

# TALBOYS

By TROEMNER

## 2008 Laboratory Equipment Catalog

**We have the  
missing pieces  
for your lab.**



**Dry Block Heaters - Hotplate/Stirrers - Overhead Mixers  
Clamps - Homogenizers - Shakers - Vortex Mixers**

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# TROEMNER HISTORY

*Since 1838, Henry Troemner, LLC has enjoyed a long history as the leader in the field of precision measurements.*



Henry Troemner

The company started as a manufacturer of scales, balances and weights in Philadelphia, Pennsylvania. Henry Troemner, a German immigrant, was originally a locksmith and learned the balance craft after he arrived in Philadelphia. From the beginning, Troemner earned a reputation as being a manufacturer of high quality products. The business grew steadily after the discovery of gold in California during the 1840's as the company was known for its bullion and assay balances. Henry Troemner's three sons continued to develop and grow the business, and by the early 1900's Troemner was recognized internationally as a world leader in the balance and scale manufacturing industry. During the 1950's Troemner's balance and scale product line was updated to meet market demand and the production of precision weights became a larger part of its overall business. In 1958, Troemner published the company's first comprehensive catalog of standard weights and began to offer a weight calibration service for customers' weights. This important service is one that continues to this day. Over the years Troemner has enhanced its reputation as being the premier company in the metrology industry by achieving ISO 9001 certification, and accreditation in our laboratories by both the National Institute of Standards and Technology (NIST) administered National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 105013-0), and the United Kingdom Accreditation Service (A UKAS Accredited calibration laboratory No. 0516).



Troemner Storefront, 911 Arch Street, Philadelphia, Pennsylvania

## **Troemner Today**

Over the years Troemner has continued to expand and increase its expertise in manufacturing and measurement capabilities. Troemner relocated to Thorofare, New Jersey in 1999 to a state-of-the-art specially designed corporate headquarters, which was planned by a team of employees, engineers, and architects to specifically meet the customer's needs for high precision calibrations. Troemner's laboratories provide customers with all the data and traceability information they need for their calibration items. The Calibration Laboratories' physical conditions and state-of-the-art equipment enable Troemner to produce measurements with very small uncertainties for its customers. Troemner is not only committed to quality calibrations, but to the product itself as evidenced by the introduction of a unique material used to manufacture weights called Troemner Alloy 8, a specially blended stainless steel with very low magnetic properties. Troemner is committed to achieving the highest levels of accreditation for all of our calibration services which include mass, mass magnetic susceptibility, mass density determinations, pipettes, thermal mass flow, temperature, dimensional, humidity, pressure and electrical, time and frequency. We continue to research and develop new calibration services to meet the diverse needs of our customers.



## **Manufacturer of Laboratory Equipment**

At Troemner we have continued to expand and increase our expertise in manufacturing and measurement capabilities. In addition to our weights and calibration business, Troemner broadened its expertise into the development and manufacture of a full line of laboratory equipment. For over 40 years, Troemner has been a leading provider of reliable, high quality laboratory equipment products. As the needs of our customers have changed we have added to our product line. In 2000 Troemner acquired the Talboys overhead mixer product line and we have expanded the laboratory equipment offering to meet the unique needs of our customers.

Today Troemner's Talboys laboratory equipment products include shakers, incubating shakers, vortex mixers, hotplates, stirrers, dry block heating units, overhead mixers, homogenizers, microplate stability chambers, and clamps. Our Talboys laboratory equipment products are manufactured under an ISO 9001 accredited quality system. Many of these products are UL, CUL, CSA, and CE certified. Troemner strives to provide our customers with exactly what they need to run their laboratories efficiently and safely.

**For more information on Troemner's Weight and Calibration Services , turn to page 120 or visit our website at [www.troemner.com](http://www.troemner.com).**

## Contact Information

### Henry Troemner LLC

Address: 201 Wolf Drive

P.O.Box 87

Thorofare, NJ 08086

Website: [www.talboys.com](http://www.talboys.com) E-mail: [info@talboys.com](mailto:info@talboys.com)

Phone: (856) 686-1600 Toll Free: 1-888-TALBOYS

Fax: (856) 686-1601

Business Hours: Monday through Friday 8:30AM to 5:00PM (EST)

## Technical Support

Talboys' technical support team is available to assist you with product recommendations, troubleshooting, regulatory compliance issues, maintenance advice or any general questions you may have about our products and services from 8:30AM-5:00PM Monday through Friday (EST).

Please call 1-888-TALBOYS or email [tech\\_support@talboys.com](mailto:tech_support@talboys.com).

## Ordering, prices, shipping information, and payment terms

When ordering Talboys products, please specify part number, product description and quantity desired. Orders may be placed via phone, fax, e-mail or web. For phone orders, we require a hard copy of the purchase order be forwarded after phone order is placed.

Prices, product appearance and specifications are current at the time of printing, and are subject to change without notice. Availability for certain products may be limited by federal, state, provincial or local licensing requirements. All prices are in US dollars unless otherwise noted. Offers valid in USA, void where prohibited by law or company policy, while supplies last. Visit [www.TALBOYS.com](http://www.TALBOYS.com) to view our privacy policy and additional disclaimers. For the most current pricing, please contact us or visit our website.

All shipments are FOB Thorofare, NJ, USA. and are shipped freight collect unless it is requested and agreed to at the time of order placement that the freight is to be prepaid and added to your invoice. Troemner will select shipping method based on weight and shipping location unless shipping instructions are provided at the time of order placement.

Shipping lead times should be confirmed at the time of the order. Lead times are estimates only and seller shall not be liable for non-shipment or delay due to acts of God, lightning strikes, accidents, or any other causes beyond control of the seller, whether or not similar in class or kind to those mentioned. Seller shall not be liable or responsible for incidental, special, or consequential damages suffered by buyer, whether foreseen or unforeseen, due to incorrect, delayed, or undelivered shipments.

Troemner accepts the following forms of payment: VISA, Mastercard, American Express, checks, money orders and wire transfers, and are payable prior to shipment unless credit terms are established. If credit terms are requested, we require a credit application to be completed with at least 3 credit references. Credit terms are approved based on customer's acceptance of payment terms of net 30 days from the date of invoice.

Talboys, forms of Talboys and the Talboys logo and/or design are either registered trademarks or trademarks of Henry Troemner, LLC. in the United States and/or other countries. All other marks referenced herein are registered trademarks, trademarks or service marks of their respective owner(s). For a complete list of trademark owners, please visit [www.TALBOYS.com](http://www.TALBOYS.com).



# PRODUCT INFORMATION

## Limited Warranty

Henry Troemner LLC agrees to correct for the original purchaser of this product, either by repair, or at Henry Troemner LLC's election by replacement, any defects in material or workmanship which develops within the specified warranty period after delivery of this product to the original purchaser. In the event of repair, the repaired unit will be warranted for the remainder of the original specified warranty period or sixty (60) days, whichever is longer. If the product should require service, contact Henry Troemner LLC at (856) 686-1600, fax (856) 686-1601. This warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, or other causes not arising out of defects in material or workmanship. There are no warranties, express or implied, including, but not limited to, those of merchantability to fitness for a particular purpose, which extend beyond the description and period set forth herein. Henry Troemner LLC's sole obligation under this warranty is limited to the repair or replacement of a defective product and Henry Troemner LLC shall not, in any event, be liable for any incidental or consequential damages of any kind resulting from use or possession of this product. Some states do not allow (1) limitations on how long an implied warranty lasts or (2) the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you the specific legal rights, and you may have other rights which vary from state to state.

## Returns

Product returns will not be accepted without a return authorization. Contact our Customer Service Department at (856) 686-1600 or [info@talboys.com](mailto:info@talboys.com). Please have the serial number and part number of the unit to be returned, along with the reason for return. If the unit is under warranty, we will repair the faulty unit, issue a credit or send a replacement. When return for repair of a product is necessary, a return authorization number must be assigned and the product should be shipped, transportation charges prepaid, to: Henry Troemner LLC, 201 Wolf Drive, Thorofare, NJ 08086-0087. To insure prompt handling, the return authorization number must be placed on the outside of the package and a detailed explanation of the defect enclosed with the product. Units that are claimed as being unused must be returned in their original un-opened carton.

## Quality and Safety Certifications

**ISO 90001 Certification:** In 1993, Troemner was one of the first companies in the Philadelphia area to achieve ISO 9001 accreditation. Troemner has a thoroughly documented quality system that ensures our customers receive the products and services they request. Troemner's ISO 9001 quality system has been audited regularly by internal, external, and customer auditors, to ensure our continued compliance with this standard. Troemner also meets ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

**UL:** Products with this symbol are listed by Underwriters Laboratories, Inc. and have been evaluated by UL and meet their applicable standards. UL has developed more than 800 Standards for Safety. Our Standards for Safety are essential to helping ensure public safety and confidence, reduce costs, improve quality, and market products and services. Millions of products and their components are tested to UL's rigorous safety standards with the result that consumers live in a safer environment than they would have otherwise.

**CUL listed:** UL's Certification Organization accreditation for Canada encompasses all UL global testing facilities, services, product categories and programs.

**CSA:** Canadian Standards Association - Products with this symbol assures you that the product meets certain safety standards and/or performance criteria set by the Canadian Standards Association. Henry Troemner LLC complies as listed for the following safety standards as listed in each piece of equipment we sell.

**IEC 61010-1** Safety requirements for electrical equipment for measurement control and laboratory use.

**IEC 61010-2-010** Particular requirements for laboratory equipment for the heating of materials.

**IEC 61010-2-051** Particular requirements for laboratory equipment for mixing and stirring.

**CE Mark:** The CE mark (officially CE marking) is a mandatory safety mark on many products placed on the single market in the European Economic Area. The CE mark is a mandatory European marking for certain product groups to indicate conformity with the essential health and safety requirements set out in European Directives. To permit the use of a CE mark on a product, proof that the item meets the relevant requirements must be documented. Sometimes this is achieved using an external test house which evaluates the product and its documentation. Often it is achieved by a company-internal self-certification process. In any case the responsible organization (manufacturer, representative, importer) has to issue a EC-Declaration of Conformity (EC-DoC) indicating his identity (location, etc.), the list of European Directives he declares compliance with, a list of standards the product complies with, and a legally binding signature on behalf of the organization.

## Distributor Information:

Talboys is always looking for distributors interested in selling our products. If you'd like more information on becoming an authorized Talboys distributor, please email us at [info@talboys.com](mailto:info@talboys.com).

The new Talboys family of laboratory shakers has one of the industries largest offerings on the market today, covering a wide range of applications. Many shakers are available as incubating, cooling, or open air and with orbital, reciprocating, rocking, or waving motions. Capacities range from one microplate up to 150lbs (68.1kg).

- **Patented design features**
- **Exceptional extended warranty on most models**

- **Advanced electronics**

- Safety features
- Calibration modes
- Interfacing
- Easy to use controls



- **Expanded line of accessories to fit almost any application**

- **Platforms (available in a variety of sizes):**

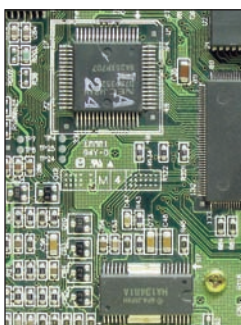
- Universal - lets you easily mount flask clamps and test tube racks
- Dedicated - pre-mounted flask clamps of the same size, maximizes the capacity of your platform
- Adjustable - uses roller bars allowing the most flexibility in securing your vessels
- Culture- ideal for slow speed applications utilizing low profile, flat bottom vessels
- Large Vessel Carrier - utilizes high sides and a heavy-duty design to help secure oversized vessels
- Separatory Funnel - holds three 500mL to 2L funnels

- **Clamps**

- Erlenmeyer
- Media bottles
- Microplates

- **Test Tube Racks**

- Pivoting
- Fixed position



## Did you know?

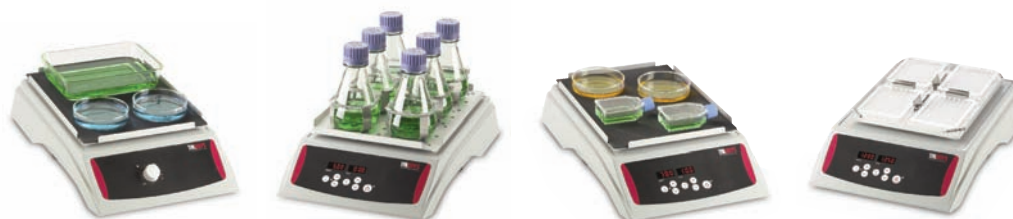
**Talboy's shakers with advanced electronics that utilize the Accu-Drive shaking system come with a 2 year warranty on parts and labor and a 5 year warranty on the motor and drive mechanism.**

# SHAKERS

## Open-Air Shakers Selection Guide



Model	Orbital Shaker Standard 3500	Orbital Shaker Advanced 3500	Reciprocating Shaker Advanced 3750	Orbital Shaker Standard 5000
Speed Range	25 to 500rpm	15 to 500rpm	20 to 300rpm	25 to 500rpm
Timer	1 to 120 minutes	1 second to 160 hours	1 second to 160 hours	1 to 120 minutes
Motion	Orbital	Orbital	Reciprocating	Orbital
Orbit	19mm	19mm	<b>Stroke:</b> 19mm	25mm
Maximum Weight Capacity	35lbs	35lbs	15lbs	50lbs
Audible Alarm	NO	YES	YES	NO
Load Sensor	NO	YES	YES	NO
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
CO <sub>2</sub> Environment Safe	YES	YES	YES	YES
Overload Protection	NO	YES	YES	NO
User Calibration (speed)	NO	YES	YES	NO
RS-232 Interface	NO	YES	YES	NO
Included Tray (L x W)	11 x 13"	11 x 13"	11 x 13"	18 x 24"
Tray/Platform Options (L x W)	11 x 13", 13 x 13", 18 x 18", 18 x 24" Adjustable Platform Separatory Funnel Platform	11 x 13", 13 x 13", 18 x 18", 18 x 24" Adjustable Platform Separatory Funnel Platform	11 x 13", 13 x 13", 18 x 18", 18 x 24" Adjustable Platform Separatory Funnel Platform	18 x 24", 18 x 30" Adjustable Platform Large Vessel Carrier Platform



Model	Orbital Shaker Standard 1000	Orbital Shaker Advanced 1000-3	Orbital Shaker Advanced 1000-15	Microplate Shaker Advanced 1000MP
Speed Range	40 to 300rpm	100 to 1200rpm	40 to 300rpm	100 to 1200rpm
Timer	N/A	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Orbital	Orbital	Orbital
Orbit	15mm	3mm	15mm	3mm
Maximum Weight Capacity	8lbs	8lbs	8lbs	4 microplates / 2 micro-tube racks
Audible Alarm	NO	YES	YES	YES
Load Sensor	NO	NO	NO	NO
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
CO <sub>2</sub> Environment Safe	YES	YES	YES	YES
Overload Protection	NO	YES	YES	YES
User Calibration (speed)	NO	NO	NO	NO
RS-232 Interface	NO	NO	NO	NO
Included Tray (L x W)	11.75 x 8.75"	11.75 x 8.75"	11.75 x 8.75"	11 x 7.75"
Tray/Platform Options (L x W)	N/A	Adjustable Platform	Adjustable Platform	N/A



## Open-Air Shakers Selection Guide



<b>Orbital Shaker Advanced 5000</b>	<b>Orbital Shaker Advanced 10000-1</b>	<b>Orbital Shaker Advanced 10000-2</b>	<b>Orbital Shaker Advanced 15000-1</b>	<b>Orbital Shaker Advanced 15000-2</b>
15 to 500rpm	15 to 500rpm	15 to 500rpm	15 to 500rpm	15 to 500rpm
1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Orbital	Orbital	Orbital	Orbital	Orbital
25mm	25mm	51mm	25mm	51mm
50lbs	100lbs	100lbs	150lbs	150lbs
YES	YES	YES	YES	YES
YES	YES	YES	YES	YES
Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
YES	YES	YES	YES	YES
YES	YES	YES	YES	YES
YES	YES	YES	YES	YES
YES	YES	YES	YES	YES
18 x 24"	24 x 24"	24 x 24"	24 x 36"	24 x 36"
18 x 24", 18 x 30" Adjustable Platform Large Vessel Carrier Platform	24 x 24" Large Vessel Carrier Platform	24 x 24" Large Vessel Carrier Platform	24 x 36" Large Vessel Carrier Platform	24 x 36" Large Vessel Carrier Platform



<b>High Speed Microplate Shaker Advanced</b>	<b>Rocking Shaker Advanced 1000RS</b>	<b>Waving Shaker Advanced 1000WS</b>
600 to 2500rpm	1 to 50rpm *	1 to 30rpm *
1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Orbital	Rocking	Waving
3.6mm	<b>Tilt Angle:</b> 0 to 15° *	<b>Tilt Angle:</b> 0 to 20° *
48 microplates	10lbs **	5lbs **
NO	YES	YES
NO	NO	NO
DC Motor	Stepper Motor	Stepper Motor
NO	YES	YES
NO	YES	YES
NO	NO	NO
YES	NO	NO
11 x 12.25"	12.75 x 10"	11.75 x 8.75"
N/A	Stacking Tray	Stacking Tray

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads. \*\* Centered on tray.

# SHAKERS

## STANDARD 3500 Orbital Shaker

- **Microprocessor controls**
- **Continuous or timed operation**
- **35lb weight capacity**

The Talboys Standard 3500 Orbital Shaker is designed for a wide range of applications that require basic shaking control. Shaker provides reproducible motion that is evenly distributed throughout the entire surface of the tray.

### **Operating Features:**

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**Adjustment knobs:** Basic speed and time knobs with 1 to 10 dial settings.

### **Safety Features:**

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

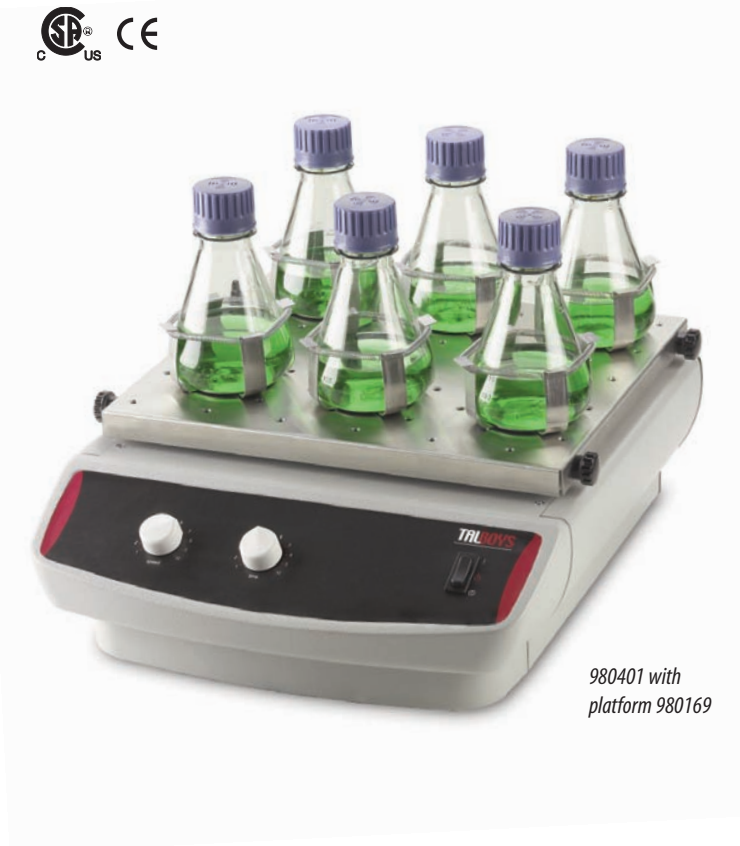
**Spill-resistant design:** Channels fluids away from internal components.

### **Operating Conditions:**

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from 0 to 40°C (32 to 104°F).

### **Applications:**

Bacterial suspensions, staining/destaining, and general mixing.



980401 with platform 980169

### Specifications

<b>Speed Range</b>	25 to 500rpm
<b>Timer</b>	1 minute to 120 minutes
<b>Orbit</b>	0.75" (19mm)
<b>Maximum Weight Capacity</b>	35lbs (16kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	11 x 13" (27.9 x 33cm)
<b>Overall Dimensions (L x W x H)</b>	16.25 x 14 x 5.75" (41.3 x 35.6 x 14.6cm)
<b>Ship Weight</b>	49lbs (22.2kg)

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Unit is also supplied with a 11 x 13" (27.9 x 33cm) non-skid rubber mat. 2 year limited warranty on parts and labor.

