

# AUTOTAP

Quantachrome



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automated tap density analyzers



**Quantachrome**  
INSTRUMENTS

A brand of Anton Paar

## TAPPED density

The apparent bulk densities of powdered, granular or flaked materials are highly dependent on the manner in which the particles are packed together due to cohesion and shape effects. Furthermore, handling or vibration of particulate material causes the smaller particles to work their way into the spaces between the larger particles. The geometric space occupied by the powder decreases and its density increases. Ultimately, no further natural particle packing takes place without the addition of pressure and maximum particle packing is achieved. Under controlled conditions of tapping rate, tap force drop and cylinder diameter, this condition of maximum packing efficiency is highly reproducible. Tap density measurement is formalized in a number of international standards to which both Autotap models conform.

### Standards Suitability

ASTM B527	(metallic powders)
ASTM D4164	(formed catalysts)
ASTM D4781	(fine catalysts)
IDF 134	(dried milk)
ISO 787-11	(pigments)
ISO 3953	(metallic powders)
ISO 8460	(instant coffee)
ISO 8967	(dried milk)
ISO 9161	(uranium dioxide powder)
JIS K5101-12-2	(pigments)
JIS Z 2512	(metallic powders)
MPIF 46	(metal powders)
USP<616>method II	(pharmaceutical powders)
(preharmonization)	
USP<616>method I	(pharmaceutical powders)
(harmonized)	
JP 3.01 Part 2 Method 1	(pharmaceutical powders)
(harmonized)	
PH. EUR. 6.8 Method 1	(pharmaceutical powders)
(harmonized)	

To measure tap density, samples are placed in standard graduated cylinders and mounted on a universal tap platform designed to accommodate cylinders from 10mL to 500mL. After noting the initial volume and weight of the material, the number of desired taps is entered and tapping started. When the specified number of taps is completed, tapping stops automatically. Reading of the powder surface is facilitated by automatic rotation of cylinders during tapping which promotes a flat powder interface.

If the material characteristics are unknown, tapping may be done step-wise by user specified numbers of taps, while noting or graphing the results until the volume becomes constant. Once the tapping behavior is known, the proper number of taps, typically thousands, including a significant excess (to account for future variability between samples) can be preset on subsequent runs, thus freeing the operator for other work.

A noise reduction cabinet is available which can reduce the tapping noise levels by 15 dBA\* or more.

\*Actual improvement depends on local factors such as bench, ceiling height etc

### Key Lock

The units' control panel can be disabled thanks to a lock at the front of the instrument which enables the user to prevent others from tampering with the counter settings.

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## ACCESSORIES cabinet

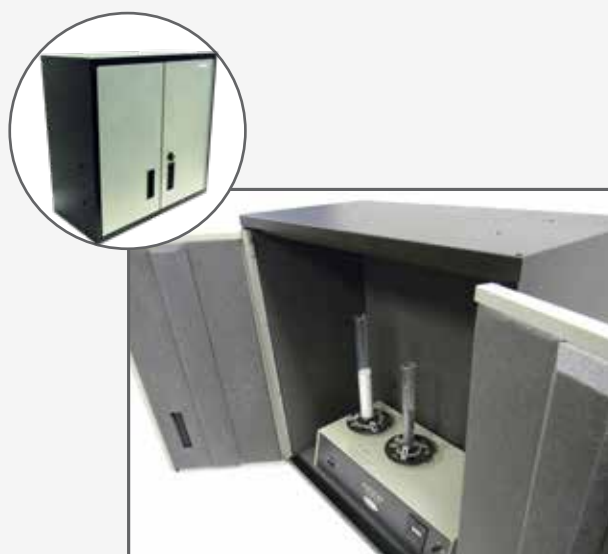
### Noise Reduction Cabinet

A sound-insulated enclosure is available that accommodates either Autotap model. The noise from tapping can be reduced by up to 15 dBA (actual improvement depends on local factors such as bench material and ceiling height). The doors can be locked for added safety and security.

#### Dimensions:

76.2cm (30") W x 38.1cm (15") D x 76.2cm (30") H.

Weight: 28kg.



Visit [www.quantachrome.com](http://www.quantachrome.com) for more detailed instruments specifications and downloadable brochures.

