rack)	42 samples: 20, 10 or 6ml (1 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	YES	YES	YES
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)

## 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<sup>1</sup>  
 Electrical control: LAN and TTL; optional: RS232  
 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: orbital (HT2100H)  
sussultatory (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: 0.5-100ml/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): 330x640x320mm  
 Weight (HT2000H/HT2000HT): 10.0kg  
 Weight (HT2100H): 8kg  
 Power supply: 100-240±10%Vac; 50-60Hz;150VA

<sup>1</sup> Patented technology

<sup>2</sup> Tray and oven cover in closed position for HT2000H and HT2000HT

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



Leading automation provider for the scientific instruments industry. HTA supplies a wide range of analyzer front-ends and sample preparation automated devices for analytical chemistry (chromatography), life sciences and clinical applications. Among its most popular products are the preparative workstations, GC and HPLC autosamplers that are commercialized worldwide through its reseller network. HTA's quality management system is certified UNI EN ISO 9001:2008.

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## 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



## OPERATIONS

The robotic vial processing operation allows for sample analysis in a straightforward and systematic way. The sample vials are transported into the heated six-position 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 technology<sup>1</sup> - 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 test<sup>1</sup> 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.

Furthermore the rotating head design ensures that the injection port is always free, for manual injections or inlet maintenance. The system is fully

self contained and can be interfaced with almost any gas chromatograph, regardless of the GC brand or model you have in your laboratory.

## UNIVERSAL AND VERSATILE

HT2000H and HT2100H are the most compact autosampler 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

## 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

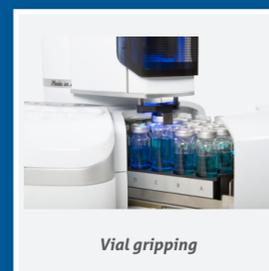
HT2000HT features an upper sample heating temperature of 300°C: it enables the execution of high-temperature headspace applications in a syringe-based system, therefore without the constraints and limitations induced by valve&loop systems.

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.

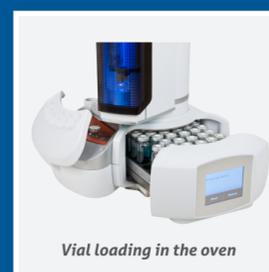
## The sample conditioning process



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.