### Standard 3500 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Standard 3500 Orbital Shaker	120V   5 amps   25 watts	980401	\$1,325.00
Standard 3500 Orbital Shaker	230V   2.5 amps   25 watts	980402	\$1,325.00

## ADVANCED 3500 Orbital Shaker and ADVANCED 3750 Reciprocating Shaker

- **Displays for speed and time**
- **Exceptional speed control, accuracy and durability**
- **5 year warranty on motor and drive mechanism**

The Talboys Advanced 3500 Orbital Shaker and the Advanced 3750 Reciprocating Shaker are designed for a wide range of applications including cell cultures that require accurate and repeatable results. The microprocessor control provides consistent uniform shaking while safely ramping to the set speed.

### Operating Features:

**Accu-Drive Shaking System\***: The exclusive Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability (Advanced 3500). The shaking system in both models continuously monitors shaking speed and maintains set-point, even under changing loads. Displayed speed is accurate to 1% of setting.

**Microprocessor control**: The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation (3500 Orbital Shaker only).

**Single eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation (3750 Orbital Shaker only).

**LED display**: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**RS-232 interface**: Provides two-way communication for data logging and unit control.

**Speed calibration mode**: Allows user to automatically recalibrate speed display.

### Safety Features:

**Load sensor**: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

**Overload protection**: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature**: Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm**: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Spill-resistant design**: Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Cell cultures, solubility studies, and extraction procedures.

\* Patent Pending



980403 with platform 980442



980407 with platform 980457

### Specifications

<b>Speed Range</b>	Advanced 3500	15 to 500rpm
	Advanced 3750	20 to 300rpm
<b>Speed Accuracy</b>		±1%
<b>Timer</b>		1 second to 160 hours
<b>Motion</b>	Advanced 3500, orbital	0.75" (19mm) orbit
	Advanced 3750, reciprocating	0.75" (19mm) stroke
<b>Maximum Weight Capacity</b>	Advanced 3500	35lbs (16kg)
	Advanced 3750	15lbs (6.8kg)
<b>Tray Material</b>		aluminum
<b>Tray Dimensions (L x W)</b>		11 x 13" (27.9 x 33cm)
<b>Overall Dimensions (L x W x H)</b>		16.25 x 14 x 5.75" (41.3 x 35.6 x 14.6cm)
<b>Ship Weight</b>		49lbs (22.2kg)

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Unit is also supplied with a 11 x 13" (27.9 x 33cm) non-skid rubber mat. 2 year limited warranty on parts and labor, 5 year limited warranty on motor and drive mechanism.

### Advanced 3500 Orbital Shaker and 3750 Reciprocating Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 3500 Orbital Shaker	120V   5 amps   75 watts	980403	\$1,733.00
Advanced 3500 Orbital Shaker	230V   5 amps   75 watts	980404	\$1,733.00
Advanced 3750 Reciprocating Shaker	120V   5 amps   75 watts	980407	\$1,999.00
Advanced 3750 Reciprocating Shaker	230V   5 amps   75 watts	980408	\$1,999.00



# SHAKERS

## STANDARD 5000 Orbital Shaker

- **Microprocessor controls**
- **Continuous or timed operation**
- **50lb weight capacity**

The Talboys Standard 5000 Orbital Shaker is designed for applications with heavy duty loads. Shaker provides reproducible motion that is evenly distributed throughout the entire surface of the tray.

### **Operating Features:**

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**Adjustment knobs:** Basic speed and time knobs with 1 to 10 dial settings.

### **Safety Features:**

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Spill-resistant design:** Channels fluids away from internal components.

### **Operating Conditions:**

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from 0 to 40°C (32 to 104°F).

### **Applications:**

Bacterial suspensions, staining/destaining, and general mixing.



980410 with  
platform 980443

### Specifications

<b>Speed Range</b>	25 to 500rpm
<b>Timer</b>	1 minute to 120 minutes
<b>Orbit</b>	1" (25mm)
<b>Maximum Weight Capacity</b>	50lbs (22.7kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	18 x 24" (45.7 x 61cm)
<b>Overall Dimensions (L x W x H)</b>	23.5 x 26.6 x 6.1" (59.7 x 67.6 x 15.5cm)
<b>Ship Weight</b>	109lbs (49.5kg)

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an 18 x 24" (45.7 x 61cm) non-skid rubber mat. 2 year limited warranty on parts and labor.

### Standard 5000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Standard 5000 Orbital Shaker	120V   5 amps   75 watts	980410	\$3,749.00
Standard 5000 Orbital Shaker	230V   2.5 amps   75 watts	980411	\$3,749.00

## ADVANCED 5000 Orbital Shaker

- **Displays for speed and time**
- **Exclusive Accu-Drive Shaking System\***
- **50lb weight capacity**
- **5 year warranty on motor and drive mechanism**



The Talboys Advanced 5000 Orbital Shaker is designed for a wide range of applications with larger or heavier loads that require accurate and reproducible results.

### Operating Features:

**Accu-Drive Shaking System\***: The exclusive Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The system continuously monitors shaking speed and maintains set-point, even under changing loads. Displayed speed is accurate to 1% of setting.

**Microprocessor control**: The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display**: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**RS-232 interface**: Provides two-way communication for data logging and unit control.

**Speed calibration mode**: Allows user to automatically recalibrate speed display.

### Safety Features:

**Load sensor**: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

**Overload protection**: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature**: Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm**: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Spill-resistant design**: Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Cell cultures, solubility studies, and extraction procedures.

\* Patent Pending

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an 18 x 24" (45.7 x 61cm) non-skid rubber mat. 2 year limited warranty on parts and labor, 5 year limited warranty on motor and drive mechanism.



980412 with platform 980436

### Specifications

<b>Speed Range</b>	15 to 500rpm
<b>Speed Accuracy</b>	±1%
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	1" (25mm)
<b>Maximum Weight Capacity</b>	50lbs (22.7kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	18 x 24" (45.7 x 61cm)
<b>Overall Dimensions (L x W x H)</b>	23.5 x 26.6 x 6.1" (59.7 x 67.6 x 15.5cm)
<b>Ship Weight</b>	109lbs (49.5kg)

### Advanced 5000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 5000 Orbital Shaker	120V   5 amps   75 watts	980412	\$4,335.00
Advanced 5000 Orbital Shaker	230V   2.5 amps   75 watts	980413	\$4,335.00

# SHAKERS

## ADVANCED 10000 Orbital Shakers

- **Exclusive Accu-Drive Shaking System\***
- **100lb weight capacity**
- **Available with either 1" or 2" orbit**
- **5 year warranty on motor and drive mechanism**

Talboys Advanced 10000-1 and 10000-2 Orbital Shakers are large capacity shakers. They have a more powerful drive mechanism and larger orbits for optimal shaking of large vessels.

### Operating Features:

**Accu-Drive Shaking System\***: The exclusive Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The system continuously monitors shaking speed and maintains set-point, even under changing loads. Displayed speed is accurate to 1% of setting.

**Microprocessor control**: The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display**: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**RS-232 interface**: Provides two-way communication for data logging and unit control.

**Speed calibration mode**: Allows user to automatically recalibrate speed display.

### Safety Features:

**Load sensor**: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

**Overload protection**: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature**: Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm**: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Spill-resistant design**: Channels fluids away from internal components.

### Operating Conditions:

Units can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Cell cultures, solubility studies, and extraction procedures.

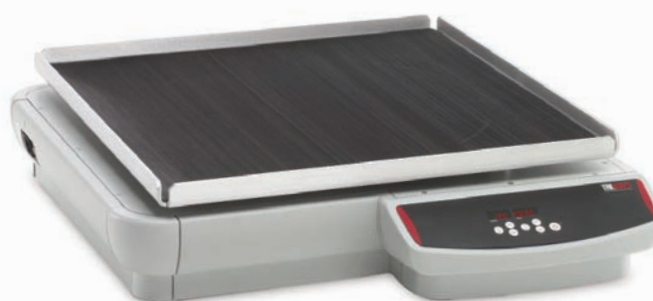
\* Patent Pending

## Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with a 24 x 24" non-skid rubber mat. 2 year limited warranty on parts and labor, 5 year limited warranty on motor and drive mechanism.



980420 with platform 980437



980422

### Specifications

<b>Speed Range</b>	10000-1	15 to 500rpm
	10000-2	15 to 500rpm
<b>Speed Accuracy</b>		±1%
<b>Timer</b>		1 second to 160 hours
<b>Orbit</b>	10000-1	1" (25mm)
	10000-2	2" (51mm)
<b>Maximum Weight Capacity</b>	10000-1	100lbs (45.4kg)
	10000-2	100lbs (45.4kg)
<b>Tray Material</b>		aluminum
<b>Tray Dimensions (L x W)</b>		24 x 24" (61 x 61cm)
<b>Overall Dimensions (L x W x H)</b>		28.3 x 26.6 x 7" (71.9 x 67.6 x 17.8cm)
<b>Ship Weight</b>		200lbs (90.8kg)

### Advanced 10000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 10000-1 Orbital Shaker	120V   5 amps   75 watts	980420	\$4,386.00
Advanced 10000-1 Orbital Shaker	230V   2.5 amps   75 watts	980421	\$4,386.00
Advanced 10000-2 Orbital Shaker	120V   5 amps   75 watts	980422	\$4,590.00
Advanced 10000-2 Orbital Shaker	230V   2.5 amps   75 watts	980423	\$4,590.00



- **Exclusive Accu-drive Shaking System\***
- **Available with either 1" or 2" orbit**
- **5 year warranty on motor and drive mechanism**

Talboys Advanced 15000-1 and 15000-2 Orbital Shakers are the largest capacity shakers designed for the heaviest of loads. They have the most powerful drive mechanism of all the shakers and large orbits for optimal shaking of larger vessels.

### Operating Features:

**Accu-Drive Shaking System\***: The exclusive Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The system continuously monitors shaking speed and maintains set-point, even under changing loads. Displayed speed is accurate to 1% of setting.

**Microprocessor control**: The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display**: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**RS-232 interface**: Provides two-way communication for data logging and unit control.

**Speed calibration mode**: Allows user to automatically recalibrate speed display.

### Safety Features:

**Load sensor**: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

**Overload protection**: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature**: Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm**: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Spill-resistant design**: Channels fluids away from internal components.

### Operating Conditions:

Units can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Cell cultures, solubility studies, and extraction procedures.

\* Patent Pending

## Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with a 24 x 36" non-skid rubber mat. 2 year limited warranty on parts and labor, 5 year limited warranty on motor and drive mechanism.



980424 with platform 980439



980426 with platform 980446

### Specifications

<b>Speed Range</b>	15000-1	15 to 500rpm
	15000-2	15 to 500rpm
<b>Speed Accuracy</b>		±1%
<b>Timer</b>		1 second to 160 hours
<b>Orbit</b>	15000-1	1" (25mm)
	15000-2	2" (51mm)
<b>Maximum Weight Capacity</b>	15000-1	150lbs (68kg)
	15000-2	150lbs (68kg)
<b>Tray Material</b>		Aluminum
<b>Tray Dimensions (L x W)</b>		24 x 36" (61 x 91cm)
<b>Overall Dimensions (L x W x H)</b>		28.3 x 26.6 x 7" (71.9 x 67.6 x 17.8cm)
<b>Ship Weight</b>		230lbs (104.4kg)

### Advanced 15000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 15000-1 Orbital Shaker	120V   5 amps   75 watts	980424	\$5,049.00
Advanced 15000-1 Orbital Shaker	230V   2.5 amps   75 watts	980425	\$5,049.00
Advanced 15000-2 Orbital Shaker	120V   5 amps   75 watts	980426	\$5,406.00
Advanced 15000-2 Orbital Shaker	230V   2.5 amps   75 watts	980427	\$5,406.00

# SHAKERS

## STANDARD 1000 Orbital Shaker

- Variable speed microprocessor control
- Low profile design



The Talboys Standard 1000 Orbital Shaker is an economical shaker designed for educational labs or basic shaking applications.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into most fume hoods and incubators. Cast aluminum base offers durability and added stability.

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**Adjustment knob:** Basic speed knob with 1 to 10 dial settings.

### Safety Features:

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Spill-resistant design:** Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from 0 to 40°C (32 to 104°F).

### Applications:

Blotting techniques, staining/destaining, and general shaking procedures.



980173

### Specifications

<b>Speed Range</b>	40 to 300rpm
<b>Orbit</b>	0.6" (15mm)
<b>Maximum Weight Capacity</b>	8lbs (3.6kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	11.75 x 8.75" (29.9 x 22.2cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)
<b>Ship Weight</b>	25lbs (11.4kg)

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an 11.75 x 8.75" (29.9 x 22.2cm) non-skid rubber mat. 2 year limited warranty on parts and labor.

### Standard 1000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Standard 1000 Orbital Shaker	120V   5 amps   25 watts	980173	\$840.00
Standard 1000 Orbital Shaker	230V   2.5 amps   25 watts	980174	\$840.00

## ADVANCED 1000 Orbital Shakers

- **General purpose shaker**
- **Displays for speed and time**
- **3mm or 15mm orbit**
- **2 year warranty**

Talboys Advanced 1000-3 and 1000-15 Orbital Shakers are ideal for a wide variety of shaking applications. Tray includes a non-skid rubber mat. Remove mat to mount a variety of optional flask clamps or test tube racks directly onto the tray.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into most incubators. Cast aluminum base offers durability and added stability.

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Spill-resistant design:** Channels fluids away from internal components.

### Operating Conditions:

Units can be run in cold rooms, incubators, and CO<sub>2</sub> environments.

Model 1000-3: -10 to 60°C (14 to 140°F)

Model 1000-15: -10 to 40°C (14 to 104°F)

### Applications:

Cell cultures, immunoassays, and protein studies.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an 11.75 x 8.75" (29.9 x 22cm) non-skid rubber mat. 2 year limited warranty on parts and labor.



980175



980398

### Specifications

<b>Speed Range</b>	1000-3	100 to 1200rpm
	1000-15	40 to 300rpm
<b>Speed Accuracy</b>		±2%
<b>Timer</b>		1 second to 160 hours
<b>Orbit</b>	1000-3	0.12" (3mm)
	1000-15	0.60" (15mm)
<b>Maximum Weight Capacity</b>	1000-3,1000-15	8lbs (4kg)
<b>Tray Material</b>		Aluminum
<b>Tray Dimensions (L x W)</b>		11.75 x 8.75" (29.9 x 22cm)
<b>Overall Dimensions (L x W x H)</b>		17 x 11 x 4" (43.2 x 27.9 x 10.2cm)
<b>Ship Weight</b>		25lbs (11kg)

### Advanced 1000 Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 1000-3 Orbital Shaker	120V   5 amps   25 watts	980175	\$1,039.00
Advanced 1000-3 Orbital Shaker	230V   5 amps   25 watts	980176	\$1,186.00
Advanced 1000-15 Orbital Shaker	120V   5 amps   25 watts	980398	\$1,199.00
Advanced 1000-15 Orbital Shaker	230V   5 amps   25 watts	980399	\$1,259.00

# SHAKERS

## ADVANCED 1000MP Microplate Shaker

- Holds up to 4 microplates or 2 micro-tube racks
- Accepts deep well plates
- Timer with audible alarm



The Talboys Advanced 1000MP Microplate Shaker is ideal for immunoassays and general microplate shaking, and are designed to be used in a variety of environmental conditions.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into most incubators. Cast aluminum base offers durability and added stability.

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Spill-resistant design:** Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

ELISA assays and DNA studies.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.



980178

### Specifications

Speed Range	100 to 1200rpm
Speed Accuracy	±2%
Timer	1 second to 160 hours
Orbit	0.12" (3mm)
Capacity	4 microplates or 2 micro-tube racks
Tray Material	Aluminum
Tray Dimensions (L x W)	11 x 7.75" (27.9 x 20cm)
Overall Dimensions (L x W x H)	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)
Ship Weight	25lbs (11kg)

### Advanced 1000MP Microplate Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 1000MP Microplate Shaker	120V   5 amps   25 watts	980178	\$842.00
Advanced 1000MP Microplate Shaker	230V   5 amps   25 watts	980179	\$902.00



### Accessory

Optional 1.5 to 2mL Micro-Tube Rack attaches to tray to hold up to 70, 1.5mL or 2mL micro-tubes. Tray can accommodate up to 2 micro-tube racks.

Description	Part Number	Price
1.5 to 2mL Micro-Tube Rack	980191	\$99.00



## ADVANCED High Speed Microplate Shakers

- Shakes traditional or deep-well microplates
- Shakes up to 48 microplates at one time



The Talboys Advanced High Speed Microplate Shakers handle shaking for difficult applications. These units operate at up to 2500rpm while holding deep-well blocks and small diameter test tubes no taller than 5" (12.7cm).

Advanced High Speed Microplate Shaker has programmable digital speed control from 600 to 2500rpm.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Programmable "pulsing" feature enhances shaking action and allows user to program unit to stop and start in a wide range of intervals.

**RS-232 interface:** Provides two-way communication for data logging and unit control

**Operating Conditions:**

Unit can be run in cold rooms and incubators from 4 to 40°C (39 to 104°F).

**Applications:**

Emulsifications and cell lysing.



945170

Specifications	
Speed Range	600 to 2500rpm
Timer	1 second to 160 hours
Orbit	0.14" (3.6mm)
Maximum Weight Capacity	48 microplates or up to 7lbs (3.2kg)
Tray Material	Aluminum
Tray Dimensions (L x W)	11 x 12.25" (27.9 x 31.1cm)
Overall Dimensions (L x W x H)	15.5 x 12 x 12.8" (39.4 x 30.5 x 32.5cm)
Ship Weight	50lbs (22.7kg)

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

Advanced High Speed Microplate Shaker			
Description	Electrical (50/60 Hz)	Part Number	Price
Advanced High Speed Microplate Shaker	120V   1 amp   120 watts	945170	\$4,040.00
Advanced High Speed Microplate Shaker	230V   1 amp   120 watts	945175	\$4,040.00

# SHAKERS

## ADVANCED 1000RS Rocking Shaker

- **Electronic tilt adjustment**
- **Displays for speed/tilt angle and time**
- **Timer with audible alarm**
- **2 year warranty**

The Talboys Advanced 1000RS Rocking Shaker is ideal for cell culture work and are designed to be used in a variety of environmental conditions.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into most fume hoods and incubators. Cast aluminum base offers durability and added stability.

**Microprocessor control:** The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust rocking angle from 0 to 15° while unit is operating. Precise speed control provides smooth, low-speed rocking motion down to 1rpm.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed/tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Spill-resistant design:** Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Staining and destaining gels, hybridization procedures, hematology, and blotting techniques.

## Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with a 12.75 x 10" (32.4 x 25.4 cm) non-skid rubber mat. 2 year limited warranty on parts and labor.



980530

### Specifications

<b>Speed Range</b>	1 to 50rpm*
<b>Speed Accuracy</b>	±1%
<b>Tilt Angle</b>	0 to 15°**
<b>Timer</b>	1 second to 160 hours
<b>Maximum Weight Capacity</b>	10lbs (4.5kg)**
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	12.75 x 10" (32.4 x 25.4cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)
<b>Ship Weight</b>	15.5lbs (7kg)

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

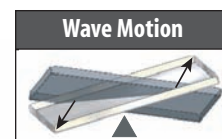
\*\* Centered on tray.

### Advanced 1000RS Rocking Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 1000RS Rocking Shaker	120V   5 amps   25 watts	980530	\$835.00
Advanced 1000RS Rocking Shaker	230V   5 amps   25 watts	980531	\$990.00

## ADVANCED 1000WS Waving Shaker

- **Vertical and horizontal wave motion**
- **Displays for speed/tilt angle and time**
- **Timer with audible alarm**
- **2 year warranty**



The Talboys Advanced 1000WS Waving Shaker provides precise speed control and a smooth, low foaming, three dimensional, "wave" motion. Ideal for use in a wide range of laboratory applications and designed to be used in a variety of environmental conditions. Tray includes a non-skid rubber mat that is suitable for holding Petri dishes.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into most fume hoods and incubators. Cast aluminum base offers durability and added stability.

**Microprocessor control:** The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust waving angle from 0 to 20° while unit is operating. Precise speed control provides smooth, low-speed waving motion down to 1rpm.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed/tilt angle and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Spill-resistant design:** Channels fluids away from internal components.

### Operating Conditions:

Unit can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Blood samples, DNA extractions, blotting techniques, and general mixing of various size tubes.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an 11.75 x 8.75" (32.4 x 25.4 cm) non-skid rubber mat. 2 year limited warranty on parts and labor.



980537

### Specifications

<b>Speed Range</b>	1 to 30rpm*
<b>Speed Accuracy</b>	±1%
<b>Tilt Angle</b>	0 to 20°**
<b>Timer</b>	1 second to 160 hours
<b>Maximum Weight Capacity</b>	5lbs (2.3kg)**
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	11.75 x 8.75" (32.4 x 25.4cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)
<b>Ship Weight</b>	16lbs (7.3kg)

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

\*\* Centered on tray.