# AUTOTAP INSTRUMENT

features



## SPECIFICATIONS

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### Performances

- Stations:** Autotap: 1 Dual Autotap: 2
- Cylinder Sizes:** 250 mL standard; 10 mL, 25 mL, 50 mL, 100 mL, 500 mL, 1000 mL optional  
1000 mL requires auxillary plate quick-change assembly (p/n 01470-5830 / AP Nr. 193228)
- Nominal Tapping Rate:** 260 min<sup>-1</sup>
- Tapping (drop) Height:** 3mm (0.125 inch)
- Tap Counter:** 1-999999
- Display:** LCD, automatic countdown, automatic reset
- Platform Rotation:** Automatic
- Sample Weight Limits:** 900g (2 lb) with no effect on tapping rate  
1800g (4 lb) with 5% reduction in tapping rate  
2275g (5 lb) with 15% reduction in tapping rate
- Controls:** on/off, start, stop, counter reset
- Lock-out:** keyed lock for tap counter

### Physical

- Height:** 175 mm (7 in) excluding cylinders
- Width:** 540 mm (21 in)
- Depth:** 280 mm (11 in)
- Weight:** 11 kg (24 lbs) Autotap  
14 kg (31 lbs) Dual Autotap

### Electrical

- Voltage:** 110-120 V or 220-240V
- Frequency:** 50/60 Hz
- Power (max):** 150 VA
- Connection:** Grounded, single-phase outlet

### Environmental

- Temperature:** 15°C - 40°C
- Max. Relative Humidity:** 80%

### Ordering Information

- Autotap, 50 Hz, 100-115v:** p/n 02106-50-100-1  
AP Nr. 196351
- Autotap, 50 Hz, 220-240v:** p/n 02106-50-1  
AP Nr. 192955
- Autotap, 60 Hz, 100-115v:** p/n 02106-60-1  
AP Nr. 192954
- Autotap, 60 Hz, 220-240v:** p/n 02106-60-220-1  
AP Nr. 196352
- Dual Autotap, 50 Hz, 100-115v:** p/n 02105-50-100-1  
AP Nr. 196349
- Dual Autotap, 50 Hz, 220-240v:** p/n 02105-50-1  
AP Nr. 192979
- Dual Autotap, 60 Hz, 100-115v:** p/n 02105-60-1  
AP Nr. 192920
- Dual Autotap, 60 Hz, 220-240v:** p/n 02105-60-220-1  
AP Nr. 196350
- Noise Reduction Cabinet:** p/n 62105-NRC  
AP Nr. 192980



Renowned innovator for today's porous materials community. The quality of Quantachrome's after sales service support is the reason we are proud to maintain life time relationships with our customers.



### Field Service

Our global service staff assure you that Quantachrome Instruments will continue to be the reliable engines of material characterization laboratories. We offer you the flexibility of choosing from service contracts tailored to provide you with the response time, service package, and spare parts discounts that best fit your needs.



### Spare Parts

Quantachrome spare parts are certified to work with our instruments. We provide rapid response spare parts orders, and keep large inventories of replacement parts and hardware available.



### Application Lab

Our fully equipped, state-of-the-art powder characterization laboratory (email: [application.qt@anton-paar.com](mailto:application.qt@anton-paar.com)), provides the option of contracting for expert testing services. Laboratory services are also available to validate the applicability of our products prior to your purchase using your actual samples.



### Lifetime Application Support

We view the field support of our instruments as an essential component of our business strategy. Our expert scientists are always available to answer questions on applications, or the use of our instruments. We do this as a standard service regardless of whether you have a service contract with us or not.



### Partners in Science

Quantachrome has a scientific research department consisting of world renowned experts in material characterization. Our staff, led by Dr. Matthias Thommes, conducts collaborative research projects with leading material research labs around the world. They regularly publish articles in leading peer reviewed journals, and speak at technical symposiums around the world.

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For almost half a century Quantachrome's scientists and engineers have revolutionized measurement techniques and designed instrumentation to enable the accurate, precise, and reliable characterization of powdered and porous materials.

We have an unwavering commitment to providing state of the art technology, along with superior and unparalleled customer service and support.

Our commitment to customers is to support you before, during, and after the sale throughout the lifetime of our instruments. This is a big commitment because our products are so robust and reliable that we regularly find many still in use for decades.

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Your Local Representative: