

Autoinjector / Autosampler

**AOC-30** 3.

Specifications



# Next Industry Standard

Today's laboratories face an increasing demand to produce better quality results in a shorter amount of time. The AOC™-30 was designed to not only address these problems but to also provide laboratories with a practical solution that is approachable, simple and easy to use.



## Designed for productivity

In today's world, laboratories are constantly pressured to deliver more results in a shorter amount of time. AOC-30 is capable of high-throughput analysis with best-in-class performance.

### Analytical Specifications \*1

- Peak area repeatability: < 0.3 % RSD \*2
- Sample discrimination: < 10 % \*3
- Sample injection linearity: < 5 % \*4
- Sample carryover: < 5 ppm \*5

### Gravimetric Specifications

- Injector repeatability: < 1.0 % RSD
- Injector linearity:  $R^2 > 0.999$

\*1: Results may vary depending on the sample, analytical conditions and environment.

\*2: Based on 10 consecutive injections of C12-C16 (FID).

\*3: Based on ASTM D2887 analysis of C6-C44 (FID).

\*4: Based on the analysis of C12-C16, covering injection volumes from 10 to 50% of syringe volume (FID).

\*5: Determined by quantification of the residual area in a solvent blank, after injection of a pure sample (FID).

## Adapts to your workflow

AOC-30 grows with your laboratory's needs. Start with only what you need. Need additional throughput? No problem. Easily scale-up by extending your current AOC-30 installation.

### AOC-30 Single Tower (AOC-30i)

- 1.5 mL sample vial capacity: 30 **3.2**
- 4 mL wash vial capacity: 4 **3.3**
- 4 mL waste vial capacity: 4

### AOC-30 Dual Tower (AOC-30i x 2)

- 1.5 mL sample vial capacity: 60
- 4 mL wash vial capacity: 8
- 4 mL waste vial capacity: 8

### AOC-30 Sampler (AOC-30i + AOC-20s U)

- 1.5 mL sample vial capacity: 150
- 4 mL sample vial capacity: 96
- 4 mL wash vial capacity: 12
- 4 mL waste vial capacity: 12

### AOC-30 Dual Sampler (AOC-30i x 2 + AOC-20s U)

- 1.5 mL sample vial capacity: 150
- 4 mL sample vial capacity: 96
- 4 mL wash vial capacity: 24
- 4 mL waste vial capacity: 24

## Sample vials

Supports industry-standard 1.5/2/4 mL vials and micro-inserts. Shimadzu sample vials satisfy the specifications listed below.

### 1.5/2 mL vial

- Vial height: 33.1 - 35.4 mm\*
- Cap height: 5.8 mm
- Vial outer diameter: 11.4 - 11.9 mm
- Cap outer diameter: 11.2 - 12.6 mm

### 4 mL vial

- Vial height: 47.2 - 48.3 mm\*
- Cap height: 9.4 mm
- Vial outer diameter: 14.7 - 14.9 mm
- Cap outer diameter: 14.9 - 15.7 mm
- Cap type: screw/crimp
- Cap hole diameter: 4.2 mm

\*: Vial height is inclusive of the cap and septum

## Analytical Parameters

### Injection Mode/Settings

- Injection modes: standard injection, cool on column injection, large volume injection, multiple injection, sandwich injection
- Sandwich injection: up to 3 layers (L1/L2/L3)
- **Wash/waste vial types:**  
4 types (A/B/C/D), 2 types (A/C), single type (A) **3.3**  
See the table below for the wash and waste capacities.
- **Supported syringe sizes:**  
0.5 µL, 5 µL, 10 µL, 50 µL, 250 µL **3.1**  
Both liquid and gas type variants supported
- Minimum sample injection: 10 nL (0.5 µL syringe)
- Maximum sample injection: 200 µL (250 µL syringe)
- Injection range: 1-80% of syringe volume (1% increments).  
Note: For 0.5 µL syringe, injection range is 2-100% of syringe volume.
- Plunger speed: slow, mid, fast
- Variable injection depth: 0 - 22 mm
- Variable sampling depth:  
-2 to +20 mm (1.5 mL vial)  
-10 to +20 mm (4 mL vial)
- Pre and post-injection washes: 0 - 99
- Sample washes: 0 - 99
- Sample pumps: 0 - 99
- Viscosity delay: 0 - 99.9 s
- Post injection dwell time: 0 - 99.9 s
- Multiple injections: 1 - 99
- Volume capacities for each AOC-30 system

AOC System	Nominal Capacity (mL)	Effective wash capacity (mL)*	Effective waste capacity (4 mL)*
Single Tower	16	11.2	16
Dual Tower	32	22.4	32
Sampler	48	33.6	48
Dual Sampler	96	67.2	96

\*: Effective wash/effective waste volumes for 4 mL vials are 70% and 100% respectively. Maximum capacity may vary depending on the type of cap used, temperature, humidity and other environmental factors.

## On the forefront

AOC-30 comes equipped with Analytical Intelligence. Get up to speed quickly with optimized workflows that will take your productivity to the next level.