### Advanced 1000WS Waving Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced 1000WS Waving Shaker	120V   5 amps   25 watts	980537	\$980.00
Advanced 1000WS Waving Shaker	230V   5 amps   25 watts	980538	\$1,063.00

# SHAKERS

## Incubating Shakers Selection Guide



Model	Incubating Orbital Shaker Professional 3500	Incubating Orbital Shaker Professional 1000-3	Incubating Microplate Shaker Professional 1000MP
Temperature Range	Ambient +5° to 65°C	Ambient +5° to 65°C	Ambient +5° to 65°C
Speed Range	15 to 500rpm	100 to 1200rpm	100 to 1200rpm
Timer	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Orbital	Orbital
Orbit	19mm	3mm	3mm
Maximum Weight Capacity	35lbs	8lbs	4 Microplates / 2 Micro-Tube Racks
Audible Alarm	YES	YES	YES
Load Sensor	YES	NO	NO
Drive System	Triple Eccentric	Triple Eccentric	Triple Eccentric
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
Set-Point Retention	YES - Displays Last Setting	YES - Displays Last Setting	YES - Displays Last Setting
Restart / Power Out	YES	YES	YES
Ramp to Speed	YES	YES	YES
Temperature Overshoot Protection	YES	NO	NO
Overload Protection	YES	YES	YES
User Calibration (temperature)	YES	YES	YES
User Calibration (speed)	YES	NO	NO
RS-232 Interface	YES	NO	NO
Certifications	CSA	CSA	CSA
Warranty	2 / 5 year	2 year	2 year
Overall Dimensions (L x W x H)	25.5 x 14 x 16"	17 x 11 x 10.5"	17 x 11 x 7.75"
Included Tray (L x W)	13 x 11"	11 x 7.75"	11 x 7.75"
Platform Options (L x W)	13 x 11"	N/A	N/A





<b>Incubating/Cooling Orbital Shaker Professional 1000 IC-3</b>	<b>Incubating Rocking Shaker Professional 1000RS</b>	<b>Incubating Waving Shaker Professional 1000WS</b>
10°C Below Ambient to 65°C	Ambient +5° to 65°C	Ambient +5° to 65°C
100 to 1200rpm	1 to 50rpm	1 to 30rpm
1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Orbital	Rocking	Waving
3mm	<b>Tilt Angle:</b> 0 to 15° *	<b>Tilt Angle:</b> 0 to 20° **
2 Microplates / 2 Modular blocks	10lbs **	5lbs **
YES	YES	YES
NO	NO	NO
Triple Eccentric	Cable	Cable
Brushless DC Motor	Stepper Motor	Stepper Motor
YES - Displays Last Setting	YES - Displays Last Setting	YES - Displays Last Setting
YES	YES	YES
YES	YES	YES
NO	NO	NO
YES	YES	YES
YES	NO	NO
NO	NO	NO
NO	NO	NO
CSA	CSA	CSA
2 year	2 year	2 year
17.9 x 11 x 10.5"	17 x 11 x 10.5"	17 x 11 x 10.5"
N/A	10 x 7.5"	9.25 x 7.25"
N/A	N/A	N/A

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads. \*\* Centered on tray.

# SHAKERS

## PROFESSIONAL 3500 Incubating Orbital Shaker

The Talboys Professional 3500 Incubating Orbital Shaker offers exceptional temperature uniformity and is designed for a variety of shaking and incubating applications, such as cell cultures.



### Operating Features:

**Accu-Drive Shaking System\***: The exclusive Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The system continuously monitors shaking speed and maintains set-point, even under changing loads. Displayed speed is accurate to 1% of setting.

**Microprocessor control**: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

**Opti-Flow Forced Ventilation System\***: Uses twin induction fans and air deflectors to deliver exceptional temperature uniformity and stability.

**PID temperature controller**: Maintains precise temperature control from ambient +5°C to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments. Meets ASTM E1292 specification for temperature uniformity.

**Triple eccentric drive**: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display**: Touch pad controls with easy-to-read, independent LED displays for temperature, speed and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**Temperature calibration mode**: Allows user to calibrate unit to an external temperature device.

**Speed calibration mode**: Allows user to automatically recalibrate speed display.

**RS-232 interface**: Provides two-way communication for data logging and unit control.

### Safety Features:

**Load sensor**: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

**Overload protection**: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Overshoot protection**: Audible and visual signals will activate if temperature deviates  $\pm 1^\circ$  from set-point.

**Ramping feature**: Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm**: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Caution hot indicator**: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design**: Channels fluids away from internal components.

**Polycarbonate lid**: Permits viewing of samples without disturbing internal temperature. When lid is opened, automatic shut off circuit will stop shaker tray to protect operator.

### Operating Conditions:

Unit can be run from 15 to 32°C (59 to 90°F).

### Applications:

Cell cultures, solubility studies, bacterial suspensions, and extraction procedures.

\* Patent Pending



980188 with platform 980169

### Specifications

<b>Temperature Range</b>	Ambient +5°C to 65°C
<b>Temperature Uniformity</b>	$\pm 0.5^\circ\text{C}$ at 37°C%
<b>Speed Range</b>	15 to 500rpm
<b>Speed Accuracy</b>	$\pm 1\%$
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	0.75" (19mm)
<b>Maximum Weight Capacity</b>	35lbs (15.9kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	13 x 11" (33 x 27.9cm)
<b>Interior Dimensions (L x W x H)</b>	13.4 x 12 x 9.5" (34 x 30.5 x 24.1cm)
<b>Overall Dimensions (L x W x H)</b>	25.5 x 14 x 16" (64.8 x 35.6 x 40.6cm)
<b>Ship Weight</b>	83lbs (37.7kg)

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Unit is also supplied with a 13 x 11" (33 x 27.9cm) non-skid rubber mat. 2 year limited warranty on parts and labor, 5 year limited warranty on motor and drive mechanism.

### Professional 3500 Incubating Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 3500 Incubating Orbital Shaker	120V   5 amps   450 watts	980188	\$4,155.00
Professional 3500 Incubating Orbital Shaker	230V   5 amps   450 watts	980189	\$4,363.00

## PROFESSIONAL 1000-3 Incubating Orbital Shakers

- **Displays for temperature, speed and time**
- **Timer with audible alarm**
- **2 year warranty**



980184



The Talboys Professional 1000-3 Incubating Orbital Shakers are designed to heat and shake a variety of samples. Choose the model with the best orbit and speed range to suit your application.

### Operating Features:

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

**PID temperature controller:** Maintains precise temperature control from ambient +5°C to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**Temperature calibration mode:** Allows user to calibrate unit to an external temperature device.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Caution hot indicator:** Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design:** Channels fluids away from internal components.

**Polycarbonate lid:** Permits viewing of samples without disturbing internal temperature. When lid is opened, automatic shut off circuit will stop shaker tray to protect operator.

### Operating Conditions:

Unit can be run from 5 to 40°C (41 to 104°F).

### Applications:

Cell cultures, bacterial suspensions, and hybridizations.

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

### Specifications

<b>Temperature Range</b>	Ambient +5°C to 65°C
<b>Temperature Uniformity</b>	±0.5°C at 37°C%
<b>Speed Range</b>	100 to 1200rpm
<b>Speed Accuracy</b>	±2%
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	0.12" (3mm)
<b>Maximum Weight Capacity</b>	8lbs (4kg)
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	11 x 7.75" (28 x 20cm)
<b>Interior Dimensions (L x W x H)</b>	11.3 x 8.3 x 5.4" (28.7 x 21.1 x 13.7cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 10.5" (43.2 x 27.9 x 27cm)
<b>Ship Weight</b>	30lbs (14kg)

### Professional 1000-3 Incubating Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 1000-3 Incubating Orbital Shaker	120V   5 amps   450 watts	980184	\$2,681.00
Professional 1000-3 Incubating Orbital Shaker	230V   5 amps   450 watts	980185	\$2,876.00

# SHAKERS

## PROFESSIONAL 1000MP Incubating Microplate Shaker

- **Displays for temperature, speed, and time**
- **Timer with audible alarm**
- **2 year warranty**



The Talboys Professional 1000MP Incubating Orbital Shaker is optimized for shaking microplates, deep-well plates, or micro-tubes.

### Operating Features:

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

**PID temperature controller:** Maintains precise temperature control from ambient +5°C to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**Temperature calibration mode:** Allows user to calibrate unit to an external temperature device.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Caution hot indicator:** Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design:** Channels fluids away from internal components.

**Polycarbonate lid:** Permits viewing of samples without disturbing internal temperature. When lid is opened, automatic shut off circuit will stop shaker tray to protect operator.

### Operating Conditions:

Unit can be run from 5 to 40°C (41 to 104°F).

### Applications:

Immunoassays and hybridizations.

980180



### Specifications

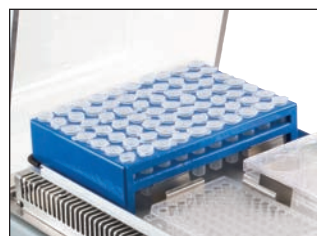
<b>Temperature Range</b>	Ambient +5°C to 65°C
<b>Temperature Uniformity</b>	±0.5°C at 37°C%
<b>Speed Range</b>	100 to 1200rpm
<b>Speed Accuracy</b>	±2%
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	3mm
<b>Capacity</b>	4 Microplates or 2 Micro-Tube racks
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	11 x 7.75" (28 x 20cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 7.75" (43.2 x 27.9 x 20cm)
<b>Ship Weight</b>	30lbs (14kg)

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

### Professional 1000MP Incubating Microplate Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 1000MP Incubating Microplate Shaker	120V   5 amps   450 watts	980180	\$2,106.00
Professional 1000MP Incubating Microplate Shaker	230V   5 amps   450 watts	980181	\$2,267.00



### Accessory

Optional 1.5 to 2mL Micro-Tube Rack attaches to tray to hold up to 70, 1.5mL or 2mL micro-tubes. Tray can accommodate up to 2 micro-tube racks.

Description	Part Number	Price
1.5 to 2mL Micro-Tube Rack	980191	\$99.00



## PROFESSIONAL 1000 IC-3 Incubating/Cooling Orbital Shaker

- Heats to 65°C and cools to 10°C below ambient
- Displays for temperature, speed and time
- 2 year warranty



The Talboys Professional 1000 IC-3 Incubating/Cooling Orbital Shaker is microplate ready without the need for any additional accessories. Modular blocks can accommodate micro-tubes, centrifuge tubes, vials, or culture tubes. Holds microplates or modular blocks with a 5" (12.7cm) tall interior capacity. Ideal for analysis that require a stable, controlled temperature.

### Operating Features:

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

**PID temperature controller:** Maintains precise temperature control from 10°C below ambient to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**Temperature calibration mode:** Allows user to calibrate unit to an external temperature device.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

**Caution hot indicator:** Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design:** Channels fluids away from internal components.

**Polycarbonate lid:** Permits viewing of samples without disturbing internal temperature.

### Operating Conditions:

Unit can be run from 5 to 40°C (41 to 104°F).

### Applications:

Cell and bacterial cultures, hybridizations, and enzyme reactions.



980186

### Specifications

<b>Temperature Range</b>	10°C below ambient to 65°C
<b>Temperature Uniformity</b>	±0.5°C at 37°C%
<b>Speed Range Using Microplates</b>	100 to 1200rpm
<b>Speed Range Using Modular Blocks</b>	100 to 600rpm
<b>Speed Accuracy</b>	±2%
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	3mm
<b>Capacity</b>	2 microplates or 2 modular blocks
<b>Overall Dimensions (L x W x H)</b>	17.9 x 11 x 10.5" (45.5 x 27.9 x 27cm)
<b>Ship Weight</b>	34lbs (15.4kg)

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with an adapter bracket to hold modular blocks. See page 26 for block options. 2 year limited warranty on parts and labor.

### Professional 1000 IC-3 Incubating/Cooling Orbital Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 1000 IC-3 Incubating/Cooling Orbital Shaker	120V   2 amps   200 watts	980186	\$3,100.00
Professional 1000 IC-3 Incubating/Cooling Orbital Shaker	230V   1 amps   200 watts	980187	\$3,400.00

# SHAKERS

## PROFESSIONAL 1000 IC-3 Incubating/Cooling Orbital Shaker Modular Blocks



### Modular Blocks

Modular Blocks are constructed from a solid anodized aluminum block. The close contact of tubes-to-block-walls allow for maximum temperature transfer.

**Block dimensions (L x W x H):** 3.75 x 3 x 2" (9.5 x 7.6 x 5.1cm)

#### Applications:

Cell cultures, hybridizations, and extraction procedures.

**Talboys modular blocks also fit in the Talboys Dry Block Heaters.**  
**Constructed of anodized aluminum, this material is ideal for its temperature conducting and corrosion resisting properties.**

### Microcentrifuge Tube Blocks

Brand/Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
0.5mL tube	30	7.9mm	27.6mm	949108	\$89.00
1.5mL tube	20	11.1mm	39.1mm	949110	\$93.00
2mL tube	20	11.5mm	38.1mm	949151	\$92.00



### Conical-Bottom Centrifuge Tube Blocks

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
15mL tube	12	17.1mm	44.5mm	949131	\$89.00
50mL tube	5	29mm	47.6mm	949127	\$89.00



## PROFESSIONAL 1000IC-3 Incubating/Cooling Orbital Shaker Modular Blocks

### Standard Test Tube Blocks

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
6mm tube	30	8.3mm	48.4mm	949109	\$89.00
10mm tube	24	10.7mm	48.4mm	949102	\$89.00
12/13mm tube	20	13.9mm	48.4mm	949103	\$89.00



### Centrifuge Tube Combination Block

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
1.5mL	4	11.1mm	39.1mm	949153	\$92.00
15mL	3	17.1mm	44.5mm		
50mL	2	29mm	47.6mm		



### Vial Blocks

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
12mm vial	20	12.7mm	30mm	949142	\$96.00
15mm vial	20	15.8mm	35mm	949143	\$96.00
16mm vial	15	16.4mm	45mm	949150	\$96.00
17mm vial	12	17.8mm	45mm	949144	\$96.00
19mm vial	12	19.7mm	45mm	949145	\$96.00
21mm vial	9	21.7mm	45mm	949146	\$96.00
23mm vial	8	23.8mm	45mm	949147	\$96.00
25mm vial	8	25.8mm	45mm	949148	\$96.00
28mm vial	6	28.8mm	45mm	949149	\$96.00



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# SHAKERS

## PROFESSIONAL 1000RS Incubating Rocking Shaker

- **Electronic tilt adjustment**
- **Displays for temperature, speed/tilt angle, and time**
- **Timer with audible alarm**
- **2 year warranty**



The Talboys Professional 1000RS Incubating Rocking Shaker combines smooth rocking motion and general purpose incubation in one compact bench top unit.

### Operating Features:

**Microprocessor control:** The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust rocking angle from 0 to 15° while unit is operating. Precise speed control provides smooth, low-speed rocking motion down to 1rpm.

**PID temperature controller:** Maintains precise temperature control from ambient +5°C to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed/tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Caution hot indicator:** Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design:** Channels fluids away from internal components.

**Polycarbonate lid:** Permits viewing of samples without disturbing internal temperature. When lid is opened, automatic shut off circuit will stop shaker tray to protect operator.

### Operating Conditions:

Unit can be run from 5 to 40°C (41 to 104°F).

### Applications:

Cell cultures, staining and destaining gels, hybridization procedures, hematology, and blotting techniques.

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.



980532 with 980536

### Specifications

<b>Temperature Range</b>	Ambient +5°C to 65°C
<b>Temperature Uniformity</b>	±0.5°C at 37°C%
<b>Speed Range</b>	1 to 50rpm*
<b>Speed Accuracy</b>	±1%
<b>Tilt Angle</b>	0 to 15°*
<b>Timer</b>	1 second to 160 hours
<b>Maximum Weight Capacity</b>	10lbs (4.5kg)**
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	10 x 7.5" (25.4 x 19.1cm)
<b>Interior Dimensions (L x W x H)</b>	10.75 x 7.75 x 3.8" (27.3 x 19.7 x 9.7cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 10.5" (43.2 x 27.9 x 27cm)
<b>Ship Weight</b>	22lbs (10kg)

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

\*\* Centered on tray.

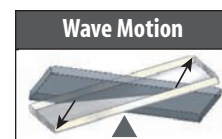
### Professional 1000RS Incubating Rocking Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 1000RS Incubating Rocking Shaker	120V   5 amps   450 watts	980532	\$1,813.00
Professional 1000RS Incubating Rocking Shaker	230V   5 amps   450 watts	980533	\$2,078.00



## PROFESSIONAL 1000WS Incubating Waving Shaker

- **Vertical and horizontal wave motion**
- **Displays for temperature, speed/tilt angle, and time**
- **Timer with audible alarm**
- **2 year warranty**



The Talboys Professional 1000WS Incubating Waving Shaker combines the unique vertical and horizontal "wave" motion with general purpose incubation in one compact bench top unit.

### Operating Features:

**Microprocessor control:** The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust waving angle from 0 to 20° while unit is operating. Precise speed control provides smooth, low-speed waving motion down to 1rpm.

**PID temperature controller:** Maintains precise temperature control from ambient +5°C to 65°C. Easy to use controls allow users to adjust temperature in 1°C increments.

**Triple eccentric drive:** Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed/tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

### Safety Features:

**Overload protection:** Audible and visual signals will activate when system detects an obstruction or overload of the tray.

**Ramping feature:** Slowly increases speed to desired set-point to avoid splashing.

**Audible alarm:** In timed mode, alarm will sound when the time reaches zero.

**Caution hot indicator:** Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

**Spill-resistant design:** Channels fluids away from internal components.

**Polycarbonate lid:** Permits viewing of samples without disturbing internal temperature. When lid is opened, automatic shut off circuit will stop shaker tray to protect operator.

### Operating Conditions:

Unit can be run from 5 to 40°C (41 to 104°F).

### Applications:

Cell cultures, hybridization procedures, and blotting techniques.



980539

### Specifications

<b>Temperature Range</b>	Ambient +5°C to 65°C
<b>Temperature Uniformity</b>	±0.5°C at 37°C%
<b>Speed Range</b>	1 to 30rpm*
<b>Speed Accuracy</b>	±1%
<b>Tilt Angle</b>	0 to 20°*
<b>Timer</b>	1 second to 160 hours
<b>Maximum Weight Capacity</b>	5lbs (2.3kg)**
<b>Tray Material</b>	Aluminum
<b>Tray Dimensions (L x W)</b>	9.25 x 7.25" (23.5 x 18.4cm)
<b>Interior Dimensions (L x W x H)</b>	10.75 x 7.75 x 3.4" (27.3 x 19.7 x 8.6cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 10.5" (43.2 x 27.9 x 27cm)
<b>Ship Weight</b>	22lbs (10kg)

\* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

\*\* Centered on tray.

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

### Professional 1000WS Incubating Waving Shaker

Description	Electrical (50/60 Hz)	Part Number	Price
Professional 1000WS Incubating Waving Shaker	120V   5 amps   450 watts	980539	\$2,121.00
Professional 1000WS Incubating Waving Shaker	230V   5 amps   450 watts	980540	\$2,432.00

# SHAKERS

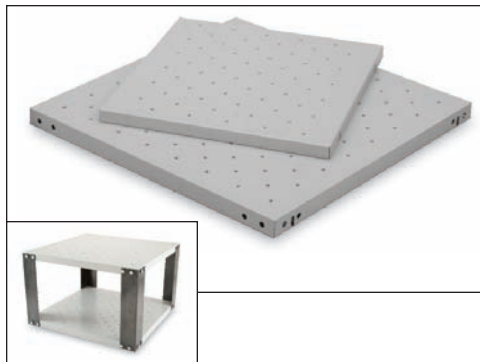
## Platforms



### Universal Platforms

- Allows for mounting of flask clamps, test tube racks, and bottle clamps
- Platform slides over top of included tray and is tightened with adjustment screws
- Optional accessories screw directly into mounting point openings
- Two-tier braces allow stacking of platforms with a 10" clearance (available for select sizes\*)
- Optional non-skid rubber mat can be placed on platform for an added non-slip surface
- Constructed of type 304 stainless steel

Description	Used on Shakers	Part Number	Price
11 x 13" (27.9 x 33cm) Universal Platform	Standard/Advanced/Professional 3500, Advanced 3750	980169	\$135.00
13 x 13" (33 x 33cm) Universal Platform	Standard/Advanced 3500, Advanced 3750	980434	\$195.00
18 x 18" (45.7 x 45.7cm) Universal Platform *	Standard/Advanced 3500, Advanced 3750 **	980435	\$235.00
18 x 24" (45.7 x 61cm) Universal Platform *	Standard/Advanced 3500, Advanced 3750**, Standard/Advanced 5000	980436	\$265.00
24 x 24" (61 x 61cm) Universal Platform	Advanced 10000-1 / 10000-2	980437	\$625.00
18 x 30" (45.7 x 76.2cm) Universal Platform *	Standard/Advanced 5000	980438	\$599.00
24 x 36" (61 x 91.4cm) Universal Platform	Advanced 15000-1 / 15000-2	980439	\$799.00
Two-Tier Braces (set of 4)	Standard/Advanced 3500, Standard/Advanced 5000	980077	\$75.00



### Economy Platforms

- Allows for mounting of flask clamps, test tube racks, and bottle clamps
- Optional accessories screw directly into mounting point openings
- Two-tier braces allow stacking of platforms with a 10" clearance (available for select sizes\*)
- Optional non-skid rubber mat can be placed on platform for an added non-slip surface
- Constructed of painted steel

Description	Used on Shakers	Part Number	Price
13 x 13" (33x 33cm) Economy Platform	Standard/Advanced 3500, Advanced 3750	980075	\$125.00
18 x 18" (45.7 x 45.7cm) Economy Platform *	Standard/Advanced 3500, Advanced 3750**	980076	\$226.00
Two-Tier Braces (set of 4)	Standard/Advanced 3500	980077	\$75.00

### Rubber Mats

Description	Used on Shakers	Part Number	Price
13 x 13" (33x 33cm) Rubber Mat	Standard/Advanced 3500, Advanced 3750	980094	\$46.00
18 x 18" (45.7 x 45.7cm) Rubber Mat	Standard/Advanced 3500, Advanced 3750	980095	\$66.00
24 x 24" (61 x 61cm) Rubber Mat	Advanced 10000-1 / 10000-2	980096	\$87.00
24 x 36" (61 x 91.4cm) Rubber Mat	Advanced 15000-1 / 15000-2	980097	\$97.00

\*Two tier ready

\*\*Stacking of platforms is not recommended for Model 3750



### Culture Platforms

- Ideal for slow speed applications; Petri dishes, culture flasks, and other flat bottom, low profile vessels
- Two-tier braces (available for both sizes) allow stacking of platforms with a 10" clearance
- Constructed of type 304 stainless steel
- Platform has a non-skid rubber surface

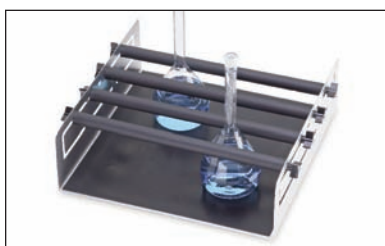
Description	Used on Shakers	Part Number	Price
18 x 18" (45.7 x 45.7cm) Culture Platform	Standard/Advanced 3500*, Advanced 3750**	980440	\$215.00
18 x 24" (45.7 x 61cm) Culture Platform	Standard/Advanced 3500*, Advanced 3750**, Standard/Advanced 5000	980441	\$225.00
Two-Tier Braces (set of 4)	Standard/Advanced 3500, Standard/Advanced 5000	980077	\$75.00



### Dedicated Platforms

- Pre-mounted flask clamps for maximum utilization of platform space for flasks of all one size
- Two-tier braces allow stacking of platforms with a 10" clearance (available for select sizes\*)
- Platform is constructed of type 304 stainless steel
- Flask clamps are constructed of PVC

Platform Size / Flask Clamps Size	Flask Capacity	Used on Shakers	Part Number	Price
13 x 13" (33x 33cm) Dedicated Platform / 125mL Flask Clamp	16	Standard/Advanced 3500, Advanced 3750	980449	\$359.00
13 x 13" (33x 33cm) Dedicated Platform / 250mL Flask Clamp	12	Standard/Advanced 3500, Advanced 3750	980450	\$359.00
13 x 13" (33x 33cm) Dedicated Platform / 500mL Flask Clamp	8	Standard/Advanced 3500, Advanced 3750	980451	\$359.00
13 x 13" (33x 33cm) Dedicated Platform / 1L Flask Clamp	4	Standard/Advanced 3500, Advanced 3750	980452	\$359.00
18 x 18" (45.7 x 45.7cm) Dedicated Platform / 125mL Flask Clamp *	27	Standard/Advanced 3500, Advanced 3750**	980453	\$399.00
18 x 18" (45.7 x 45.7cm) Dedicated Platform / 250mL Flask Clamp *	20	Standard/Advanced 3500, Advanced 3750**	980454	\$399.00
18 x 18" (45.7 x 45.7cm) Dedicated Platform / 500mL Flask Clamp *	13	Standard/Advanced 3500, Advanced 3750**	980455	\$399.00
18 x 18" (45.7 x 45.7cm) Dedicated Platform / 1L Flask Clamp	9	Standard/Advanced 3500, Advanced 3750**	980456	\$399.00
Two-Tier Braces (set of 4)		Standard/Advanced 3500	980077	\$75.00



### Adjustable Platforms

- Adjustable clamping bars accommodate various vessel types
- Stainless steel construction
- Base tray has a non-skid rubber surface

Description	Bar Size	Overall Dimensions	Used on Shakers	Part Number	Price
2-bar Adjustable Platform	8.6" (21.8cm)	8.6 x 11.7" (21.8 x 29.7cm)	Advanced 1000-3 / 1000-15	980197	\$333.00
3-bar Adjustable Platform	18" (45.7cm)	18 x 18" (45.7 x 45.7cm)	Standard/Advanced 3500	980442	\$349.00
4-bar Adjustable Platform	24" (61cm)	18 x 24" (45.7 x 61cm)	Standard/Advanced 5000	980443	\$499.00

Replacement Part	Used with Platform	Part Number	Price
8.6" (21.8cm) adjustable bar (with mounting hardware)	980197	980470	\$29.00
18" (45.7cm) adjustable bar (with mounting hardware)	980442	980447	\$39.00
24" (61cm) adjustable bar (with mounting hardware)	980443	980448	\$49.00

# SHAKERS

## Platforms and Accessories

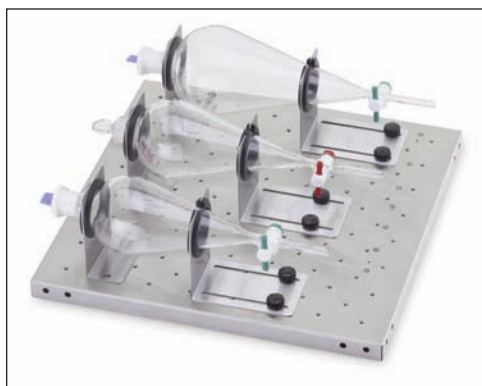


### Large Vessel Carrier Platforms

- Ideal for large sample containers like Carboys, jugs, and bottles
- High side walls secure samples
- Heavy-duty design
- Stainless steel construction
- Base tray has a non-skid rubber surface

Description	Bar Size	Overall Dimensions (L x W x H)	Used on Shakers	Part Number	Price
4-bar Large Vessel Carrier Platform	18" (45.7cm)	30.1 x 18.1 x 13.9	Standard/Advanced 5000	980444	\$849.00
4-bar Large Vessel Carrier Platform	24" (61cm)	24.4 x 24.3 x 14.2	Advanced 10000-1 / 10000-2	980445	\$889.00
5-bar Large Vessel Carrier Platform	24" (61cm)	36.9 x 24.3 x 14.2	Advanced 15000-1 / 15000-2	980446	\$1,139.00

Replacement Part	Used with Carrier	Part Number	Price
18" (45.7cm) adjustable bar (with mounting hardware)	980448	980447	\$39.00
24" (61cm) adjustable bar (with mounting hardware)	980445, 980446	980448	\$49.00



### Separatory Funnel Platform

- Holds 3 funnels at once on an 18 x 18" (45.7 x 45.7cm) platform
- Accommodates 500mL to 2L separatory funnels
- Stainless steel construction

Description	Used on Shakers	Part Number	Price
Separatory Funnel Platform	Standard/Advanced 3500, Advanced 3750	980457	\$389.00

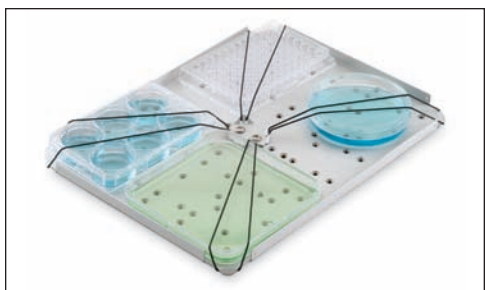


### Microplate Clamp

- Holds one standard microplate or deep-well plate
- Constructed of type 304 stainless steel

Description	Used on Shakers	Part Number	Price
Microplate Clamp	Standard/Advanced 3500, 5000, 1000, 15000	980458	\$19.00





### Universal Harness

- Attaches to tray to secure low profile plates

Description	Used on Shakers	Part Number	Price
Universal Harness	Advanced 1000-3 / 1000-15	980192	\$24.00



### Dimpled Mat

Designed to hold centrifuge tubes, vials, culture tubes, and micro-tubes securely in place. Mat can be easily removed for cleaning and transporting of tubes from bench to tray.

Description	Used on Unit	Part Number	Price
Dimpled Mat, 12.75 x 10" (32.4 x 25.4cm)	Advanced 1000RS Rocking Shaker	980535	\$33.00
Dimpled Mat, 11.75 x 8.75" (29.9 x 22.2cm)	Advanced 1000WS Waving Shaker	980542	\$34.00
Dimpled Mat, 10 x 7.5" (25.4 x 19.1cm)	Professional 1000RS Incubating Rocking Shaker	980536	\$33.00
Dimpled Mat, 9.25 x 7.25" (23.5 x 18.4cm)	Professional 1000WS Incubating Waving Shaker	980543	\$34.00



### Stacking Tray

Easily attaches to the units included tray to add a second tier for higher capacity applications. Second tier tray mounts 3.5" (8.9cm) above lower tray.

Description	Used on Unit	Part Number	Price
Stacking Tray, 12.75 x 10" (32.4 x 25.4cm)	Advanced 1000RS Rocking Shaker	980534	\$83.00
Stacking Tray, 11.75 x 8.75" (29.9 x 22.2cm)	Advanced 1000WS Waving Shaker	980541	\$106.00



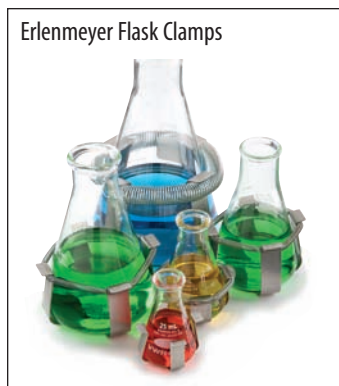
### Dilution Cup Tray

- Constructed of type 304 stainless steel
- Holds 24 x 28mm dilution vials

Description	Used on Unit	Part Number	Price
Dilution Rack Tray, 6.9 x 10" (17.5 x 25.4cm)	Advanced 1000-3 / 1000-15	980200	\$149.00

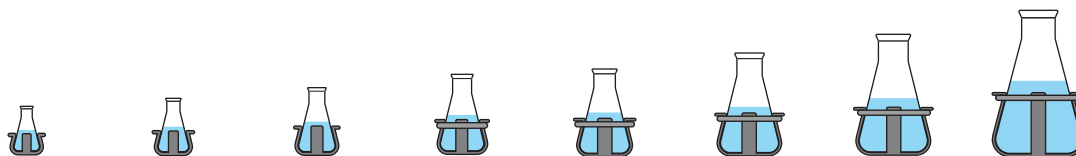
# SHAKERS

## Flask Clamps



### Stainless Steel Flask Clamps

- Designed to hold Erlenmeyer flasks from 10mL to 6L
- Constructed of type 302 and 304 stainless steel
- Includes hardware for easy attachment to platforms
- Flask clamps 125mL and higher are supplied with a spring to hold flask in place
- 2.8L clamp is designed to hold a Fernbach flask
- Media bottle clamps feature the same details as flask clamps



10mL Erlenmeyer Flask Clamp	25mL Erlenmeyer Flask Clamp	50mL Erlenmeyer Flask Clamp	125mL Erlenmeyer Flask Clamp	250mL Erlenmeyer Flask Clamp	500mL Erlenmeyer Flask Clamp	1L Erlenmeyer Flask Clamp	2L Erlenmeyer Flask Clamp
Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
980078	980079	980080	980081	980082	980083	980086	980087
\$15.00	\$15.00	\$18.00	\$21.00	\$21.00	\$26.00	\$37.00	\$56.00

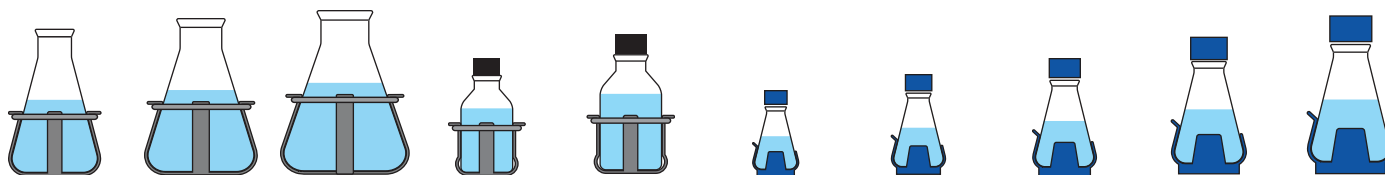
Tray or Platform	Number of Flask Clamps per Tray or Platform							
<b>11.75 x 8.75" (29.9 x 22.2cm) (Included)</b>								
Advanced 1000-3/1000-15 *	35	20	15	12	6	4	N/A	N/A
<b>11 x 7.75" (27.9 x 19.7) (Included)</b>								
Professional 1000-3*	35	20	12	8	6	N/A	N/A	N/A
<b>11 x 13" (27.9 x 33cm)</b>								
Standard/Advanced 3500	60	25	13	10	9	7	4	N/A
Professional 3500	60	25	13	10	9	7	4	N/A
Advanced 3750	60	25	13	10	9	7	4	N/A
<b>13 x 13" (33cm x 33cm)</b>								
Standard/Advanced 3500	60	30	15	12	12	8	4	3
Advanced 3750	60	30	15	12	12	8	4	3
<b>18 x 18" (45.7 x 45.7cm)</b>								
Standard/Advanced 3500	113	64	32	20	20	13	8	5
Advanced 3750	113	64	32	20	20	13	8	5
<b>18 x 24" (45.7 x 61cm)</b>								
Standard/Advanced 3500	158	88	44	28	28	20	12	6
Advanced 3750	158	88	44	28	28	20	12	6
Standard/Advanced 5000	158	88	44	28	28	20	12	6
<b>18 x 30" (45.7 x 76.2cm)</b>								
Standard/Advanced 5000	203	112	56	36	36	26	15	8
<b>24 x 24" (61 x 61cm)</b>								
Advanced 10000-1/10000-2	221	121	61	41	41	25	16	9
<b>24 x 36" (61 x 91.4cm)</b>								
Advanced 15000-1/15000-2	336	160	94	61	64	40	24	14

\* All units require an accessory platform for mounting flask clamps or test tube racks with the exception of the Advanced 1000-3, 1000-15, and Professional 1000-3



### PVC Flask Clamps

- Autoclavable
- One piece, molded PVC construction
- Will not scratch or mark flask like other clamps
- Includes hardware for easy attachment to platforms
- Attaching and removing of flasks is quick and easy



2.8L Erlenmeyer Flask Clamp	4L Erlenmeyer Flask Clamp	6L Erlenmeyer Flask Clamp	500mL Media Bottle Clamp	1L Media Bottle Clamp	125mL Erlenmeyer Flask Clamp	250mL Erlenmeyer Flask Clamp	500mL Erlenmeyer Flask Clamp	1L Erlenmeyer Flask Clamp	2L Erlenmeyer Flask Clamp
Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	PVC	PVC	PVC	PVC	PVC
980088	980089	980090	980092	980093	980428	980429	980430	980431	980432
\$72.00	\$76.00	\$114.00	\$69.00	\$78.00	\$25.00	\$27.00	\$31.00	\$34.00	\$58.00

#### Number of Flask Clamps per Tray or Platform

N/A	N/A	N/A	3	N/A	12	6	4	N/A	N/A
N/A	N/A	N/A	N/A	N/A	8	6	N/A	N/A	N/A
N/A	N/A	N/A	5	2	10	8	5	2	N/A
N/A	N/A	N/A	5	2	10	8	5	2	N/A
N/A	N/A	N/A	5	2	10	8	5	2	N/A
1	1	1	6	5	12	10	6	4	3
1	1	1	6	5	12	10	6	4	3
2	4	2	16	10	20	18	12	8	4
2	4	2	16	10	20	18	12	8	4
3	4	3	20	13	28	25	16	10	6
3	4	3	20	13	28	25	16	10	6
3	4	3	20	13	28	25	16	10	6
3	6	4	28	18	36	33	20	14	8
5	5	5	25	18	41	35	24	13	9
7	9	7	40	30	61	55	38	22	13

## Test Tube Racks



### Test Tube Racks - Half Size, Stationary

- PVC coated steel
- Includes hardware for easy attachment to platforms
- 7L x 5W x 4H" (12.7 x 17.8 x 10.2cm) / Micro-Tube Rack: 1.7H" (4.3cm)

1.5 to 2mL Micro-Tube Rack	10 to 13mm Test Tube Rack	14 to 16mm Test Tube Rack	18 to 20mm Test Tube Rack	22 to 25mm Test Tube Rack	15mL Centrifuge Tube Rack	50mL Centrifuge Tube Rack
Half Size, Stationary	Half Size, Stationary	Half Size, Stationary	Half Size, Stationary	Half Size, Stationary	Half Size, Stationary	Half Size, Stationary
Tube Capacity = 70	Tube Capacity = 63	Tube Capacity = 48	Tube Capacity = 35	Tube Capacity = 24	Tube Capacity = 35	Tube Capacity = 12
980191	980193	980194	980195	980196	980198	980199
\$99.00	\$115.00	\$115.00	\$115.00	\$115.00	\$120.00	\$120.00

Tray or Platform Accessory	Number of Test Tube Racks per Tray or Platform						
11.75 x 8.75" (29.9 x 22.2cm) (Included)							
Advanced 1000-3/1000-15 *	2	2	2	2	2	2	2
11 x 7.75" (27.9 x 19.7cm) (Included)							
Professional 1000-3 *	2	1	1	1	1	1	1
Advanced 1000MP *	2	N/A	N/A	N/A	N/A	N/A	N/A
Professional 1000MP *	2	N/A	N/A	N/A	N/A	N/A	N/A
11 x 13" (27.9 x 33cm)							
Standard/Advanced 3500	2	2	2	2	2	2	2
Professional 3500	2	2	2	2	2	2	2
Advanced 3750	2	2	2	2	2	2	2
13 x 13" (33 x 33cm)							
Standard/Advanced 3500	2	2	2	2	2	2	2
Advanced 3750	2	2	2	2	2	2	2
18 x 18" (45.7 x 45.7cm)							
Standard/Advanced 3500	4	4	4	4	4	4	4
Advanced 3750	4	4	4	4	4	4	4
18 x 24" (45.7 x 61cm)							
Standard/Advanced 3500	6	6	6	6	6	6	6
Advanced 3750	6	6	6	6	6	6	6
Standard/Advanced 5000	6	6	6	6	6	6	6
18 x 30" (45.7 x 76.2cm)							
Standard/Advanced 5000	8	8	8	8	8	8	8
24 x 24" (61 x 61cm)							
Advanced 10000-1/10000-2	8	8	8	8	8	8	8
24 x 36" (61 x 91.4cm)							
Advanced 15000-1/15000-2	7	7	7	7	7	7	7

\* All units require an accessory platform for mounting flask clamps or test tube racks with the exception of the Advanced 1000-3, 1000-15, and Professional 1000-3





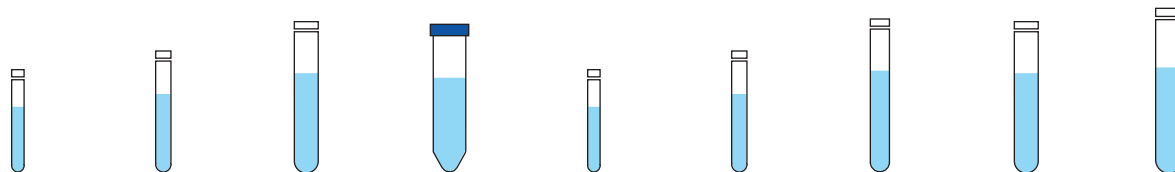
### Test Tube Racks - Full Size, Stationary

- PVC coated steel
- Includes hardware for easy attachment to platforms
- 16.5L x 3.75W x 4H" (9.5 x 41.9 x 10.2cm)



### Test Tube Racks - Full Size, Pivoting

- Adjustable angle, custom tilt
- Stainless steel holder includes removable rack
- Rack is easily removed to transport from work area to shaker
- 5.1 L x 10.8 W x 3.9 H" (12.9 x 27.4 x 9.9cm)
- 5 L x 10.9 W x 5 H" (12.7 x 27.6 x 12.7cm)



10 to 14mm Test Tube Rack	16 to 20mm Test Tube Rack	21 to 25mm Test Tube Rack	50mL Centrifuge Tube Rack	13mm Test Tube Rack	16mm Test Tube Rack	20mm Test Tube Rack	25mm Test Tube Rack	30mm Test Tube Rack
Full Size, Stationary	Full Size, Stationary	Full Size, Stationary	Full Size, Stationary	Full size, Pivoting	Full size, Pivoting	Full size, Pivoting	Full size, Pivoting	Full size, Pivoting
Tube Capacity = 48	Tube Capacity = 33	Tube Capacity = 21	Tube Capacity = 17	Tube Capacity= 90	Tube Capacity = 60	Tube Capacity = 40	Tube Capacity = 24	Tube Capacity= 21
980040	980041	980042	980043	980459	980460	980461	980462	980463
\$230.00	\$230.00	\$230.00	\$242.00	\$193.00	\$193.00	\$193.00	\$193.00	\$193.00

#### Number of Test Tube Racks per Tray or Platform

N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	1	1	1	1	1
N/A	N/A	N/A	N/A	1	1	1	1	1
N/A	N/A	N/A	N/A	1	1	1	1	1
N/A	N/A	N/A	N/A	2	2	2	2	2
N/A	N/A	N/A	N/A	2	2	2	2	2
3	3	3	3	2	2	2	2	2
3	3	3	3	2	2	2	2	2
5	5	5	5	3	3	3	3	3
5	5	5	5	3	3	3	3	3
5	5	5	5	3	3	3	3	3
6	6	6	6	4	4	4	4	4
7	7	7	7	4	4	4	4	4
5	5	5	5	6	6	6	6	6

# DRY BLOCK HEATERS

## ADVANCED Dry Block Heaters

- Exceptional temperature uniformity and stability
- Optional external temperature probe
- Holds interchangeable modular blocks



Designed for applications that require repeatable results and superior temperature stability. These multi-purpose units are ideal for incubation and activation of cultures, enzyme reactions, immunoassays, melting/boiling points, and a wide variety of other laboratory procedures. Integral support rod holder with locking knob accepts optional External Temperature Probe Kit. Optional External Temperature Probe Kit monitors actual block or sample temperature. Each of the five models accepts separate interchangeable modular blocks, accommodating various tube sizes from 0.2mL micro-tubes to 50mL centrifuge tubes. Each block has a thermometer well for measuring block temperature. Efficient heater features close tube-and-block contact with a low density design for exceptional temperature uniformity. Modular blocks are sold separately.

