

HT280T



TRIPLE FUNCTION:

- **HEADSPACE AUTOSAMPLER**
- **LIQUID AUTOSAMPLER**
- **SOLID PHASE MICROEXTRACTION**



The HT280T is a single unit combining static Headspace analysis, Liquid sample injection and SPME (Solid Phase Microextraction)!

The HT280T is a compact **Headspace autosampler** which mounts directly on top of most Gas Chromatography systems rather than taking up valuable bench space next to the GC...

... A simple change of the syringe mechanism allows the unit to perform automated **SPME**.

... It then takes just a few minutes to transform the instrument into a precision autosampler for **Liquid samples**.

This means that there is no longer any need for multiple autosamplers – the HT280T simply maximises the efficiency of a single GC system!

Headspace Operation

The HT280T utilises a heated syringe to transfer the samples from the 6 position orbital oven/shaker directly into the injector. This eliminates tubing, dead volume and sample absorption.

Vial transport is positive and incredibly reliable – the system constantly checks that vials are present and are located in the correct place. No expensive magnetic caps are required.

No transfer lines are needed and the unit mounts directly on top of the GC, thus reducing bench space requirements. Operation is via the simple keypad or by HT-COMSoft software. Up to 40 headspace vials of 10ml or 20ml may be stored in the standard tray.

Progressive sample preparation means that samples are automatically loaded into the oven at the correct time to ensure an injection is ready as soon as the previous run is complete – this maximises GC efficiency.

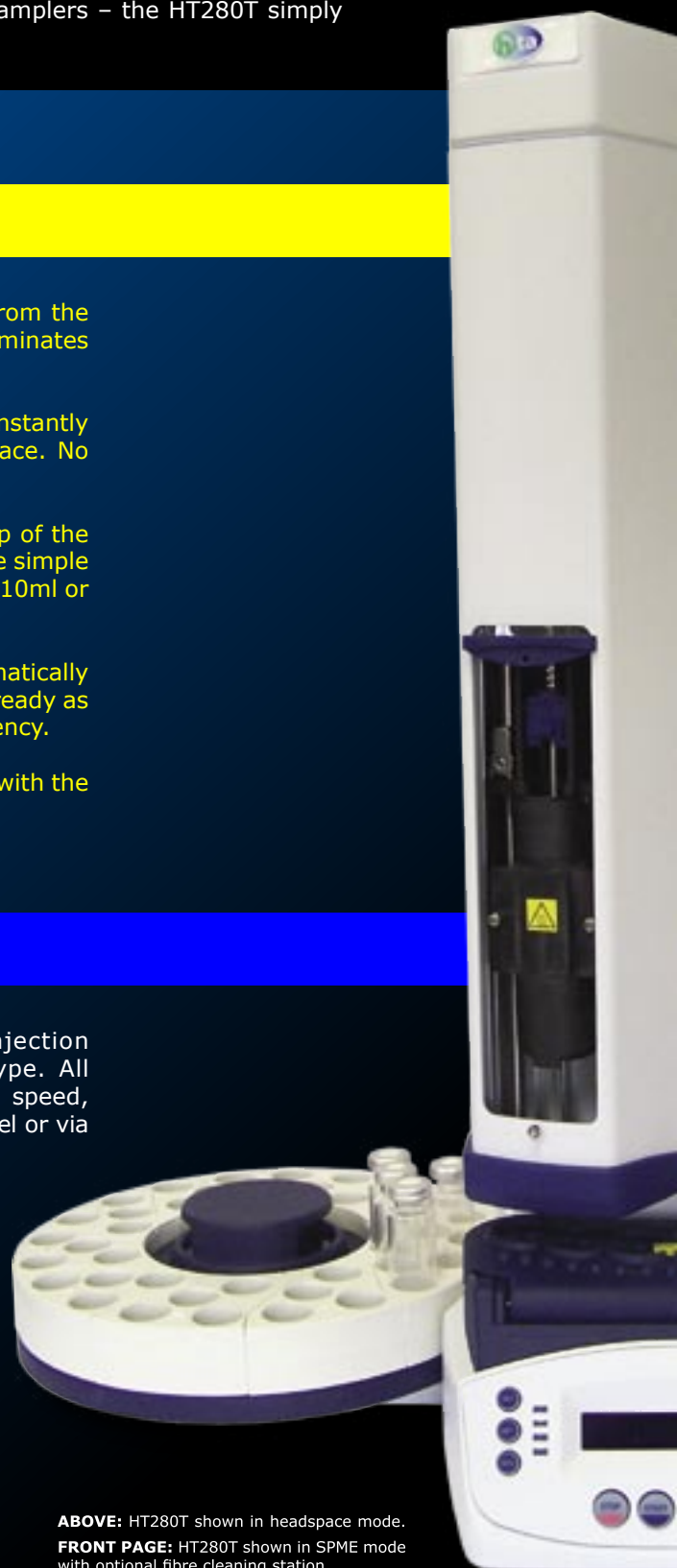
The temperature of the injection syringe is programmable along with the post injection Nitrogen flush to eliminate sample carry-over.