- **Sampler Navigator:**  
Gain access to expertly crafted injection methods with a single click.
- **Remote access via LabSolutions™ Direct**
- **Vial sensors on both the injector tower and sampler** enable smart management of samples. When the presence of a sample is not detected, you can choose to either: stop analysis or skip to the next sample.
- **Overlap analysis**
- **Priority sample**
- **LED injector light illuminates syringe during maintenance and lights up during operation.**
- **Color indicator displays AOC status**
- **Barcode reader (option):** Only available with AOC-20s U
- **Sample heating/cooling (option):**  
Only available with AOC-20s U
- **Maintenance/replacement parts logs and counters**
- **Self-diagnosis function**

## Xtra Series Consumables

Genuine Shimadzu consumables of the highest quality reduce downtime and improve GC/GCMS performance.

- **Xtra Life Inlet Septum:**  
Lasts up to 10x longer than the standard septum. Experience longer continuous analysis without fear of leaks.
- **Xtra Life Micro Syringe:**  
Equipped with an ultra flexible and durable titanium alloy plunger, this syringe has a much longer service life and can also be used for water soluble samples.
- **Xtra Clean Conical Cap:**  
Acts like a septum but without the actual "septum". This septum-free cap prevents elastomer-based contaminants from entering the wash solvent, while reducing the rate of solvent evaporation.

## System Info

### Supported models (as of January 2021)

- **Supported GC models:**  
Nexis™ GC-2030
- **Supported GCMS models:**  
GCMS-QP 2020 (includes NX Series)  
GCMS-TQ™ 8050/8040 (includes NX Series)



## System

### Dimensions and weight

#### AOC-30i

- Width: 250 mm/9.8 in
- Depth: 260 mm/10.2 in
- Height: 390 mm/15.4 in
- Weight: 5.1 kg/11.2 lb

#### AOC-20s U

- Width: 320 mm/12.6 in
- Depth: 320mm/12.6 in
- Height: 135 mm/5.3 in
- Weight: 2.4 kg/5.3 lb

### Electrical and operating requirements

- Operating temperature: 18-28 °C
- Operating humidity: 40-70 %RH
- Pollution degree: 2 (IEC 60664-1)
- Power capacity: 100 VA  
(supplied by GC)

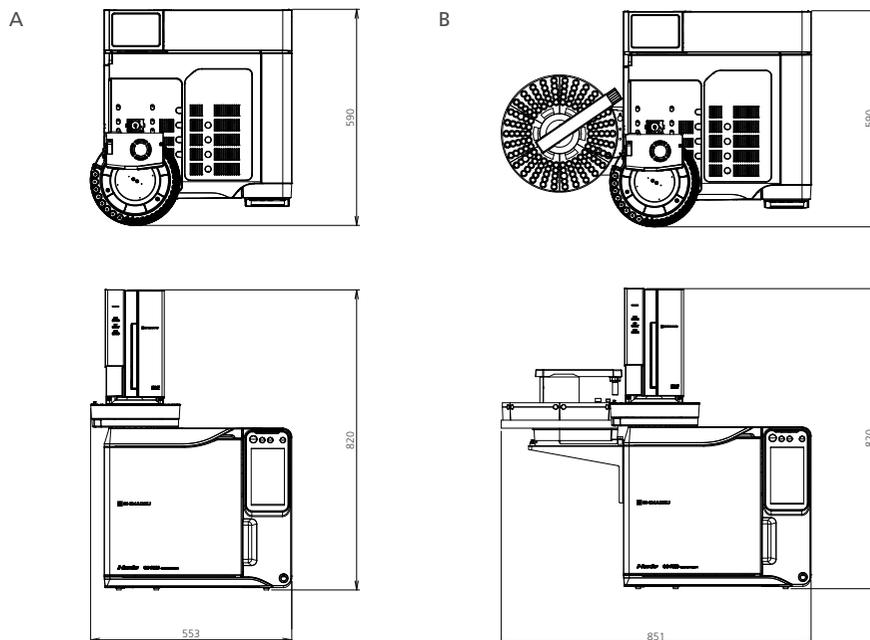
### System Dimensions

- A: Nexis GC-2030+AOC-30 Single Tower System

Width: 553 mm/21.8 in, Depth: 590 mm/23.2 in, Height: 820mm/32.3 in

- B: Nexis GC-2030+AOC-30 Sampler System

Width: 851 mm/33.5 in, Depth: 590 mm/23.2 in, Height: 820 mm/32.3 in



Unit: mm



#### ANALYTICAL INTELLIGENCE

- Automated support functions utilizing digital technologies, such as M2M, IoT, and Artificial Intelligence (AI), that enable higher productivity and maximum reliability.
- Allows a system to monitor and diagnose itself, handle any issues during data acquisition without user input, and automatically behave as if it were operated by an expert.
- Supports the acquisition of high quality, reproducible data regardless of an operator's skill level for both routine and demanding applications.

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