### Operating Features:

**Microprocessor control:** PID temperature control, with optional external RTD probe, offers a temperature stability of  $\pm 0.1^{\circ}\text{C}$  with a temperature uniformity as low as  $\pm 0.1^{\circ}\text{C}$ . Samples are heated to temperature quickly and accurately. Temperature is adjusted in  $\pm 0.1^{\circ}\text{C}$  increments.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Shows set-point and actual temperatures. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings even after power has been turned off.

**Audible alarm:** In timed mode, alarm will sound when time reaches zero and when unit reaches set-point temperature.

**Temperature calibration mode:** Allows user to calibrate unit to an external temperature device.

### Safety Features:

**Caution hot indicator:** Hot warning symbol light is illuminated when the temperature is above  $40^{\circ}\text{C}$ .

**Overshoot protection:** If the unit exceeds the set temperature by  $10^{\circ}\text{C}$  the unit will automatically stop heating.

**CAUTION!** To avoid possible electrical hazard, do not fill well or block opening with water or other fluids. Unit is designed as a dry bath/incubator.

### Operating Conditions:

Units can be run in environments from  $18$  to  $33^{\circ}\text{C}$  ( $64$  to  $91^{\circ}\text{F}$ ).

### Applications:

Denaturing proteins, DNA applications, ELISA and other immunoassay studies.



Size	Temperature Range	Stability @ $37^{\circ}\text{C}$	Uniformity w/in the Block @ $37^{\circ}\text{C}$	Uniformity Across Similar Blocks @ $37^{\circ}\text{C}$	Heat-Up Time to $100^{\circ}\text{C}$
1 block	Ambient $+5^{\circ}\text{C}$ to $120^{\circ}\text{C}$	$\pm 0.1^{\circ}\text{C}$	$\pm 0.1^{\circ}\text{C}$	N/A	45 min.
2 block				$\pm 0.1^{\circ}\text{C}$	50 min.
3 block				$\pm 0.15^{\circ}\text{C}$	55 min.
4 block				$\pm 0.2^{\circ}\text{C}$	60 min.
6 block				$\pm 0.3^{\circ}\text{C}$	65 min.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

Block Capacity	Dimensions (L x W x H)	Electrical (50/60 Hz)	Ship Weight	Part Number	Price
1	12.4 x 8 x 3.5" (31.5 x 20.3 x 8.9cm)	120V   0.9 amps   110 watts	5.8lb (2.6kg)	949500	\$576.00
		230V   0.5 amps   110 watts		949501	\$633.00
2	15.4 x 8 x 3.5" (39.1 x 20.3 x 8.9cm)	120V   1.7 amps   210 watts	6.4lb (2.9kg)	949502	\$706.00
		230V   0.9 amps   210 watts		949503	\$779.00
3	18.4 x 8 x 3.5" (46.7 x 20.3 x 8.9cm)	120V   1.7 amps   210 watts	8lb (3.6kg)	949504	\$815.00
		230V   0.9 amps   210 watts		949505	\$899.00
4	16.9 x 8 x 3.5" (42.9 x 20.3 x 8.9cm)	120V   2.6 amps   310 watts	8.5lb (3.9kg)	949506	\$1,001.00
		230V   1.3 amps   310 watts		949507	\$1,102.00
6	20.9 x 8 x 3.5" (53.1 x 20.3 x 8.9cm)	120V   3.4 amps   410 watts	10lb (4.5kg)	949508	\$1,088.00
		230V   1.7 amps   410 watts		949509	\$1,197.00



### External Temperature Probe Kit

Enables the unit to read actual block or sample temperature and display that temperature on the control panel. The optional External Temperature Probe Kit includes a stainless steel RTD probe, 18" (45.7cm) stainless steel support rod, thermometer/temperature probe extension clamp and hook connector. The RTD probe is designed to fit perfectly in to the thermometer well of each modular block.

Description	Part Number	Price
Optional External Temperature Probe Kit	949520	\$204.00



### Did you know?

**Temperature stability** is defined as the ability to maintain and not vary from a set temperature.

**Temperature uniformity** is defined as the ability of a temperature to remain consistent from one area of a heating device to another.

# DRY BLOCK HEATERS

## STANDARD Dry Block Heaters

- Multi-purpose use
- Holds interchangeable modular blocks
- Analog controls

These multi-purpose units are ideal for incubation and activation of cultures, enzyme reactions, immunoassays, melting/boiling points and a wide variety of other laboratory procedures. Each of the five models accepts separate interchangeable modular blocks, accommodating various sample enclosures such as micro-tubes, centrifuge tubes, vials, microplates, and PCR strips or tubes. Each block has a thermometer well for measuring block temperature. Anodized aluminum modular blocks provide superior temperature stability and heat transfer. Modular blocks are sold separately.

### Operating Features:

High wattage, constant-temperature Dry Block Heaters are economical, versatile and compact.

**Microprocessor control:** PID temperature controller maintains precise temperature control. Samples are heated to temperature quickly and accurately

**Adjustment knobs:** Basic temperature control knobs with 1 to 10 dial markings for low temperature and high temperature adjustments. Low range knob adjusts from ambient to 100°C and high range knob adjusts from 75°C to 150°C.

**CAUTION!** To avoid possible electrical hazard, do not fill well or block opening with water or other fluids. Unit is designed as a dry bath/incubator.

### Operating Conditions:

Units can be run in environments from 18 to 33°C (64 to 91°F).

### Applications:

Coagulation and RH Studies.



949512



949510

Size	Temperature Range	Stability @ 37°C	Uniformity w/in the Block @ 37°C	Uniformity Across Similar Blocks @ 37°C	Heat-Up Time to 100°C
1 block	Low Range: Ambient +5°C to 100°C	±1.0°C	±0.1°C	N/A	45 min.
2 block		±1.5°C		±0.1°C	50 min.
3 block	±2.0°C	±0.15°C		60 min.	
4 block	High Range: 75°C to 150°C	±2.0°C		±0.2°C	70 min.
6 block		±2.0°C		±0.3°C	75 min.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

Block Capacity	Dimensions (L x W x H)	Electrical (50/60 Hz)	Ship Weight	Part Number	Price
1	12.4 x 8 x 3.5" (31.5 x 20.3 x 8.9cm)	120V   0.9 amps   110 watts	5.8lb (2.6kg)	949510	\$250.00
		230V   0.5 amps   110 watts		949511	\$275.00
2	15.4 x 8 x 3.5" (39.1 x 20.3 x 8.9cm)	120V   1.7 amps   210 watts	6.4lb (2.9kg)	949512	\$402.00
		230V   0.9 amps   210 watts		949513	\$444.00
3	18.4 x 8 x 3.5" (46.7 x 20.3 x 8.9cm)	120V   1.7 amps   210 watts	8lb (3.6kg)	949514	\$533.00
		230V   0.9 amps   210 watts		949515	\$587.00
4	16.9 x 8 x 3.5" (42.9 x 20.3 x 8.9cm)	120V   2.6 amps   310 watts	8.5lb (3.9kg)	949516	\$674.00
		230V   1.3 amps   310 watts		949517	\$741.00
6	20.9 x 8 x 3.5" (53.1 x 20.3 x 8.9cm)	120V   3.4 amps   410 watts	10lb (4.5kg)	949518	\$925.00
		230V   1.7 amps   410 watts		949519	\$1,018.00



Modular blocks are constructed from a solid anodized aluminum block. The close contact of tubes-to-block-walls allow for maximum heat retention. Each block has a thermometer well for measuring block temperature. **CAUTION!** To avoid possible electrical hazard, **DO NOT** fill well or block with water or other liquids. Units are designed as a dry bath/incubator.

**Single block dimensions (L x W x H):** 3.75 x 3 x 2" (9.5 x 7.6 x 5.1cm), **Double block dimensions (L x W x H):** 6 x 3.75 x 2.25" (15.2 x 9.5 x 5.7cm)

### Microcentrifuge Tube Blocks

Single block.

Brand/Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
0.5mL Tube	30	7.9mm	27.6mm	949108	\$89.00
1.5mL Tube	20	11.1mm	39.1mm	949110	\$93.00
1.5mL Eppendorf™ Tube	20	11.5mm	36.9mm	949113	\$93.00
2mL Eppendorf™ Tube	20	11.5mm	38.1mm	949151	\$92.00
2mL Corning™ Tube	20	10.9mm	38.1mm	949152	\$92.00



### Titer Plate Block

Double block. Fits 2/4/6 block Dry Block Heaters. Ideal for 96-well or 384-well titer plates. Recessed well for better stability, flat surface good for flat and round bottom plates.

Sample Type	Well Depth	Part Number	Price
Titer Plate	13.5mm	949115	\$193.00



### Conical-Bottom Centrifuge Tube Blocks

Single block.

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
15mL Tube	12	17.1mm	44.5mm	949131	\$89.00
50mL Tube	5	29mm	47.6mm	949127	\$89.00



### Standard Test Tube Blocks

Single block.

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
6mm Tube	30	8.3mm	48.4mm	949109	\$89.00
10mm Tube	24	10.7mm	48.4mm	949102	\$89.00
12/13mm Tube	20	13.9mm	48.4mm	949103	\$89.00
12/13mm Tube	16	13.9mm	48.4mm	949116	\$89.00
15/16mm Tube	12	17.5mm	48.4mm	949104	\$89.00
17/18mm Tube	12	19.1mm	48.4mm	949155	\$89.00
20mm Tube	8	21mm	48.4mm	949105	\$89.00
25mm Tube	6	26.2mm	48.4mm	949106	\$89.00
35mm Tube	4	35mm	47.6mm	949126	\$89.00



# DRY BLOCK HEATERS

## Modular Blocks & Accessories

### Combination Blocks

Single block. These blocks have been designed for variable sized samples.

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
Test Tube Combination:	6mm	6	8.3mm	949107	\$93.00
	12/13mm	5	13.9mm		
	25mm	3	26.2mm		
Centrifuge Tube Combination:	1.5mL	4	11.1mm	949153	\$92.00
	15mL	3	17.1mm		
	50mL	2	29mm		
Micro-Tube Combination:	0.5mL	6	7.9mm	949154	\$92.00
	1.5mL	10	11.1mm		
	2mL	5	11.5mm		



### Vial Blocks

Single block. Designed for sample/serum and scintillation vials.

Sample Type	No. of Wells	Well Dia.	Well Depth	Part Number	Price
12mm Vial	20	12.7mm	30mm	949142	\$96.00
15mm Vial	20	15.8mm	35mm	949143	\$96.00
16mm Vial	15	16.4mm	45mm	949150	\$96.00
17mm Vial	12	17.8mm	45mm	949144	\$96.00
19mm Vial	12	19.7mm	45mm	949145	\$96.00
21mm Vial	9	21.7mm	45mm	949146	\$96.00
23mm Vial	8	23.8mm	45mm	949147	\$96.00
25mm Vial	8	25.8mm	45mm	949148	\$96.00
28mm Vial	6	28.8mm	45mm	949149	\$96.00



### PCR - Plate, Tube, Strip Blocks

Single and double block. Tapered tube wells for 0.2mL tubes. Spaced for easy access and removal.

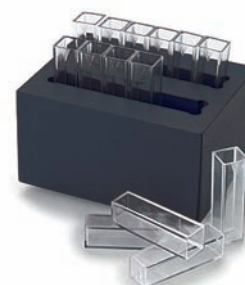
Sample Type	Block Size	No. of Wells	Well Dia.	Well Depth	Part Number	Price
96-well PCR Plate	Double	96	6.4mm	15.5mm	949130	\$230.00
10 x 8 Tube Strips	Single	80	6.4mm	15.5mm	949128	\$110.00
Individual Tubes	Single	64	6.4mm	20.2mm	949129	\$110.00



### Cuvette Block

Single block. Two parallel slots fit 6 cuvettes in each slot, side-by-side.

Sample Type	No. of Wells	Well Depth	Part Number	Price
(12) 12.5mm Cuvettes	2	25.4mm	949112	\$110.00



### Solid Blocks

Single and double block. For use as a low-temperature hotplate, slide drying, or for custom drilling to make a custom block.

Block Size	Dimension (L x W x H)	Part Number	Price
Single	3.75 x 3 x 2" (9.5 x 7.6 x 5.1cm)	949111	\$93.00
Double	6 x 3.75 x 2.25" (15.2 x 9.5 x 5.7cm)	949117	\$136.00



### Stainless Steel Sand Baths

Ideal for irregular vessels. Stainless steel construction for superior corrosion resistance. Designed to hold sand, stainless steel shot or non-volatile liquids.

For Unit	Dimensions (L x W x H)	Part Number	Price
1 Block Dry Block Heater	3.75 x 3 x 2.5" (9.5 x 7.6 x 6.4cm)	949132	\$209.00
2 Block Dry Block Heater	3.75 x 5.875 x 2.5" (9.5 x 14.9 x 6.4cm)	949133	\$219.00
3 Block Dry Block Heater	3.75 x 8.8 x 2.5" (9.5 x 22.4 x 6.4cm)	949134	\$225.00
4 Block Dry Block Heater	5.8 x 7.5 x 2.5" (14.7 x 19.1 x 6.4cm)	949135	\$230.00
6 Block Dry Block Heater	5.8 x 11.3 x 2.5" (14.7 x 28.7 x 6.4cm)	949136	\$240.00
Accessory		Part Number	Price
Sand, 1lb (0.454kg)		949137	\$62.00
Stainless Steel Shot, 1lb (0.454kg)		949138	\$75.00



### Low Temperature Covers

Plexiglass cover reduces air flow for additional temperature stability in low-temperature applications. Two sides are open 0.25" (6.4mm).

Block Size	Dimensions (L x W x H)	Part Number	Price
2 Block Cover	6.5 x 6.5 x 1.625" (16.5 x 16.5 x 4.1cm)	949139	\$77.00
4 Block Cover	8.5 x 8.5 x 1.625" (21.6 x 21.6 x 4.1cm)	949140	\$83.00
6 Block Cover	12.5 x 8.5 x 1.625" (31.8 x 21.6 x 4.1cm)	949141	\$89.00



### Don't see the block you need?

Custom modular blocks are available. Call customer service at 1-888-Talboys for more information.

# VORTEX MIXERS

## BASIC & ADVANCED Vortex Mixers

### Basic Vortex Mixer

- Fixed high speed mixing
- Touch mode operation

Starts mixing when the cup head is pressed down. Speed is fixed at full rpm to provide vigorous vortexing of samples.

Includes both cup head and three-inch head with cover. 2 year limited warranty on parts and labor.



Specifications		
Speed Range	120V	3200rpm
	230V	2500rpm
Orbit		0.194" (4.9mm)
Controls		None
Dimensions (L x W x H)		8 x 4 x 5.5" (20.3 x 10.2 x 14cm)
Ship Weight		11.7lbs (5.3kg)

Ordering Information				
Description	Electrical (50/60 Hz)	Part Number	Price	
Basic Vortex Mixer	120 V   1.2 amps   150 watts	945610	\$255.00	
Basic Vortex Mixer	230 V   0.6 amps   150 watts	945611	\$277.00	
Basic Vortex Mixer UK Plug	230 V   0.6 amps   150 watts	945612	\$277.00	
Basic Vortex Mixer Euro Plug	230 V   0.6 amps   150 watts	945613	\$277.00	
Basic Vortex Mixer Swiss Plug	230 V   0.6 amps   150 watts	945614	\$277.00	

### Advanced Vortex Mixer

- LED displays for speed and time
- Continuous or touch mode operation
- Microprocessor controls

Ideal for applications that demand repeatable results. Microprocessor control maintains set speed for strong, consistent mixing action. Timer will display elapsed time or when programmed to user defined time limit, the unit will shut off when time reaches zero. Two modes of operation; continuous mode when using accessory attachments or touch mode which activates mixing when depressing the cup head.

Includes both cup head and three-inch head with cover. 2 year limited warranty on parts and labor.



Specifications		
Speed Range	120V	500 to 3000rpm
	230V	500 to 2500rpm
Timer		1 second to 160 hours
Orbit		0.194" (4.9mm)
Controls		Auto/Standby/On Rocker Switch, LED Displays For Time/Speed, Up/Down Buttons For Set-Point Control
Dimensions (L x W x H)		8 x 4 x 5.5" (20.3 x 10.2 x 14cm)
Ship Weight		11.7lbs (5.3kg)

Ordering Information				
Description	Electrical (50/60 Hz)	Part Number	Price	
Advanced Vortex Mixer	120 V   1.2 amps   150 watts	945603	\$372.00	
Advanced Vortex Mixer	230 V   0.6 amps   150 watts	945616	\$383.00	
Advanced Vortex Mixer Euro Plug	230 V   0.6 amps   150 watts	945617	\$383.00	
Advanced Vortex Mixer UK Plug	230 V   0.6 amps   150 watts	945618	\$383.00	
Advanced Vortex Mixer Swiss Plug	230 V   0.6 amps   150 watts	945619	\$383.00	

\* Maximum speed will vary depending on accessory used.



### Standard Vortex Mixer

- Variable, analog speed control
- Continuous or touch mode operation

Control allows low rpm startup for gentle shaking or high speed mixing for vigorous vortexing of samples. Two modes of operation; continuous mode when using accessory attachments or touch mode which activates mixing when depressing the cup head.

Includes both cup head and three-inch head with cover. 2 year limited warranty on parts and labor.

Specifications	
<b>Speed Range</b> 120V	300 to 3200rpm
230V	300 to 2500rpm
<b>Orbit</b>	0.194" (4.9mm)
<b>Controls</b>	Auto/Off/On Rocker Switch, Speed Knob: Variable 1 to 10 Dial Marks
<b>Dimensions (L x W x H)</b>	8 x 4 x 5.5" (20.3 x 10.2 x 14cm)
<b>Ship Weight</b>	11.7lbs (5.3kg)

### Pulsing Vortex Mixer

- LED displays for time and speed
- Continuous or touch mode operation
- Microprocessor controls
- Glass bead cell disruption/homogenization

Powerful pulsing vortex action produces excellent cell disruption for glass bead procedures. Capable of complete cell disruption of samples in only minutes. Unique pulsing action reduces heat generation while providing more effective mixing and disruption. Displayed time counts up during continuous operation and counts down during timed runs.

Includes an easy-to-load 1.5mL to 2mL Micro-Tube Holder. Holder has a built-in cup head. 2 year limited warranty on parts and labor.

