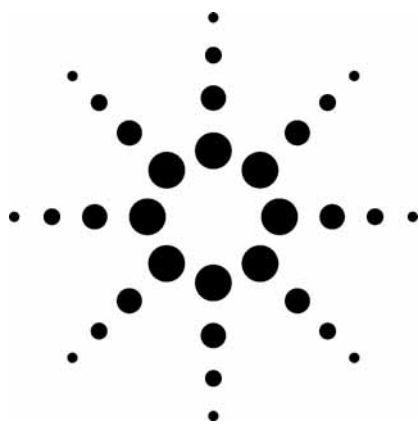


Agilent 7683 Series Automatic Liquid Sampler



Specifications

Physical Specifications

Dimensions and weight

Module	Height (cm)	Width (cm)	Depth (cm)	Weight (kg)
G2913A Injector	47	13	12	3.1
G2614A Tray for 7890A/ 6890 GCs	20	44	33	3.0
G2615A* Bar Code Reader	8	13	8	0.6
G2912A 7683 ALS Controller for 5890 Series II and 6890A GCs	10	33	29	4.7
G2916A 7683 ALS Tray for 5890 Series II GCs	19	45	33	4.2

*The G2615A Bar Code Reader is designed specifically for G2614A trays with serial numbers greater than CN or USxxxx14551. Not compatible with 7673 trays.

Injector Drive Features

- Electronic motor actuation with position feedback and control
- No air actuators or periodic mechanical adjustments required

Sample Management

- **Sample capacity (2-mL vials):** Eight samples with high-density turret; 100 samples with tray. Tray samples stored in removable and stackable quadrants.

- **Sample sequencing:** Random access using Agilent ChemStation control. Simple sequencing using the 7890A/6890 Series GC keyboard, Agilent integrator, or ALS controller software for 5890 Series II GCs.
- **Priority sampling mode:** A priority sample and method can be inserted into the sequence at any time.
- **Sample thermal control:** Sampler tray positioned away from GC to minimize exposure to heat. Tray quadrants can be cooled or heated using customer-

supplied water circulator. Temperature range 5–60 °C.

- **Bar Code Reader module:** Reads 3 of 9, 2 of 5, and UPC bar codes. Sample information is automatically annotated on sample report from Agilent integrator or ChemStation. Not available for 5890 GCs.
- **Bar code label dimensions:** 5.6 × 37.0 × 0.2 mm (maximum)



Sample Injection

The 7683B injector provides a wide range of injection capabilities to provide maximum flexibility:

Injection ranges

Syringe sizes	0.5, 1, 5, 10, 25, 50, and 100 μ L	
Injection volume selection	2%, 10%, 20%, 30%, 40%, or 50% of syringe volume	
Usable syringe rinse solvents*	Solvent A: 6 mL	Solvent B: 6 mL

*With solvent saving mode for use with Agilent 7890A, 6890 Series, and 6850 Series GCs, the number of available solvent washes is increased by up to a factor of four.

Injection parameter control

Parameter	Range	Benefits
Variable sampling depth	-2 to +30 mm above default position	<ul style="list-style-type: none"> - Accesses very small sample volumes - Accesses a specific layer in a two-phase sample - Avoids aspirating sample particulates
Pre-injection syringe rinsing and post-injection syringe rinsing	0-15 rinses using solvent A and/or solvent B	<ul style="list-style-type: none"> - Minimizes sample carryover - Pre-injection rinse wets the syringe without consuming sample
Sample prewashes	0-15 prewashes	<ul style="list-style-type: none"> - Additional way to minimize sample carryover
Viscosity delay, top of plunger stroke	0-7 seconds	<ul style="list-style-type: none"> - Improves sampling accuracy of viscous samples
Pre-injection sample pumps	0-15 pumps	<ul style="list-style-type: none"> - Ensures accurate and reproducible sample volume - Removes bubbles
Minimum sample injection (single injection)	0.1 μ L (5- μ L syringe) or 2% of syringe volume	<ul style="list-style-type: none"> - Prevents overloading the column when using concentrated volume samples, on-column injections, or small-diameter columns
Maximum sample injection volume (single injection)	50 μ L (100- μ L syringe) or 5% of syringe volume	<ul style="list-style-type: none"> - Supports large-volume injection techniques to reduce minimum detectable limits or to eliminate manual sample concentration steps
Injection plunger speed (see injection flow rate table)	Fast/Slow/Variable	<ul style="list-style-type: none"> - Fast plunger minimizes needle discrimination in vaporizing inlets - Slow plunger mimics manual techniques
On-column injection mode	Automatically set by 7890A/6890 Series GC and settable for 5890 Series II GC	<ul style="list-style-type: none"> - Deposits sample directly into 530-μm column - Using the Agilent G2918A accessory with the 7683B auto injector, automated, cool on-column injections can be extended down to 320- or 250-μm columns - Using Agilent 18599T for the 7683A (G2613A) autoinjector enables same cool-on column injection automation
Multiple injection mode (available only with PTV inlet)	1-99 injections of specified syringe volume	<ul style="list-style-type: none"> - Extends range of large volume injections to hundreds of microliters into a PTV inlet
Injection delay time (within multiple injection mode)	0-60 seconds	<ul style="list-style-type: none"> - Provides time for solvent evaporation in PTV inlet prior to next injection
Pre-injection dwell time	0-1 minute	<ul style="list-style-type: none"> - Automatically fills needle with 1 μL of air after sampling - Automates "hot needle" injection technique
Post-injection dwell time	0-1 minute	<ul style="list-style-type: none"> - Mimics manual injection - Useful for large on-column injections
Injections per vial	1-99 injections	<ul style="list-style-type: none"> - For replicating sample analysis

