



WASSON•ECE  
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*Engineered Solutions, Guaranteed Results.*

Engineered Solutions, Guaranteed Results.

# Laboratory Hardware

For Gas Chromatography Solutions

# Wasson-ECE Laboratory Hardware

Wasson-ECE is not just a Gas Chromatography provider. We are an analytical solution provider. Our goal is to assist our customers with all aspects of their analysis to ensure they are getting the most accurate, repeatable data possible. While the quality of the GC system is the major factor in obtaining reliable data, the analysis can be affected by how the sample is delivered to the GC and how calibration is performed.

Over the years of addressing customer needs, Wasson-ECE has developed a GC accessory product line to assist the customer with challenges they face. These products address a range of sampling containers and sample phases, pressures and temperatures. Our standard products are designed to maintain sample integrity and include a line of auto-samplers to increase efficiency and repeatability, cylinder holders to increase ease of sampling, and products to assist with calibration.

If our standard products don't meet a specific need, our technical experts are happy to discuss a custom solution. Wasson-ECE wants to partner with our customers to make sure they have the tools they need to obtain the best results possible.



# Auto-samplers

Automating the sample injection process increases efficiency and prevents technicians from having to perform time consuming, repetitive tasks. The Wasson-ECE Auto-samplers ensure that sample analysis is not only faster, but also more precise, accurate, and consistent.

## Pressurized Liquid Auto-sampler (LS100B)

Wasson-ECE Liquid Auto-Sampler (LS100B) offers laboratory automation for pressurized liquid samples such as liquefied petroleum gas (LPG) and natural gas liquids (NGL). The LS100B uses inert gases to maintain pressure so that the sample remains in the liquid state at ambient temperature as it passes to the GC for analysis.

The LS100B accommodates up to nine sample cylinders with 1/4 inch tube, VCO, or quick connect fittings. These fittings hold the sample cylinders vertically, ensuring that samples are drawn from the bottom of the cylinder.

## Pressurized Liquid Auto-sampler Features

Purges automatically with carrier gas between each sample run

Remote-starts the GC and the data recording software such as ChemStation™

Adds a date/time stamp to all samples

Holds up to nine 3.5 inch / 8.9 cm diameter sample cylinders

Works with standard open or floating-piston sample cylinders

Pauses automatically when it detects that the GC is not running or not ready

Can interrupt the scheduled sample sequence to process a priority sample



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# Auto-samplers

## Gas Auto-sampler (AS202)

The Gas Auto-sampler (AS202) is a stand-alone device that delivers samples to the GC through a heated bridge, ensuring that samples are injected at the appropriate temperature. The heated pathway is purged with carrier gas between each sample injection, and a vacuum pump ensures an extremely low level of matrix cross-contamination (typically less than 50 ppm).

Samples are loaded into the AS202 oven, which can hold up to twelve 500cc sample cylinders or nine 1L cylinders. The shelves are removable and adjustable and can also be tilted to prevent injection of any residual liquids which then changes the setup to allow for a maximum of eight 500cc or six 1L cylinders.

Samples (1000 psig / 6895 kPa max) are automatically regulated during the purging sequence so the GC injects all samples and calibration blends at atmospheric pressure. The AS202 can also be configured to automate injection of samples that are already at atmospheric pressure.

The table below compares the GC analysis results for 2 mL samples of n-pentane and n-hexane at 100 psig in propane. In the first trial, the sample is sent to the GC from the AS202 at ambient temperature; in the second trial the AS202 heats the samples to 130°C before injection.



### Repeatability Comparisons - Heated vs. Unheated

Component	Unheated Sample		Sample at 130°C		Δ Area	Δ RSD
	Avg. Peak Area	% RSD	Avg. Peak Area	% RSD		
Propane	867938	0.22 %	849415	0.23 %	- 2.1 %	+ 0.01 %
n-Pentane	24025	10.2 %	41282	1.35 %	+ 72.0 %	- 8.85 %
n-Hexane	16475	16.7 %	56087	0.80 %	+ 240.0 %	-15.9 %

# Auto-samplers

## Tedlar Bag Auto-sampler (TAS301)

Tedlar® bags are a popular medium for collecting air samples as they are light, portable, and inexpensive. However, Tedlar® bags are semi-permeable and samples must be tested in a short timeframe to preserve sample integrity. Depending on the analytes of interest and method compliance this timeframe is generally between 24 and 72 hours. The Tedlar® Bag Auto-sampler is designed to help busy laboratories by increasing throughput and reducing manpower requirements. The auto-sampler also removes variance in operator sampling to increase reproducibility.

The system utilizes an internal diaphragm vacuum pump to pull sample from the Tedlar® bag to the gas sample valve on the gas chromatograph (GC). Sampling is controlled by the OpenLab Chemstation sequence editor and no additional software is required. Please contact Wasson-ECE if you are using a different software platform.