Specifications	
<b>Speed Range</b> 120V	500 to 3000rpm
230V	500 to 2500rpm
<b>Timer</b>	1 second to 160 hours
<b>Orbit</b>	0.098" (2.5mm)
<b>Controls</b>	Auto/Standby/On Rocker Switch, LED Displays For Time/Speed, Up/Down Buttons For Set-Point Control Pulse Button
<b>Dimensions (L x W x H)</b>	8 x 4 x 5.5" (20.3 x 10.2 x 14cm)
<b>Ship Weight</b>	11.7lbs (5.3kg)

\* Maximum speed will vary depending on accessory used.



### Ordering Information

Description	Electrical (50/60 Hz)	Part Number	Price
Standard Vortex Mixer	120 V   1.2 amps   150 watts	945600	\$316.00
Standard Vortex Mixer	230 V   0.6 amps   150 watts	945601	\$316.00
Standard Vortex Mixer UK Plug	230 V   0.6 amps   150 watts	945604	\$344.00
Standard Vortex Mixer Euro Plug	230 V   0.6 amps   150 watts	945605	\$344.00
Standard Vortex Mixer Swiss Plug	230 V   0.6 amps   150 watts	945606	\$344.00



### Ordering Information

Description	Electrical (50/60 Hz)	Part Number	Price
Pulsing Vortex Mixer	120 V   1.2 amps   150 watts	945620	\$499.00
Pulsing Vortex Mixer	230 V   0.6 amps   150 watts	945621	\$520.00
Pulsing Vortex Mixer Euro Plug	230 V   0.6 amps   150 watts	945622	\$520.00
Pulsing Vortex Mixer UK Plug	230 V   0.6 amps   150 watts	945623	\$520.00
Pulsing Vortex Mixer Swiss Plug	230 V   0.6 amps   150 watts	945624	\$520.00

# VORTEX MIXERS

## Accessories

### Micro-Tube Holder

Mixes (48) 0.25 to 2mL micro-tubes.  
Requires Insert Retainer.

	Part Number	Price
Micro-Tube Holder (2 pack)	945638	\$45.00
Insert Retainer	945631	\$89.00



### Micro-Well Plate Holder

Ideal for mixing 96-well plates or deep well blocks.  
Requires Insert Retainer.

	Part Number	Price
Micro-Well Plate Holder (2 pack)	945639	\$45.00
Insert Retainer	945631	\$89.00



### 9 to 13mm Tube Holder

Ideal for mixing 5mL culture tubes and micro-vials.  
Requires Insert Retainer.

	Part Number	Price
9 to 13mm Tube Holder (2 pack)	945634	\$20.00
Insert Retainer	945631	\$89.00



### Flat Foam Insert

Ideal for custom applications. Can be cut or drilled to fit your specifications. Requires Insert Retainer.

	Part Number	Price
Flat Foam Insert (2 pack)	945644	\$19.00
Insert Retainer	945631	\$89.00



### 14 to 19mm Tube Holder

Ideal for mixing up to (8) 15mL centrifuge tubes.  
Requires Insert Retainer.

	Part Number	Price
14 to 19mm Tube Holder (2 pack)	945635	\$20.00
Insert Retainer	945631	\$89.00



### Ampule Tube Holder

Mixes up to 4 storage vials and test tubes.

	Part Number	Price
15 to 17mm Ampule Tube Holder	945647	\$85.00
10 to 17mm Ampule Tube Holder	945648	\$120.00



### 20 to 25mm Tube Holder

Ideal for mixing up to (8) 50mL centrifuge tubes.  
Requires Insert Retainer.

	Part Number	Price
20 to 29mm Tube Holder (2 pack)	945636	\$20.00
Insert Retainer	945631	\$89.00



### Stainless Steel Tube Holder

Mixes up to (12) 1.5 to 5mL tubes. Stainless steel construction.

Part Number	Price
945646	\$185.00



### Vessel Harness

Mixes Erlenmeyer flasks and media bottles.  
Requires Insert Retainer.

	Part Number	Price
Vessel Harness (2 pack)	945633	\$6.00
Insert Retainer	945631	\$89.00



### Micro-Tube and Micro-Well Plate Holder Kit

Includes: 1 Micro-Tube Holder  
1 Micro-Well Plate Holder  
1 Insert Retainer

Part Number	Price
945637	\$79.00



### Cup Head

Designed for mixing 1 tube at a time.

	Part Number	Price
Cup Head	945643	\$25.00



### 3" Rubber Head Cover and 3" Head

Designed for mixing irregular shaped objects.

	Part Number	Price
3" (7.6cm) Rubber Head Cover	945642	\$25.00
3" (7.6cm) Head	945641	\$25.00
3" (7.6cm) Head with Rubber Cover	945651	\$35.00



### Tube Holder Kit

Includes: (1) 9 to 13mm Tube Holder  
(1) 14 to 19mm Tube Holder  
(1) 20 to 29mm Tube Holder  
1 Flat Foam Insert  
2 Vessel Harnesses  
1 Insert Retainer

Part Number	Price
945630	\$135.00



 Talboys Vortex Mixer accessories are interchangeable with other manufacturers' models. Call Talboys for assistance.

### Single Tube Holder

Single tube, hands free mixing. Easily attaches to the top of any Vortex Mixer with the use of a strong magnetic base. Accepts tubes from 2.5 to 4.5" (6.4 to 11.4cm) in length. Minimum tube diameter of 0.75" (19mm). Patent Pending.

Part Number	Price
945659	\$115.00



### Single Tube Holder Accessories

#### 0.5mL Micro-Tube Holder

Mixes (24) 0.5mL micro-tubes. For use with Single Tube Holder.

Part Number	Price
945655	\$50.00

#### 1.5 to 2mL Micro-Tube Holder

Mixes (18) 1.5 to 2mL micro-tubes. For use with Single Tube Holder.

Part Number	Price
945656	\$50.00



#### Adapter for Vortex-Genie® Mixer\*

Adapter plate easily adheres to the Vortex-Genie® Mixer housing so Single Tube Holder (sold separately) can be attached.

Part Number	Price
945660	\$59.00

\*The Vortex-Genie® Mixer is a registered trademark of Scientific Industries, Inc.

## Grinding Media

### 200 Micron Zirconium Beads

#### Acid Washed Zirconium Grinding Beads

This high-density bead has enormous grinding energy; resulting in reduced grinding times. Beads have been acid washed to remove contaminants.

Application: Suitable for yeast and bacterial spores.

	Part Number	Price
250 gram bottle	930117	\$151.00

#### Molecular Biology Grade Zirconium Grinding Beads

Treated to be DNase/RNase-free, these beads are useful for the preparation of samples for molecular biology applications.

Application: Preparation of cells for Real Time PCR.

	Part Number	Price
250 gram bottle	930118	\$206.00

#### Low Protein Binding Zirconium Grinding Beads

High impact, low binding beads with low concentrations of protein.

Application: Protein analysis of yeasts and bacteria.

	Part Number	Price
250 gram bottle	930119	\$226.00

### 400 Micron Silica/Glass Beads

#### Acid Washed Silica/Glass Beads

Useful for standard applications.

Application: Good for disrupting molds and yeast.

	Part Number	Price
200 gram bottle	930111	\$114.00

#### Molecular Biology Grade Silica/Glass Beads

Treated to be DNase/RNase-free, these beads are useful for preparing samples for molecular analysis.

Application: Molecular applications for disrupting molds and yeast.

	Part Number	Price
200 gram bottle	930112	\$151.00

#### Low Protein Binding Silica/Glass Beads

These treated beads are low protein binding and useful for homogenizing samples for protein analysis.

Application: Disruption of molds/yeasts for high protein recovery.

	Part Number	Price
200 gram bottle	930113	\$189.00

### 800 Micron Silica/Glass Beads

#### Acid Washed Silica/Glass Beads

Excellent impact energy due to their larger size.

Application: Good general grinding media for fungi and spores.

	Part Number	Price
200 gram bottle	930114	\$114.00

#### Molecular Biology Grade Silica/Glass Beads

Beads are DNase/RNase-free treated and useful for the preparation of samples for molecular applications and analysis.

Application: Useful for disrupting fungi and spores.

	Part Number	Price
200 gram bottle	930115	\$151.00

#### Low Protein Binding Silica/Glass Beads

Beads adsorb less protein than standard beads and are useful when high protein recovery is necessary.

Application: Best choice for preparation of filamentous fungi, spores or pollen that require high protein recovery.

	Part Number	Price
200 gram bottle	930116	\$189.00

# VORTEX MIXERS

## STANDARD Multi-Tube Vortexers

- Process up to 50 samples at a time
- Continuous or timed operation



### Operating Features:

Conveniently angled front panel features rocker switch for run, time, and standby modes.

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform mixing action.

**Adjustment knobs:** Basic speed and time knobs with 1 to 10 dial settings.

### Operating Conditions:

Unit can be run from 18 to 33°C (64 to 91°F).

### Applications:

Suspensions, high throughput testing in clinical, environmental, and chemistry labs



### Specifications

Speed Range	1200 to 2400rpm
Timer	0 to 60 seconds
Orbit	3.6mm
Maximum Weight Capacity	10lbs (4.5kg)
Tray Dimensions (L x W)	12.25 x 7.25" (31.1 x 18.4cm)
Overall Dimensions (L x W x H)	15.1 x 9.5 x 16" ( 38.4 x 24.1 x 40.6 cm)
Ship Weight	42lbs (19.1kg)

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Unit is also supplied with a Tray Pad Set for support and one, 12mm Test Tube Foam Rack (945072). 2 year limited warranty on parts and labor.

### Standard Multi-Tube Vortexer

Description	Electrical (50/60 Hz)	Part Number	Price
Standard Multi-Tube Vortexer	120V   5 amps   75 watts	945007	\$1,999.00
Standard Multi-Tube Vortexer	230V   1 amp   75 watts	945008	\$2,175.00

\* Maximum speed will vary depending on load.



- Process up to 50 samples at a time
- Displays for speed and time
- Pulsing mode

Ideal for applications requiring accuracy and repeatability.

### Operating Features:

**Microprocessor control:** The variable speed microprocessor control provides consistent uniform mixing action.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

**Pulsing mode:** Programmable pulsing mode allows user to adjust the pulse-on and pulse-off times between 1 and 59 seconds in 1 second intervals. This feature enhances the vortex action by creating a more vigorous mix.

### Operating Conditions:

Unit can be run from 18 to 33°C (64 to 91°F).

### Applications:

Suspensions, high throughput testing in clinical, environmental, and chemistry labs



### Specifications

Speed Range	500 to 2500rpm
Speed Accuracy	±25rpm
Timer	1 second to 160 hours
Orbit	3.6mm
Maximum Weight Capacity	10lbs (4.5kg)
Tray Dimensions (L x W)	12.25 x 7.25" (31.1 x 18.4cm)
Overall Dimensions (L x W x H)	15.1 x 9.5 x 16" (38.4 x 24.1 x 40.6 cm)
Ship Weight	42lbs (19.1kg)

### Ordering Information

Unit includes a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Unit is also supplied with a Tray Pad Set for support and one, 12mm Test Tube Foam Rack (945072). 2 year limited warranty on parts and labor.

### Advanced Multi-Tube Vortexer

Description	Electrical (50/60 Hz)	Part Number	Price
Advanced Multi-Tube Vortexer	120V   5 amps   75 watts	945065	\$2,999.00
Advanced Multi-Tube Vortexer	230V   1 amp   75 watts	945066	\$2,999.00

\* Maximum speed will vary depending on load.

# VORTEX MIXERS

## Accessories

### Foam Test Tube Racks



Description	Tube Capacity	Color	Dimensions (L x W x H)	Part Number	Price
10mm Test Tube Foam Rack	50	Gray	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945071	\$22.00
12mm Test Tube Foam Rack	50	Blue	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945072	\$22.00
13mm Test Tube Foam Rack	50	Yellow	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945073	\$22.00
16mm Test Tube Foam Rack (for 15mL centrifuge tubes)	50	Green	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945074	\$30.00
25mm Test Tube Foam Rack	28	White	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945076	\$30.00
29mm Test Tube Foam Rack (for 50mL centrifuge tubes)	15	Red	5.5 x 9.5 x 2" (14 x 24.1 x 5.1cm)	945075	\$30.00
Replacement Tray Pad Set (upper & lower)	N/A	Gray	7 x 12 x 1" (17.8 x 30.5 x 2.5cm)	945010	\$33.00

### Post Extension Kit

Adds 6" (15.2cm) to the post of the Multi-Tube Vortex Mixer to accommodate tubes up to 10" (25.4cm) tall.

Description	Part Number	Price
Post Extension Kit	945009	\$109.00



**Don't see the accessory that you need?  
Need a custom vortex mixer?**

Custom Vortex Mixers and accessories are available.  
Call customer service at 1-888-Talboys for more information.

## Custom Manufacturing & Engineering

Any product you see in this catalog can be customized to meet your specific needs. Not only can we customize standard products, we can combine technologies from several products to meet your specific application.

Troemner demonstrates excellence in all areas of the manufacturing process from design, engineering, skilled workforce, investment in capital equipment, capacity, quality assurance and customer service including:

- Engineering team with electronics, mechanical, and graphic design experience.
- ISO 9000 registered quality system to assure high reliability in both design and manufacturing processes.
- Experienced regulatory processes in getting dozens of products UL, CSA, and CE approved.
- Manufacturing operation is UL and CSA approved and is "surprise" audited every 3 months according to regulatory standards.
- Turning, milling, assembly as well as sourcing capabilities to produce or procure components at a competitive cost.
- Calibration system is both NVLAP (NVLAP Lab Code 105013-0) and UKAS (A UKAS Accredited Calibration Laboratory No. 0516) accredited.
- 6 highly trained staff metrologists who understand measurement technology and key attributes required to make accurate and repeatable measurements.
- State-of-the-art facility including a modern machine shop, cellular assembly area, and the world's most environmentally stable calibration laboratories.
- Management with Six Sigma Certification.
- Responsiveness to customers needs.

If there is a single factor that defines Troemner's competitive advantage, it is our commitment and ability to respond to our customer's specific needs. Our sophisticated engineering and manufacturing capabilities allow us to address a broad range of product objectives: designing entire product lines, introducing new products and technologies, and enhancing existing products.

### **Troemner has packaged our customer responsiveness, development, and manufacturing capabilities into the FASTrack Program.**

Troemner's FASTrack program will streamline the design and manufacturing process. After years of successful customized design and engineering projects and adhering to today's most technologically advanced manufacturing processes, Troemner has developed the FASTrack program to meet the most demanding needs of our partners. Complete with costs and timelines, the FASTrack program will streamline the entire development manufacturing process.

The Troemner FASTrack program is a five part process:

1. Troemner will analyze your application and understand your objectives.
2. Our engineers and manufacturing experts will work with you to develop design parameters in order to meet your needs and develop a design concept.
3. A team of Troemner engineers will develop an alpha prototype to prove concept through an interactive approach with your design team.
4. After approval of concept, design details, and manufacturing costs are completed, beta prototypes are produced for testing and CE, CSA, or UL approval.
5. Production commences in our ISO 9000 registered, UL, CSA approved facility and fulfillment requirements are finalized.

## Proven Technologies

Troemner has worked with industry leaders to design solutions for production and research needs across the pharmaceutical and life science industries. This experience is apparent in every product we engineer. We offer cost effective solutions to meet your customized needs.

**Flexible Systems:** Troemner's state-of-the-art manufacturing facility provides our customers the ability to quickly respond to market conditions and offers the opportunity to be "first to market". All of your custom designed products will have state-of-the-art materials built in to fit your scientific need manufactured in a CE/UL audited facility.

Listed are proven technologies that can be modified, enhanced, or incorporated as is into your customized product:

- Heating control
- Mechanical motion systems
- Digital and analog speed control systems
- In house knowledge as well as a vast network of suppliers who can support your design and manufacturing efforts
- Experience with a variety of materials

Troemner's capabilities in design, engineering, and manufacturing can give you a distinct competitive advantage. Tell us your problems and objectives. Get us involved early in the process. Let us be part of the solution and accelerate your time to discovery.

**For more information on Troemner's custom manufacturing capabilities and the FASTrack program, contact customer service or e-mail [info@troemner.com](mailto:info@troemner.com).**

# HOTPLATES/STIRRERS

## Hotplates/Stirrers Selection Guide



Model	Hotplate/Stirrer Professional	Hotplate/Stirrer Advanced	Hotplate/Stirrer Advanced	Hotplate/Stirrer Basic
Top Plate Dimensions (L x W)	7 x 7"	4 x 4"	7 x 7"	4.5" diameter
Overall Dimensions (L x W x H)	12.1 x 8.5 x 3.75"	9.2 x 5.75 x 3.75"	12.1 x 8.5 x 3.75"	6.5 x 5.75 x 4.75"
Temperature Range, Ceramic Aluminum	Ambient +5° to 400°C Ambient +5° to 400°C	Ambient +5° to 500°C Ambient +5° to 400°C	Ambient +5° to 500°C Ambient +5° to 400°C	N/A to 400°C
Temperature Stability, Ceramic Aluminum	±1% * ±1% *	±3% ** ±2% **	±3% ** ±2% **	N/A N/A
Speed Range	60 to 1600rpm	60 to 1600rpm	60 to 1600rpm	100 to 1200rpm
Speed Stability	±2%	±2%	±2%	±2%
Timer (digital models)	1 second to 160 hours	N/A	N/A	N/A
Maximum Capacity (H <sub>2</sub> O)	2500mL	600mL	2500mL	1000mL
Shipping Weight	9.5lbs	5.6lbs	8.7lbs	4.5lbs

\* Below 100°C ±1°C. Environmental and sample conditions permitting.

\*\* Below 100°C ±2°C. Environmental and sample conditions permitting.

### How to Select a Hotplate/Stirrer

Review the following points to help you select the appropriate hotplate/stirrer for your unique application.

#### 1. Control types:

The **Basic Mini** series offers an open loop speed control and a mechanical thermostat that is not designed for exact regulation over speed or temperature. When precision is not needed these units offer an economical and reliable alternative.

The **Advanced** series is more accurate and offers a closed loop PID microprocessor for both temperature and speed which automatically stabilizes the top plate for temperature and or stirring speeds by regulating for variations in the system with regards to the original set-point. Utilizing electronic user feedback, it offers the most optimal measure for temperature control by providing greater accuracy and ease-in-use for reproducing your results. Overshoot protection protects your sample by shutting down if the temperature exceeds the set-point by more than 10°C.

The **Professional** series also offers a closed loop PID microprocessor for both temperature and speed control, but additionally offers electronic feedback for control of both temperature and speed. These units offer the best in accuracy and precision. A built-in timer allows for greater independence. Also included with the Professional series Hotplates and Hotplate-Stirrers is an external stainless steel temperature probe. It guarantees the utmost in sample temperature monitoring and control, delivering +/-1% temperature stability and is supplied with a 12" flexible arm and three interchangeable clamps.



High Volume Stirrer Standard/Advanced	Large Capacity Stirrer Model 1000 / Model 2000	Multi-Position Stirrer Standard/Advanced	Slow Speed Stirrer 4 Position / 10L	Slow Speed Stirrer 1 Position
12.5 x 11"	21.25 x 25"	12.5 x 11"	12.5 x 11"	7 x 7"
17 x 11 x 3.8"	26.75 x 28.5 x 5.25"	17 x 11 x 4"	17 x 11 x 4"	12.1 x 8.5 x 3.5"
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
60 to 1400rpm	100 to 1800rpm	60 to 1400rpm	1 to 150rpm	1 to 150rpm
±2%	±1%	±2%	±1%	±1%
1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
25L	100L / 200L	1L	1L / 10L	2L
14.6lbs	63lbs	14.75lbs	14.5lbs	8.8lbs

### How to Select a Hotplate/Stirrer

#### 2. Temperature needs:

Temperature uniformity refers to the consistency of the temperature across the top plate. Each top plate material has its pros and cons. Ceramic top plates are more chemical resistant, heat up very quickly, and are easy to clean. The white reflective surface aids in viewing the sample. However; ceramic tops are subject to thermal shock. Heating of metallic vessels should be avoided. The edges of a ceramic top plate may not be as hot as the center where the heating element is located. Aluminum top plates offer a more uniform heating surface, will not crack or chip but are more susceptible to corrosion and more difficult to clean.

#### 3. Sample size:

The size or volume of your sample is another important factor to consider when selecting a hotplate or stirrer. Always consider the largest sample that you may be working with and look for one that can handle that capacity. The capacities listed are based on water. A viscous sample will weigh more than water.

#### 4. Viscosity:

Sample viscosity plays a role in selecting a stirrer. The magnetic coupling strength is a factor in determining which size stirrer to choose. The right drive magnet and stir bar combination is needed to efficiently stir the sample. Variables such as sample size or weight and top plate size dictate which stirrer will work best. The stir bar size and shape, the distance between the drive magnet and the stir bar, vessel shape and size, speed and viscosity also must be considered. The more viscous the sample, the greater magnetic coupling strength needed.