Injection Rates

Injection flow rates are dependent on the syringe used and the plunger speed setting.

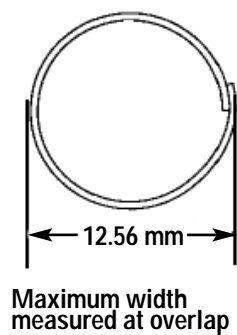
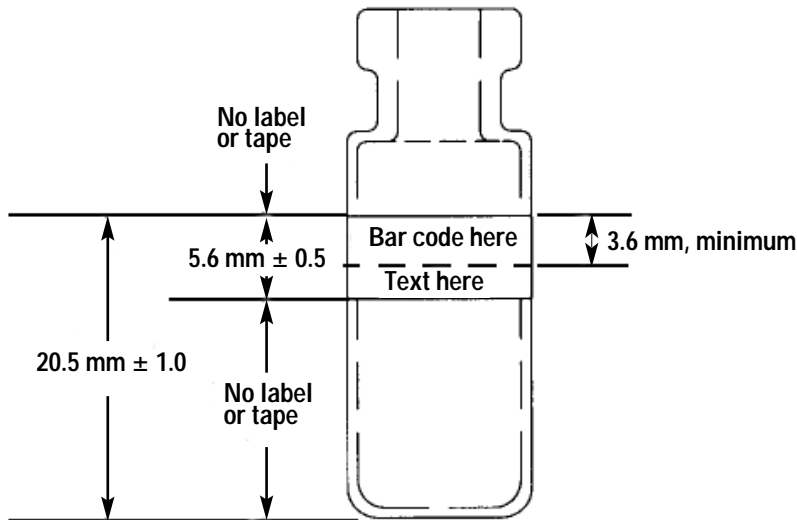
Note that “slow” plunger speed is equal to the “slow” speed on the Agilent 7673 injectors. The 7683 injector can actually inject much more slowly using the variable parameter.

Injection parameter control

Syringe size (μL)	Plunger speed (μL/s)		
	Fast	Slow	Variable
5	50	2.5	< 1 to 50
10	100	5	< 1 to 100
25	250	12.5	< 1 to 250
50	500	25	< 1 to 500
100	1000	50	< 1 to 1000

Recommended Vial Dimensions

To minimize label and/or vial-induced errors, always use labels and vials that meet the specifications in this document.



Typical Chromatographic Performance

- Chromatographic conditions:
 - Cool on-column inlet
 - Flame ionization detector
 - C₁₀ – C₄₀ hydrocarbon sample
 - Nine injections
- Sample discrimination: less than 3% (normalized to C₂₀)
- Area reproducibility: 0.3% RSD
- Injection volume linearity: 99% correlation
- Carryover: Not measurable with four solvent A and four solvent B washes. With solvent saving mode, carryover < 1 part in 10⁴ with default number of washes.

Technical and Environmental

- Indoor use only in ordinary atmospheres
- Altitude up to 4,300 m
- Operating ambient temperatures between -5 °C and -45 °C
- Maximum relative humidity of 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C
- Mains supply voltage fluctuations up to ± 10% of the nominal voltage
- Pollution degree 2, Installation Cat II
- G2912A, ALS Controller, is rated for mains connection to 100–120 VAC or 220–240 VAC, 50/60 Hz, 180 VA

Safety and Support

- Injector will not operate if not mounted on GC.
- Error indicators show the source operating failure.
- Flash memory allows product firmware enhancements to be uploaded via PC.
- In the event of any instrument failures, Agilent's industry leading *Express Exchange** service can minimize downtime by shipping replacement sampler modules within hours.

* Not available in all countries.

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