### Tedlar Bag Auto-sampler Features

16-position (TAS301-IP) or 6-position (TAS301-Mb) models available

#### Software Compatibility

- Agilent OpenLAB Chemstation Software
- Software Compatibility with additional drivers/cables
- Agilent OpenLAB EZ-Chrom Software
  - Agilent OpenLAB CDS Software
  - Agilent MassHunter Software
- Non-Agilent Software – please contact your sales representative to determine compatibility

Internal diaphragm vacuum pump

¼" bulkhead connections

#### Optional upgrades:

- Gas sample valve
- Specially passivated sample path
- Stop-flow valve to accommodate pressurized samples
- External pump for trace air analysis



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# Sample Introduction

## Single Cylinder Sample Holder and LPG Pressurization Station (A1043-001/A1039-001)

This stand-alone unit accommodates pressurized gas samples and prevents premature evaporation of liquefied petroleum gas (LPG) samples such as C<sub>3</sub> and C<sub>4</sub> hydrocarbon mixtures. This device is designed with a user controlled pressure gauge, a back pressure restrictor, and a sample relief valve to maintain sample integrity for reproducible LPG injections.

### Single Cylinder Sample Holder and LPG Pressurization Station Features

Compatible with both gas and liquid samples

Secures sample cylinders for safety and repeatable sampling

Stand mounts to bench for added stability

Accommodates cylinders with up to 3" diameter at or greater than 11" high

Accommodates cylinders greater than 3" diameter less than 11" high

Includes:

- Cylinder stand
- Two 3-way hand valves
- One 0-500 psi (35 bar) pressure regulator
- One back pressure restrictor valve
- Operation and maintenance manual
- Necessary filters for sample cylinder
- Necessary connections to the GC



# Sample Introduction

## Dynamic Blender (DB302)

Gas chromatography (GC) analyses often include trace level detection of components requiring samples or standards at low concentrations. Some analytes are expensive or difficult to purchase at low levels due to reactivity, adsorption, or high molecular weight. Analyses may also cover a wide concentration range, requiring multi-point calibration.

The Wasson-ECE Dynamic Blender (DB302) provides a simple solution to these calibration needs. The Dynamic Blender is a portable gas blending device that dilutes a sample or a certified standard with a matrix gas of choice. One certified standard with concentrations at the upper limit of the desired calibration curve can be diluted to a lower level (>2 orders of magnitude lower) to create a full calibration curve.

An inert flow path and heated bridge eliminate adsorption and condensation problems when blending gas standards that include sulfur, nitrogen, and other reactive compounds. An on-board flow controller allows the diluent gas flow to be controlled digitally and samples are fed directly to a gas chromatograph. The Dynamic Blender eliminates the need to purchase and store multiple gas cylinders and provides an easy, cost-effective solution for gas phase calibration needs.

## Dynamic Blender Features

Approximately 100 pre-programmed pure diluent gases and mixtures and twenty user configurable diluent mixture slots

- Maximum Diluent Pressure of 100 psi (leak tested to this pressure)
- Maximum Temperature of 150°C (operation verified at this temp.)
- Mass Flow Controller Range of 10 – 500 cc/min

7 µm in-line gas filters (treated) are also provided

Specially passivated tubing for trace reactive compounds (sulfurs, oxygenates, etc.)

\*This treatment is not suitable for samples with pH > 8.0, so please notify your sales representative if you have high pH samples.



**The Wasson-ECE Dynamic Blender provides reliable point-of-use calibration blends.**



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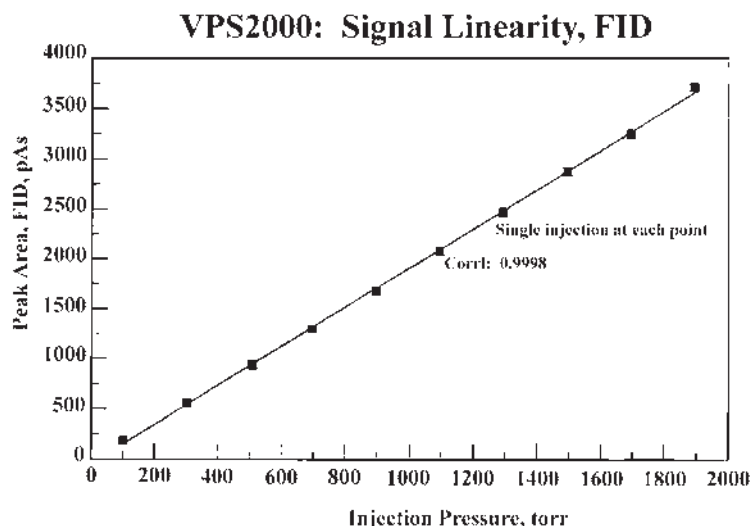
# Sample Introduction

## Variable Pressure Sampler (VPS)

The Variable Pressure Sampler (VPS) works in two ways to ensure the precision and accuracy of gas results. The first method is pressure correction, used to create uniform pressure among all injected samples and the calibration blend. The second method is multi-point calibration, which can deliver a calibration blend to the GC at various pressures.