Liquid Operation

Up to 110 samples may be processed using one or more injection methods. Any 12x32mm vial may be used with any cap type. All parameters from the sampling depth through to the injection speed, depth and dwell times may be programmed through the front panel or via HT-COMSoft Windows™ software.

The automatic injection sequence may have up to 15 steps which can be programmed to include:

- First and last samples of group
- Injection method
- Number of injections for each sample
- Pre and Post-washing solvent position
- Internal Standard (if used)



ABOVE: HT280T shown in headspace mode.
FRONT PAGE: HT280T shown in SPME mode with optional fibre cleaning station.

SPME

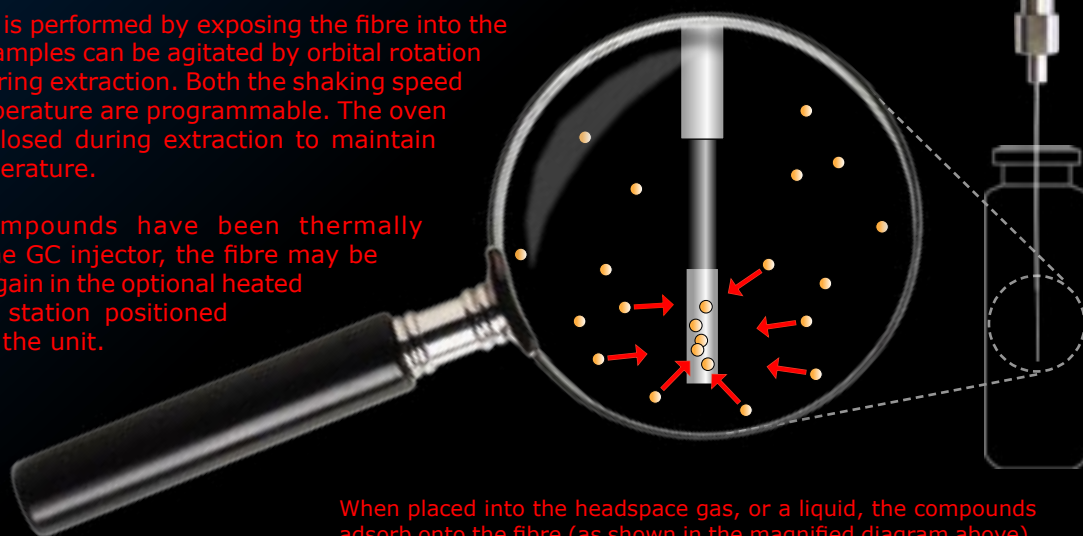
SPME is a unique sample preparation technique which eliminates most of the drawbacks associated with extracting organics. SPME requires no solvents or complicated apparatus.

SPME has gained widespread acceptance as the technique of preference for many applications including: flavours, fragrances and contaminants in food; forensic and toxicology applications; environmental and biological matrices; organic volatiles in pharmaceutical compounds.

Automated SPME with the HT280T delivers more accurate results with greater throughput than manual SPME. The HT280T can extract volatile and non-volatile compounds in both liquid and headspace samples using variable vial penetration depth. Samples can be derivatised pre or post-extraction as the application requires.

The extraction is performed by exposing the fibre into the sample vial. Samples can be agitated by orbital rotation and heated during extraction. Both the shaking speed and oven temperature are programmable. The oven door is kept closed during extraction to maintain constant temperature.

After the compounds have been thermally desorbed in the GC injector, the fibre may be fully cleaned again in the optional heated fibre cleaning station positioned at the back of the unit.