# HOTPLATES/STIRRERS

## PROFESSIONAL Hotplates, Stirrers, and Hotplate-Stirrers

- **Displays for temperature, speed, and time**
- **Safety features to protect operator**
- **Includes Ultra Flex Probe Kit for external temperature probe**

Talboys Professional Hotplates, Stirrers, and Hotplate-Stirrers are designed for applications that require exceptional accuracy, stability and repeatability. Exclusive safety features help protect operator and sample. Integral support rod holder with locking knob accepts included Ultra Flex Probe Kit.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into fume hoods. Spill-resistant housing channels fluids away from internal components. Cast aluminum base offers durability and added stability.

**Ceramic or aluminum top plate:** Ceramic tops feature a chemical resistant, reflective white top plate surface that is easy to clean. Durable aluminum tops will not crack or chip, and provide a more even heating surface.

**Microprocessor control:** Regulates both heating and stirring functions. Samples are heated to temperature quickly and accurately. Temperature is adjusted in 0.1°C increments. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity. Speed is adjusted in increments of 10, from 60 to 500rpm and in increments of 25 from 500 to 1600rpm.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for temperature, speed, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible from outside fume hoods or across lab benches. Shows set-point and actual temperatures. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

### Safety Features:

**Caution hot top indicator:** Hot warning symbol light is illuminated when heat is turned on and remains on until top plate cools down. (for Hotplates or Hotplate-Stirrers)

**Maximum temperature limiting:** Ensures unit will never exceed users programmed set temperature limit, allowing for control of sensitive flash points. (for Hotplates or Hotplate-Stirrers)

**Overshoot protection:** If unit exceeds set temperature by 10°C unit will automatically shut down. (for Hotplates or Hotplate-Stirrers)

**Audible alarm:** In timed mode, alarm will sound when time reaches zero or when unit reaches set-point temperature. (for Hotplates or Hotplate-Stirrers)

**Probe protection:** If probe disengages from sample, unit will automatically shut off heater. (for Hotplates or Hotplate-Stirrers)

**Stir protection:** If stirrer motor stops or fails, unit will automatically shut down heater. (for Hotplate-Stirrers)

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control. (for Stirrers or Hotplate-Stirrers)

### Applications:

Chemical reactions, medicinal chemistry, temperature sensitive samples.



985613 with Ultra Flex Probe Kit



### Specifications

<b>Top Plate Dimensions</b>	<b>7 x 7" (17.8 x 17.8cm)</b>	
<b>Temperature Range</b>	Ceramic	Ambient +5° to 400°C
	Aluminum	Ambient +5° to 400°C
<b>Temperature Stability*</b>	±1%	
<b>Speed Range</b>	60 to 1600rpm	
<b>Speed Stability</b>	±2%	
<b>Timer</b>	1 second to 160 hours	
<b>Maximum Capacity (H<sub>2</sub>O)</b>	2500mL	
<b>Overall Dimensions (L x W x H)</b>	12.1 x 8.5 x 3.75" (30.7 x 21.6 x 9.9cm)	
<b>Shipping Weight</b>	9.5lbs (4.3kg)	

\* Below 100°C ±1°C. Environmental and sample conditions permitting.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor. Stirrers and Hotplate-Stirrers are supplied with a 1.5" (3.8cm) PTFE coated stir bar. Hotplates and Hotplate-Stirrers are supplied with an Ultra Flex Probe Kit which includes an 8" (20.3cm) stainless steel probe, 12" (30.5cm) flex arm, interchangeable 3-prong clamp head, 2-prong clamp head and spring clamp head. Stir bars are available for stirring models on page 65.

**Optional NIST traceable certificate** includes a 3 point NIST traceable calibration. The traceable certificate includes actual calibration measurement data and uncertainty. The calibration laboratory is NVLAP accredited to the ISO/IEC 17025 standard. (for Hotplates and Hotplate-Stirrers)

#### Professional Hotplates

Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
7 x 7" (17.8 x 17.8cm)	P-HP70	Ceramic	120V   7.3 amps   875 watts	985611	\$710.00
7 x 7" (17.8 x 17.8cm)	P-HP70	Ceramic	230V   3.8 amps   875 watts	985614	\$890.00
7 x 7" (17.8 x 17.8cm)	P-HP75	Aluminum	120V   5.2 amps   625 watts	985621	\$837.00
7 x 7" (17.8 x 17.8cm)	P-HP75	Aluminum	230V   2.7 amps   625 watts	985624	\$1,088.00

#### Professional Hotplates with NIST traceable certificate

Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
7 x 7" (17.8 x 17.8cm)	P-HPT70	Ceramic	120V   7.3 amps   875 watts	985651	\$1,024.00
7 x 7" (17.8 x 17.8cm)	P-HPT70	Ceramic	230V   3.8 amps   875 watts	985654	\$1,224.00
7 x 7" (17.8 x 17.8cm)	P-HPT75	Aluminum	120V   5.2 amps   625 watts	985661	\$1,187.00
7 x 7" (17.8 x 17.8cm)	P-HPT75	Aluminum	230V   2.7 amps   625 watts	985664	\$1,437.00

#### Professional Stirrers

Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
7 x 7" (17.8 x 17.8cm)	P-S70	Ceramic	120V   0.5 amps   50 watts	985612	\$718.00
7 x 7" (17.8 x 17.8cm)	P-S70	Ceramic	230V   0.25 amps   50 watts	985615	\$932.00
7 x 7" (17.8 x 17.8cm)	P-S75	Aluminum	120V   0.5 amps   50 watts	985622	\$870.00
7 x 7" (17.8 x 17.8cm)	P-S75	Aluminum	230V   0.25 amps   50 watts	985625	\$1,127.00

#### Professional Hotplate-Stirrers

Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
7 x 7" (17.8 x 17.8cm)	P-HPS70	Ceramic	120V   7.5 amps   900 watts	985613	\$826.00
7 x 7" (17.8 x 17.8cm)	P-HPS70	Ceramic	230V   3.9 amps   900 watts	985616	\$933.00
7 x 7" (17.8 x 17.8cm)	P-HPS75	Aluminum	120V   5.4 amps   650 watts	985623	\$975.00
7 x 7" (17.8 x 17.8cm)	P-HPS75	Aluminum	230V   2.8 amps   650 watts	985626	\$1,100.00

#### Professional Hotplate-Stirrers with NIST traceable certificate

Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
7 x 7" (17.8 x 17.8cm)	P-HPST70	Ceramic	120V   7.5 amps   900 watts	985653	\$1,169.00
7 x 7" (17.8 x 17.8cm)	P-HPST70	Ceramic	230V   3.9 amps   900 watts	985656	\$1,276.00
7 x 7" (17.8 x 17.8cm)	P-HPST75	Aluminum	120V   5.4 amps   650 watts	985663	\$1,333.00
7 x 7" (17.8 x 17.8cm)	P-HPST75	Aluminum	230V   2.8 amps   650 watts	985666	\$1,459.00

#### Temperature Probes (Optional)

Description	Part Number	Price
8" (20.3 cm) Stainless Steel Probe	985692	\$148.00
8" (20.3 cm) PTFE Probe	985693	\$196.00
10" (25.4 cm) Stainless Steel Probe	985694	\$170.00
10" (25.4 cm) PTFE Probe	985695	\$217.00

# HOTPLATES/STIRRERS

## ADVANCED Hotplates, Stirrers, and Hotplate-Stirrers

- **Display for temperature**
- **Low profile, space saving design**
- **Built in memory recalls last set temperature**

Talboys Advanced Hotplates, Stirrers, and Hotplate-Stirrers deliver accurate and repeatable results. Front panel features easy-to-use controls which allow users to dial-in adjustments. Integral support rod holder with locking knob accepts optional Ultra Flex Support Kit or Support Rod and Clamp Kit.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into fume hoods. Spill-resistant housing channels fluids away from internal components. Cast aluminum base offers durability and added stability.

**Ceramic or aluminum top plate:** Ceramic tops feature a chemical resistant, reflective white top plate surface that is easy to clean. Durable aluminum tops will not crack or chip, and provide a more even heating surface.

**Microprocessor control:** Regulates both heating and stirring functions. Samples are heated to temperature quickly and accurately. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity.

**LED display:** Shows set-point temperature. Display is easy-to-read and provides repeatable and accurate results every time.

**Recall last temp:** Built in memory allows users to recall last set temperature, even when unit has been turned off. (for Hotplates or Hotplate-Stirrers)

**Adjustment knobs:** Basic heat knob. Stir control knob has rpm adjustment markings.

### Safety Features:

**Caution hot top indicator:** Hot warning symbol light is illuminated when heat is turned on and remains on until top plate cools down. (for Hotplates or Hotplate-Stirrers)

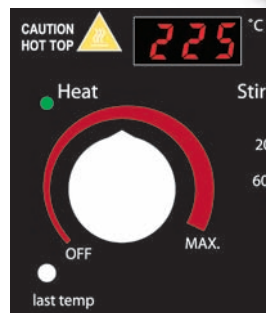
**Overshoot protection:** If unit exceeds set temperature by 10°C unit will automatically shut down. (for Hotplates or Hotplate-Stirrers)

**Stir protection:** If stirrer motor stops or fails, unit will automatically shut down heater. (for Hotplate-Stirrers)

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control. (for Stirrers or Hotplate-Stirrers)

### Applications:

General lab heating and mixing. Dissolving buffers and dehydrated media.



### Specifications

Top Plate Dimensions		4 x 4" (10.2 x 10.2cm)	7 x 7" (17.8 x 17.8cm)
Temperature Range	Ceramic	Ambient +5° to 500°C	Ambient +5° to 500°C
	Aluminum	Ambient +5° to 400°C	Ambient +5° to 400°C
Temperature Stability	Ceramic*	±3%	±3%
	Aluminum*	±2%	±2%
Speed Range		60 to 1600rpm	60 to 1600rpm
Speed Stability		±2%	±2%
Maximum Capacity (H <sub>2</sub> O)		600mL	2500mL
Overall Dimensions (L x W x H)		9.2 x 5.75 x 3.75"	12.1 x 8.5 x 3.75"
		(23.4 x 14.6 x 9.9cm)	(30.7 x 21.6 x 9.9cm)
Shipping Weight		5.6lbs (2.5kg)	8.7lbs (3.9kg)

\* Below 100°C ±2°C. Environmental and sample conditions permitting.

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor. Stirrers and Hotplate-Stirrers are supplied with a 1.5" (3.8cm) PTFE coated stir bar. Stir bars are available for stirring models on page 65.

Advanced Hotplates					
Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
4 x 4" (10.2 x 10.2cm)	A-HP40	Ceramic	120V   1.6 amps   190 watts	985511	\$254.00
4 x 4" (10.2 x 10.2cm)	A-HP40	Ceramic	230V   0.83 amps   190 watts	985514	\$322.00
4 x 4" (10.2 x 10.2cm)	A-HP45	Aluminum	120V   1.7 amps   200 watts	985521	\$253.00
4 x 4" (10.2 x 10.2cm)	A-HP45	Aluminum	230V   0.87 amps   200 watts	985524	\$358.00
7 x 7" (17.8 x 17.8cm)	A-HP70	Ceramic	120V   7.3 amps   875 watts	985531	\$284.00
7 x 7" (17.8 x 17.8cm)	A-HP70	Ceramic	230V   3.8 amps   875 watts	985534	\$337.00
7 x 7" (17.8 x 17.8cm)	A-HP75	Aluminum	120V   5.2 amps   625 watts	985541	\$280.00
7 x 7" (17.8 x 17.8cm)	A-HP75	Aluminum	230V   2.7 amps   625 watts	985544	\$365.00

Advanced Stirrers					
Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
4 x 4" (10.2 x 10.2cm)	A-S40	Ceramic	120V   0.5 amps   50 watts	985412	\$262.00
4 x 4" (10.2 x 10.2cm)	A-S40	Ceramic	230V   0.25 amps   50 watts	985415	\$346.00
4 x 4" (10.2 x 10.2cm)	A-S45	Aluminum	120V   0.5 amps   50 watts	985422	\$296.00
4 x 4" (10.2 x 10.2cm)	A-S45	Aluminum	230V   0.25 amps   50 watts	985425	\$379.00
7 x 7" (17.8 x 17.8cm)	A-S70	Ceramic	120V   0.5 amps   50 watts	985432	\$273.00
7 x 7" (17.8 x 17.8cm)	A-S70	Ceramic	230V   0.25 amps   50 watts	985435	\$376.00
7 x 7" (17.8 x 17.8cm)	A-S75	Aluminum	120V   0.5 amps   50 watts	985442	\$302.00
7 x 7" (17.8 x 17.8cm)	A-S75	Aluminum	230V   0.25 amps   50 watts	985445	\$426.00

Advanced Hotplate-Stirrers					
Dimensions	Model #	Top Plate Material	Electrical (50/60 Hz)	Part Number	Price
4 x 4" (10.2 x 10.2cm)	A-HPS40	Ceramic	120V   2 amps   240 watts	985513	\$388.00
4 x 4" (10.2 x 10.2cm)	A-HPS40	Ceramic	230V   1 amp   240 watts	985516	\$419.00
4 x 4" (10.2 x 10.2cm)	A-HPS45	Aluminum	120V   2 amps   250 watts	985523	\$456.00
4 x 4" (10.2 x 10.2cm)	A-HPS45	Aluminum	230V   1.1 amps   250 watts	985526	\$495.00
7 x 7" (17.8 x 17.8cm)	A-HPS70	Ceramic	120V   7.5 amps   900 watts	985533	\$411.00
7 x 7" (17.8 x 17.8cm)	A-HPS70	Ceramic	230V   3.9 amps   900 watts	985536	\$481.00
7 x 7" (17.8 x 17.8cm)	A-HPS75	Aluminum	120V   5.4 amps   650 watts	985543	\$488.00
7 x 7" (17.8 x 17.8cm)	A-HPS75	Aluminum	230V   2.8 amps   650 watts	985546	\$566.00

# HOTPLATES/STIRRERS

## BASIC Mini Hotplates, Stirrers, and Hotplate-Stirrers

- Ideal for educational labs
- Built in support rod holder

Talboys Basic Mini Hotplates, Stirrers, and Hotplate-Stirrers are rugged, compact units that heat and stir up to 1000mL of liquid. Durable, cast aluminum top plate will not crack or chip, and provides an even heating surface. Bi-metallic thermostat offers reliable temperature control. Powerful heater reaches maximum temperature in only minutes. Powerful motor and magnet deliver reliable and consistent stirring. Compact design saves bench space. Built in support rod holder with locking knob accepts optional Support Rod and Clamp Kit.

Basic Mini Fixed Temperature Hotplate features an illuminated rocker switch to activate the preset fixed temperature of 400°C.

Basic Mini Auto-Stirrer features a micro-switch located under the top plate that is activated by the minimum weight of ~50 grams (1.75oz) and will cease when mixing vessel is removed.

### Operating Features:

**Adjustment knobs:** Basic speed and temperature control knob with 1 to 10 dial markings.

### Applications:

Academia, Chemistry 101



953202



953203

### Specifications

<b>Temperature Range</b>	to 400°C *
<b>Speed Range</b>	100 to 1200rpm
<b>Speed Stability</b>	±2%
<b>Maximum Capacity (H<sub>2</sub>O)</b>	1000mL
<b>Top Plate Material</b>	Aluminum
<b>Top Plate Dimension (diameter)</b>	4.5" (11.4cm)
<b>Overall Dimensions (L x W x H)</b>	6.5 x 5.75 x 4.75" (16.5 x 14.6 x 12.1cm)
<b>Shipping Weight</b>	4.5lbs (2kg)

\* Fixed Temperature Hotplate has a fixed temperature of 400°C.

### Ordering Information

Units include a 72" (183cm), 3-wire cord and plug (230 volt units are supplied with Euro type plug). Stirrers and Hotplate-Stirrers are supplied with a 1.5" (3.8cm) PTFE coated stir bar. 2 year limited warranty on parts and labor. Stir bars are available for stirring models on page 65.

#### Basic Mini Hotplates

Description	Electrical (50/60 Hz)	Part Number	Price
Basic Mini Hotplate	120V   6 amps   565 watts	953201	\$139.00
Basic Mini Hotplate	230V   2.5 amps   430 watts	953205	\$157.00
Basic Mini Fixed Temperature Hotplate	120V   6 amps   565 watts	953203	\$131.00

#### Basic Mini Stirrers

Description	Electrical (50/60 Hz)	Part Number	Price
Basic Mini Stirrer	120V   0.5 amps   20 watts	953200	\$173.00
Basic Mini Stirrer	230V   0.25 amps   20 watts	953204	\$193.00
Basic Mini Auto-Stirrer	120V   0.5 amps   20 watts	953207	\$198.00

#### Basic Mini Hotplate-Stirrers

Description	Electrical (50/60 Hz)	Part Number	Price
Basic Mini Hotplate-Stirrer	120V   6 amps   565 watts	953202	\$282.00
Basic Mini Hotplate-Stirrer	230V   2.5 amps   430 watts	953206	\$330.00





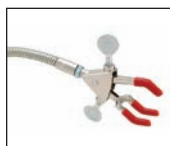
### Ultra Flex Support Kit

Extremely versatile with a unique flex arm that can be placed in virtually every position or angle. Includes 12" (30.5cm) flex arm and interchangeable 3-prong clamp head, 2-prong clamp head and spring clamp head.

Recommended for 7 x 7" Professional and Advanced Hotplates or Hotplate-Stirrers.

Description	Part Number	Price
Ultra Flex Support Kit	985797	\$135.00

Ultra Flex Support Kit Includes:



3-Prong Clamp



2-Prong Clamp



Spring Clamp



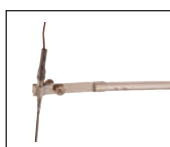
### Support Rod and Clamp Kit

Designed for holding temperature probes, thermometers or other glass tubes. Includes an 18" (45.7cm) aluminum support rod, thermometer/temperature probe extension clamp, 3-prong medium swivel clamp, and hook connector.

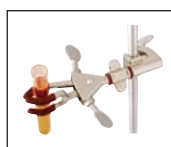
Recommended for Professional, Advanced or Basic Hotplates or Hotplate-Stirrers.

Description	Part Number	Price
Support Rod and Clamp Kit	985690	\$97.00

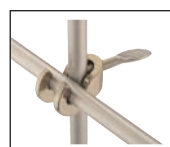
Support Rod and Clamp Kit Includes:



Extension Clamp



3-Prong Swivel Clamp



Hook Connector



### Support Plates

Designed to hold Hotplates/Stirrers and other apparatus to lab-frames or ring stands. Aluminum construction offers strength and durability. Support plates include a non-skid rubber mat and can mount to vertical rods up to 0.75" (1.9cm) diameter.

Small Support Plate recommended for Advanced 4 x 4 or Basic Hotplates, Stirrers or Hotplate-Stirrers.

Medium Support Plate recommended for Professional or Advanced 7 x 7 Hotplates, Stirrers or Hotplate-Stirrers.

Large Support Plate recommended for multiple units.

Size	Dimensions	Part Number	Price
small	9.5 x 6.5" (24.1 x 16.5cm)	916299	\$98.00
medium	12.75 x 9" (32.4 x 22.9cm)	916300	\$158.00
large	15.75 x 12" (40 x 30.5cm)	916302	\$198.00

# HOTPLATES/STIRRERS

## STANDARD & ADVANCED High Volume Stirrers

- **Powerful motor and magnet mix up to 25L of liquid**
- **Large top plate surface**
- **Microprocessor controls**

Talboys Standard and Advanced High Volume Stirrers are designed for large capacity applications. Powerful magnet and motor offer exceptional magnetic coupling force capable of stirring 25L.

### Operating Features:

**Low profile design:** Takes up less space. Spill-resistant housing channels fluids away from internal components. Cast aluminum base offers durability and added stability.

**Glass filled nylon top plate:** Features a chemical resistant, reflective white top plate surface that is easy to clean.

**Large top plate:** Accommodates oversized vessels.

**Microprocessor control:** Precisely regulates speed through the entire range. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity.

**Adjustment knob:** Basic speed control knob with 1 to 10 dial markings. (Standard Series)

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time. Speed is adjustable in 10rpm increments. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. (Advanced Series)

### Safety Features:

**Audible alarm:** In timed mode, alarm will sound when time reaches zero. (Advanced Series)

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control.

### Applications:

Carboys, chromatography, and large volume sample stirring.



### Specifications

<b>Speed Range</b>	60 to 1400rpm
<b>Speed Stability</b>	±2%
<b>Timer (Advanced Series)</b>	1 second to 160 hours
<b>Maximum H<sub>2</sub>O Capacity</b>	25L
<b>Maximum Vessel Diameter</b>	63.5" (25cm)
<b>Top Plate Material</b>	Glass Filled Nylon
<b>Top Plate Dimensions (L x W)</b>	12.5 x 11" (31.8 x 27.9cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 9.7cm)
<b>Ship Weight</b>	14.6lbs (6.6kg)

## Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with a 2.75" (7cm) PTFE coated stir bar. 2 year limited warranty on parts and labor. Stir bars are available on page 65.