The VPS pressure correction system performs a multi-step process that ensures samples and calibration blends are at uniform pressures when they are injected. First, when the calibration blend is run through the GC, the VPS measures and stores the pressure of the calibration blend at the time of injection. Then, as each sample is injected at the stored pressure, the VPS adjusts the pressure of the sample to match the pressure of the calibration blend. The inject pressure of the sample is reported to Agilent Technologies OpenLAB ChemStation software so calculations and quality control operations can be performed.

Using the VPS, calibration samples can be run at various pressures from a single standard. This decreases overall lab costs while ensuring greater accuracy in results. The multi-point calibration function allows testing for signal linearity at different pressures. With this feature, the user can easily pinpoint the range of pressures which generates the most accurate and meaningful results from the calibration standard.



### VPS Features

Creates uniform pressure injection of gas phase samples and calibration blends.

Ability to create multi-point calibration curve from a single calibration standard by injecting at different pressures.

The injected pressure is reported on Agilent ChemStation printouts.

All sample wetted lines and parts are specially passivated for trace reactive compounds such as sulfurs and oxygenates.

Wasson-ECE pressure control injection software.



# Sample Introduction

## LPG Vaporizer (1107)

The LPG Vaporizer uses an innovative, proprietary technique to vaporize liquid samples for injection in an existing GC system. This convenient laboratory system offers flexibility and accuracy for both gas and liquid samples.

The LPG Vaporizer is more convenient than a typical liquid sample valve with more accurate results. All liquid samples are vaporized and run at a constant pressure, eliminating sample density changes that cause errors in liquid phase samples. This ensures sharp, easy-to-read peaks for all samples.

The LPG Vaporizer is built with specially passivated parts for analyzing trace reactive analytes such as sulfurs and oxygenates.

Wasson-ECE's unique, proprietary vaporization technique produces an even and accurate gas sample. Other vaporizers use tubing with a large volume, causing samples to fractionate when vaporized. This can lead to incomplete sample analysis. The LPG Vaporizer controls the injection volume so that all elements in the liquid sample are vaporized and sent to the GC simultaneously, producing a complete and accurate analysis of the sample.



### LPG Vaporizer Features

Inject liquid and gas samples with a single valve

High sample throughput

Purging technique reduces cross-contamination

Ability to stop sample flow to the GC at any time

Controlled injection volume

4 ft. heated bridge from vaporizer to customer's GC sample valve to prevent sample re-condensing



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# Custom Sample System

## Custom-Engineered Canister/Cylinder 'Tree' with Auto-sampler

Wasson-ECE's Canister 'Tree' and Auto-sampler is custom designed with 16 shelves that can be modified for specific models/sizes of canisters/cylinders. This system is designed for both ambient and pressurized samples; a stop flow valve is included for pressurized samples.

In addition to the internal diaphragm pump, an optional external vacuum pump is available for environmental sampling to provide additional purging of the lines to minimize sample contamination from residual air. Lines and fittings are specially passivated to avoid potential issues with reactive components.

### Canister/Cylinder 'Tree' Features

Powder-coated steel construction rack

Rack is situated on wheels for easy maneuverability and/or storage

Dimensions:  
50" W x 5' H x 32" D  
127 cm W x 152 cm H x 81 cm D



# Wasson-ECE Instrumentation

## Engineered Solutions, Guaranteed Results.

Wasson-ECE Instrumentation specializes in configuring and modifying new or existing gas chromatographs exclusively from Agilent Technologies to provide guaranteed, turn-key analytical systems.

Our customers describe their objectives and their samples: analytes, concentration ranges, phases, temperature, throughput, and any special needs. From this dialog we configure a task-specific instrument. We add extra ovens, valves, plumbing, flow control, columns, electronics, and software to yield a complete solution. This saves our clients valuable time and delivers instruments that are state-of-the-art and ready for use upon installation. The complete analytical method is developed,

tested, and documented utilizing our experience working with numerous companies that have similar needs and goals. The resulting chromatograms and reports are inspected by our application chemists and customers to ensure system performance and design quality.

Our field engineers then install each system and provide training. After installation, and throughout the life of the chromatograph, our support chemists are ready to help. We can assist with application details, questions, training, calibration, maintenance, and on-site service. Wasson-ECE brings experience and efficiency to your project, giving you confidence in the quality of your results.



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## Please contact us for more information

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