When placed into the headspace gas, or a liquid, the compounds adsorb onto the fibre (as shown in the magnified diagram above).

KEY FEATURES

HEADSPACE

- No transfer lines minimises sample crossover
- Rotating head design leaves injection port free for manual injection
- Progressive sample transfer maximises efficiency
- Gas flush of syringe between injections
- Can use 10ml or 20ml vials

LIQUID

- Syringe may be washed with solvent or sample
- Injections may be made on two columns to maximise throughput or for confirmation analysis
- Sampling system eliminates air bubbles
- Variable fill speed allows for wide range of sample viscosities
- Rotating head design leaves injection port free for manual injection
- Memory stores 10 different methods
- Programmable sampling and injection speed
- Internal standard sampling

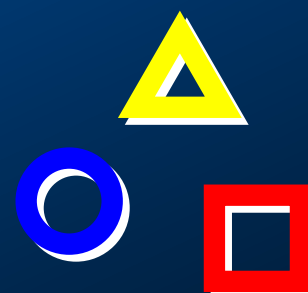
SPME

- Single step extraction (reduces sample preparation time by up to 70%)
- Programmable extraction depth to perform both headspace and liquid extraction
- Oven door kept closed during extraction to keep temperature constant
- Minimal use of solvents

Headspace/Liquid/SPME Conversion

It is simple to change the operation of the autosampler from one application to another at any time. A conversion kit is supplied containing everything needed to perform all conversions.

Conversion from one mode to another takes around 5 minutes to complete with the autosampler *in situ*.



HT280T Specifications

HEADSPACE OPERATION

Shaking Method: Orbital
Incubation Oven: 6 position
Syringe Size: 2.5ml
Tray Capacity: 40 Vials, 10 or 20ml
Cleaning System: Nitrogen flush

Conditioning

Oven Temperature: 40 - 150°C
Time: 0 - 23h 59m
Progressive Increase: 0 - 9h 59m
Shaker Speed: 320 - 720 rpm
Shaking Cycles On/Off: 0 - 9.9 mins

Sampling

Syringe Temperature: 40 - 150°C
Pre-fill Volume: Steps of 0.01ml
Pull Up Strokes: Up to 15 Strokes
Equilibrium Delay: Up to 60 secs
Sampling Volume: Steps of 0.01ml
Filling Speed: 0.1 - 100ml/min

Injection

Sampling Repeats: Up to 15
Waiting Time between Samples: 0 - 99 mins
Injection Speed: 0.1 - 100ml/min
Waiting Time (before and after injection): 0 - 99 secs

LIQUID OPERATION

Syringe Sizes: 1, 10, 25, 50 & 100µl
Tray Capacity: 110 Vials, 2 or 2.5ml
Sample Volume: Steps of 0.1µl
Air Volume: Steps of 0.1µl
Aspirating Speed: 1 - 100µl/sec
Needle Washing: Up to 15 Strokes
Washing Mode: Every Injection, Sample or Step

Air Bubble Removal: Up to 15 Strokes
Viscosity Time: 0 - 15 secs

Injection

Injection Speed: 0.1 - 100µl/sec
Waiting Time (before and after injection): 0 - 99 secs
Injection Depth: Variable

Internal Standard Technique

IS Volume: Steps of 0.1µl
Air Gap Volume: Steps of 0.1µl
Mode: 1 or 2 air gaps

SPME OPERATION

Extraction: Liquid and Headspace
Tray Capacity: 40 Vials, 10 or 20ml
Extraction Depth: Variable
Shaking Method: Orbital
Incubation Oven: 6 position
Oven Temperature: 40 - 150°C
Shaker Speed: 320 - 720 rpm
Oven Door: Kept closed during extraction

Fibre Cleaning Station (optional): Variable duration

GENERAL

Control

Electrical Interfaces: RS232 and TTL

Physical Characteristics

Dimensions (W x H x D): 420 x 620 x 400mm
Weight: 11.5kg
Power Supply: 100/110/220V AC, 50/60Hz

SPME products are sold under licence from SUPELCO under U.S. Patent 5,691,206 and/or any divisions, continuations or revisions thereof.

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About HTA

HTA is a major European autosampler and robotics manufacturer based in Brescia, Italy. HTA designs and manufactures scientific instruments and laboratory automation.

HTA autosamplers are sold by GC companies around the world.

www.hta-it.com



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