### Standard High Volume Stirrer

Description	Electrical (50/60 Hz)	Positions	Part Number	Price
Standard High Volume Stirrer	120V   1.3 amps   75 watts	1	986366	\$604.00
Standard High Volume Stirrer	230V   0.65 amps   75 watts	1	986367	\$663.00

### Advanced High Volume Stirrer

Description	Electrical (50/60 Hz)	Positions	Part Number	Price
Advanced High Volume Stirrer	120V   1.3 amps   75 watts	1	986368	\$688.00
Advanced High Volume Stirrer	230V   0.65 amps   75 watts	1	986369	\$758.00

- **Displays for speed and time**
- **Durable, stainless steel construction**
- **Mixes up to 200L**



Talboys Advanced Model 1000 and Model 2000 Large Capacity Stirrers are ideal for high volume applications. The powerful magnetic drive is capable of mixing high viscosity materials. Stainless steel base offers durability and added stability.

**Operating Features:**

**Microprocessor control:** Precisely regulates speed through the entire range. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity.

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero.

**Recall last temp:** Built-in memory allows users to recall last set-points, even when unit has been turned off.

**Safety Features:**

**Audible alarm:** In timed mode, alarm will sound when time reaches zero.

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control.

**Applications:**

Mixing viscous materials, polymers, and pilot scale.



**Specifications**

<b>Speed Range</b>	100 to 1800rpm (increased in 10rpm increments)
<b>Speed Stability</b>	±2%
<b>Timer</b>	1 second to 160 hours
<b>Maximum H<sub>2</sub>O Capacity, Model 1000</b>	100L
<b>Model 2000</b>	200L
<b>Maximum Weight Capacity</b>	425lbs (193kg)
<b>Top Plate Material</b>	304 stainless steel
<b>Top Plate Dimensions (L x W)</b>	25 x 21.25" (63.5 x 54cm)
<b>Overall Dimensions (L x W x H)</b>	26.75 x 28.5 x 5.25" (68 x 72.4 x 13.3cm)
<b>Ship Weight</b>	63lbs (28.6kg)

**Ordering Information**

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Model 1000 units are supplied with a 2.75" (7cm) egg shaped PTFE coated stir bar, Model 2000 units are supplied with a 4" (10.2cm) PTFE coated stir bar with a pivot ring. 2 year limited warranty on parts and labor. Stir bars are available on page 65.

<b>Advanced Large Capacity Stirrer</b>			
<b>Description</b>	<b>Electrical (50/60 Hz)</b>	<b>Part Number</b>	<b>Price</b>
Advanced Large Capacity Stirrer, 100L	120V   1 amp   41 watts	986370	\$1,946.00
Advanced Large Capacity Stirrer, 100L	230V   0.5 amps   41 watts	986371	\$2,162.00
Advanced Large Capacity Stirrer, 200L	120V   1 amp   82 watts	986372	\$2,883.00
Advanced Large Capacity Stirrer, 200L	230V   0.5 amps   82 watts	986373	\$3,089.00

# HOTPLATES/STIRRERS

## STANDARD & ADVANCED Multi-Position Stirrers

- **Stirs up to 9 vessels at once**
- **Synchronized and uniform mixing**
- **Low profile design**

Talboys Standard and Advanced Multi-Position Stirrers are powerful magnetic stirrers with precise speed control that offers repeatable performance. Synchronized operation ensures uniform mixing at each position.

### **Operating Features:**

**Low profile design:** Takes up less space. Spill-resistant housing channels fluids away from internal components. Cast aluminum base offers durability and added stability.

**Glass filled nylon top plate:** Features a chemical resistant, reflective white top plate surface that is easy to clean.

**Large top plate:** Stirs up to 9 vessels at once with helpful position indicators.

**Microprocessor control:** Precisely regulates speed through the entire range. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity.

**Adjustment knob:** Basic speed control knob with 1 to 10 dial markings. (Standard Series)

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time. Speed is adjustable in 10rpm increments. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. (Advanced Series)

### **Safety Features:**

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control.

**Audible alarm:** In timed mode, alarm will sound when time reaches zero. (Advanced Series)

### **Applications:**

Dissolution studies, media/reagent preparations, and titration studies.



986364



986350

### **Specifications**

<b>Speed Range</b>	60 to 1400rpm
<b>Speed Stability</b>	±2%
<b>Timer (Advanced Series)</b>	1 second to 160 hours
<b>Top Plate Material</b>	Glass Filled Nylon
<b>Top Plate Dimensions (L x W)</b>	12.5 x 11" (31.8 x 27.9cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 9.7cm)
<b>Ship Weight</b>	14.75lbs (6.7kg)



### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). Units are also supplied with a 1" (2.5cm) PTFE coated stir bar for each position. 2 year limited warranty on parts and labor. Stir bars are available on page 65.

Standard Multi-Position Stirrers							
Description	Electrical (50/60 Hz)	Positions	Maximum Capacity (H2O)	Maximum Vessel Diameter	Part Number	Price	
Standard Multi-Position Stirrer 4	120V   1.3 amps   85 watts	4	1L	5.1" (13cm)	986350	\$774.00	
Standard Multi-Position Stirrer 4	230V   0.65 amps   85 watts	4	1L	5.1" (13cm)	986351	\$852.00	
Standard Multi-Position Stirrer 5	120V   1.3 amps   85 watts	5	600mL	3.75" (9.5cm)	986354	\$900.00	
Standard Multi-Position Stirrer 5	230V   0.65 amps   85 watts	5	600mL	3.75" (9.5cm)	986355	\$1,034.00	
Standard Multi-Position Stirrer 6	120V   1.3 amps   85 watts	6	400mL	3.2" (8cm)	986358	\$954.00	
Standard Multi-Position Stirrer 6	230V   0.65 amps   85 watts	6	400mL	3.2" (8cm)	986359	\$1,096.00	
Standard Multi-Position Stirrer 9	120V   1.3 amps   85 watts	9	250mL	3" (7.5cm)	986362	\$1,166.00	
Standard Multi-Position Stirrer 9	230V   0.65 amps   85 watts	9	250mL	3" (7.5cm)	986363	\$1,340.00	

Advanced Multi-Position Stirrers							
Description	Electrical (50/60 Hz)	Positions	Maximum Capacity (H2O)	Maximum Vessel Diameter	Part Number	Price	
Advanced Multi-Position Stirrer 4	120V   1.3 amps   85 watts	4	1L	5.1" (13cm)	986352	\$1,006.00	
Advanced Multi-Position Stirrer 4	230V   0.65 amps   85 watts	4	1L	5.1" (13cm)	986353	\$1,162.00	
Advanced Multi-Position Stirrer 5	120V   1.3 amps   85 watts	5	600mL	3.75" (9.5cm)	986356	\$1,218.00	
Advanced Multi-Position Stirrer 5	230V   0.65 amps   85 watts	5	600mL	3.75" (9.5cm)	986357	\$1,402.00	
Advanced Multi-Position Stirrer 6	120V   1.3 amps   85 watts	6	400mL	3.2" (8cm)	986360	\$1,294.00	
Advanced Multi-Position Stirrer 6	230V   0.65 amps   85 watts	6	400mL	3.2" (8cm)	986361	\$1,486.00	
Advanced Multi-Position Stirrer 9	120V   1.3 amps   85 watts	9	250mL	3" (7.5cm)	986364	\$1,580.00	
Advanced Multi-Position Stirrer 9	230V   0.65 amps   85 watts	9	250mL	3" (7.5cm)	986365	\$1,816.00	



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# HOTPLATES/STIRRERS

## STANDARD & ADVANCED Slow Speed Stirrers

- **Ideal for cell culture applications**
- **Slow start/stop feature**
- **Efficient drive motor eliminates heat transfer to sample**



Talboys Standard and Advanced Slow Speed Stirrers are designed for growth of suspension and micro-carrier cell cultures. Slow Speed Stirrers work with cell culture flasks and other vessels designed for slow magnetic stirring. Ideal for use in cold rooms, incubators, or CO<sub>2</sub> incubators (-10°C to 60°C), 80% relative humidity, non condensing environment.

### Operating Features:

**Low profile design:** Takes up less space and easily fits into fume hoods and most incubators. Spill-resistant housing channels fluids away from internal components. Cast aluminum base offers durability and added stability.

**Glass filled nylon top plate:** Features a chemical resistant, reflective white top plate surface that is easy to clean. (4 position and 10L models)

**Aluminum top plate:** Durable aluminum top will not crack or chip. (1 position models)

**Large top plate:** Stirs up to 4 vessels at once with helpful position indicators.

**Microprocessor control:** Precisely regulates speed through the entire range. Stirring function, with continuous duty motor and magnet, maintains set speed even under changing load or viscosity.

**Adjustment knob:** Basic speed control knob with 1 to 10 dial markings. (Standard Series)

**LED display:** Touch pad controls with easy-to-read, independent LED displays for speed and time. Speed is adjustable in 1rpm increments. Timer will display elapsed time or when programmed to user defined limit, will shut off unit when time reaches zero. (Advanced Series)

### Safety Features:

**Ramping feature:** Slowly increases speed for improved safety and enhanced coupling. Avoids splashing, improves spin bar control and provides excellent low speed control. Efficient drive motor eliminates heat transfer to sample.

**Audible alarm:** In timed mode, alarm will sound when time reaches zero. (Advanced Series)

### Operating Conditions:

Units can be run in cold rooms, incubators, and CO<sub>2</sub> environments from -10 to 60°C (14 to 140°F).

### Applications:

Uniform suspensions of cell cultures, hybridomas, or any slow controlled stirring.



986374



986382

### Specifications

	4 Position/10L	1 Position
<b>Speed Range</b>	1 to 150rpm	1 to 150rpm
<b>Timer (Advanced Series)</b>	1 second to 160 hours	1 second to 160 hours
<b>Top Plate Material</b>	Glass Filled Nylon	Aluminum
<b>Top Plate Dimensions (L x W)</b>	12.5 x 11" (31.8 x 27.9cm)	7 x 7" (17.8 x 17.8cm)
<b>Overall Dimensions (L x W x H)</b>	17 x 11 x 4" (43.2 x 27.9 x 9.7cm)	12.1 x 8.5 x 4" (30.7 x 21.6 x 9.9cm)
<b>Ship Weight</b>	14.5lbs (6.6kg)	8.8lbs (4kg)

### Ordering Information

Units include a 92" (234cm) detachable, 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.

Standard Slow Speed Stirrers						
Description	Electrical (50/60 Hz)	Positions	Maximum Capacity (H2O)	Maximum Vessel Diameter	Part Number	Price
Standard Slow Speed Stirrer 1	120V   0.14 amps   7.2 watts	1	2L	5.9" (15cm)	986374	\$667.00
Standard Slow Speed Stirrer 1	230V   0.14 amps   14.4 watts	1	2L	5.9" (15cm)	986375	\$734.00
Standard Slow Speed Stirrer 4	120V   0.14 amps   7.2 watts	4	1L	5.1" (13cm)	986380	\$1,226.00
Standard Slow Speed Stirrer 4	230V   0.14 amps   14.4 watts	4	1L	5.1" (13cm)	986381	\$1,338.00

Advanced Slow Speed Stirrers						
Description	Electrical (50/60 Hz)	Positions	Maximum Capacity (H2O)	Maximum Vessel Diameter	Part Number	Price
Advanced Slow Speed Stirrer 1	120V   0.14 amps   7.2 watts	1	2L	5.9" (15cm)	986376	\$848.00
Advanced Slow Speed Stirrer 1	230V   0.14 amps   14.4 watts	1	2L	5.9" (15cm)	986377	\$912.00
Advanced Slow Speed Stirrer 4	120V   0.14 amps   7.2 watts	4	1L	5.1" (13cm)	986382	\$1,540.00
Advanced Slow Speed Stirrer 4	230V   0.14 amps   14.4 watts	4	1L	5.1" (13cm)	986383	\$1,689.00
Advanced Slow Speed Stirrer 10L	120V   0.14 amps   7.2 watts	1	10L	9.8" (25cm)	986378	\$1,165.00
Advanced Slow Speed Stirrer 10L	230V   0.14 amps   14.4 watts	1	10L	9.8" (25cm)	986379	\$1,282.00

### Submersible Stirrer

- **Mixes up to 1500mL of water; easily stirs 100% glycerol at 20°C**
- **Safe, low voltage DC operation**
- **Electronic speed control**
- **60 to 2000rpm stirring range**

Compact, submersible magnetic stirrer is housed in a sealed, nickel-plated brass case mounted on a solid brass base. A 38" (96.5cm) cable connects the power supply to the stirring unit. Stirrer operates on low voltage DC and is safety fused on DC side for safe operation underwater. Unit is easily mounted to rod supports or laboratory frames with standard mounting bracket on rear of power supply. Can also be used as a mini-stirrer in lattice work.

Specifications	
Speed Range	60 to 2000rpm
Maximum Capacity	150mL
Power	20 Watts
Dimensions, Stirrer	2.75D x 2.75 H" (7 x 7cm)
Dimensions, Power Supply	5L x 4W x 3.5H" (12.7 x 10.2 x 8.9cm)
Ship Weight	2lbs (.9kg)

Submersible Stirrer			
Description	Electrical (50/60 Hz)	Part Number	Price
Model 700 Submersible Stirrer	120V   0.16 amps	952021	\$438.00

### Stir Bars

PTFE coated stir bar.

Stir Bars				
Description	Size	Recommended for Unit	Part Number	Price
Stir bar	1" (3.8cm)	Multi-Position Stirrers	985670	\$5.75
Stir bar	1.5" (3.8cm)	Basic Stirrers, Hotplate-Stirrers, Professional & Advanced Stirrers, Hotplate-Stirrers	985671	\$6.75
Stir bar egg shaped	2.75" (7cm)	High Volume Stirrers, Model 1000 Large Capacity Stirrer	985672	\$29.00
Stir bar with pivot ring	4" (10.2cm)	Model 2000 Large Capacity Stirrer	985673	\$55.00
Replacement pivot ring for 4" (10.2cm) stir bar			985674	\$7.25

# OVERHEAD MIXERS

## Overhead Mixers Selection Guide



Model	101	102	105	103	103A	103X
Horsepower of Motor	1/75	1/75	1/80	1/12	1/12	1/12
Type of Speed Control	Electronic	Electronic	N/A - On/Off Switch	Electronic	Electronic	N/A - On/Off Switch
Number of Output Shafts	1	2	1	1	1	1
Speed Range, Direct Drive	500 to 7500rpm	500 to 7500rpm	1550rpm	1000 to 7500rpm	1000 to 7500rpm	7500rpm
10:1	N/A	50 to 750rpm	N/A	N/A	N/A	N/A
60:1	N/A	N/A	N/A	N/A	N/A	N/A
Torque, Direct Drive	0.15 in-lbs	0.15 in-lbs	0.5 in-lbs	0.7 in-lbs	0.7 in-lbs	0.7 in-lbs
10:1	N/A	1 in-lbs	N/A	N/A	N/A	N/A
60:1	N/A	N/A	N/A	N/A	N/A	N/A
Electrical Specifications, Volts	120 AC	120 AC	120 AC	120 AC	120 AC	120 AC
Amps	0.33	0.33	0.77	1.3	1.3	1.3
Overall Usage Rating	Light	Light	Light	Light-Medium	Light-Medium	Light-Medium
Type of Chuck	Collet, Model 192	Collet Model 193	Collet, Model 192	Collet Model 193	Collet Model 193	Collet Model 193
Recommended Paddles	150, 153A, 155, 165	151, 153B, 156, 161, 166	150, 153A, 155, 165	151, 153B	151, 153B	151, 153B



Model	134-2	138	4136	409
Horsepower of Motor	1/18	1/8	1/6	1/4
Type of Speed Control	Transi-Stir	Transi-Stir	Transi-Stir	Transi-Stir
Number of Output Shafts	3	2	2	1
Speed Range, Direct Drive	500 to 7500rpm	500 to 7500rpm	1000 to 5000rpm	50 to 500rpm
10:1	50 to 750rpm	50 to 750rpm	100 to 500rpm	N/A
60:1	10 to 125rpm	N/A	N/A	N/A
Torque, Direct Drive	0.5 in-lbs	1.2 in-lbs	1.5 in-lbs	25 in-lbs
10:1	4.7 in-lbs	12 in-lbs	15 in-lbs	N/A
60:1	15 in-lbs	N/A	N/A	N/A
Electrical Specifications, Volts	120 AC	120 AC	120 AC	120 AC
Amps	1.1	2.2	2.5	1.8
Overall Usage Rating	Medium-Heavy	Heavy	Heavy	Heavy
Type of Chuck	Adjustable, Model 191D	Collet, Model 193 & Adjustable, Model 191D	Collet, Model 193 & Adjustable, Model 191D	Adjustable, Model 191L
Recommended Paddles	All	All	All	All

### Three components that make up an Overhead Mixer system:

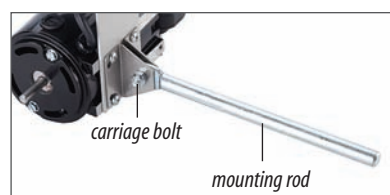
#### 1. Motor Unit



#### 2. Mixing Paddle



#### 3. Support Stand and Holder



All mixers include an 8" (20.3cm) **mounting rod with carriage bolt** and wrench for mounting motor to support stands, except the model 409 (429) mixer that only includes an 8" (20.3cm) mounting rod. An additional holder is required to attach the motor's mounting rod to a support stand. Support stands and holders sold separately.



133	104	104A	104X	107	107SC	134-1
1/12	1/18	1/18	1/18	1/30	1/30	1/18
Transi-Stir	Electronic	Electronic	N/A - On/Off switch	N/A - On/Off switch	Electronic	Transi-Stir
1	2	2	2	1	1	2
500 to 750rpm N/A N/A	1000 to 750rpm 100 to 750rpm N/A	1000 to 750rpm 100 to 750rpm N/A	7500rpm 750rpm N/A	1600rpm N/A N/A	100 to 1600rpm N/A N/A	500 to 750rpm 50 to 750rpm N/A
0.7 in-lbs N/A N/A	0.5 in-lbs 4.7 in-lbs N/A	0.5 in-lbs 4.7 in-lbs N/A	0.5 in-lbs 4.7 in-lbs N/A	1.3 in-lbs N/A N/A	1.3 in-lbs N/A N/A	0.5 in-lbs 4.7 in-lbs N/A
120 AC 1.3	120 AC 1.1	120 AC 1.1	120 AC 1.1	120 AC 1.2	120 AC 1.2	120 AC 1.1
Light-Medium	Light-Medium	Light-Medium	Light-Medium	Medium	Medium	Medium
Collet, Model 193	Collet, Model 193	Collet, Model 193	Collet, Model 193	Collet, Model 193	Collet, Model 193	Adjustable, Model 191D
151, 153B	All 5/16" Accessory Shafts *	All 5/16" Accessory Shafts *	All 5/16" Accessory Shafts *	151, 152, 153B, 156, 166	151, 152, 153B, 156, 166	All

\* Be sure the accessory shaft is 5/16" in diameter to fit Model 193 Collet Chuck.

### How to Select an Overhead Mixer

Review the following information to help you select the appropriate motor and accessories for your unique applications.

#### Paddle Selection

- Viscosity of the sample
- Volume of the sample
- Size and shape of mixing vessel and vessel opening
- Speed needed to achieve proper mixing
- Paddle depth for effective mixing
- Paddle material: stainless steel, PTFE, or glass; may be dependent on the nature of the material being mixed
- Fluid flow: axial, radial

#### Motor Selection

- Mixing speed
- Viscosity
- Duty Rating:
  - Light Duty:
    - Ideal for low viscosity materials
    - Volumes under 10 gallons
  - Medium Duty:
    - Multi-purpose units designed for various mixing tasks
    - Gear reduction shaft provides more torque for higher viscosity mixing
    - Direct drive shaft is ideal for lower viscosity and high speed mixing
  - Heavy Duty:
    - Designed for high viscosity applications or large batch mixing
    - Gear reduction provides the torque required for more difficult mixing applications

#### Speed Control

- Basic:
  - Provides variable speed control throughout the entire speed range
  - Available top mounted or remotely attached
- Standard:
  - Provides stepless, variable speed control
  - Maintains set speed even under changing viscosity or load

#### Support Stands and Holders

- Support stands are not included with motors
- Available in a variety of lengths
- Standard Holder supports the supplied rod for mounting most mixers
- Heavy-Duty Holder accommodates a wider range of sizes and is sturdier thus decreasing vibration

#### Chucks

- Adjustable Jacobs style:
  - Not recommended for high speed mixing
- Precision Collet style:
  - Used when motor shaft and accessory shaft are the same diameter
  - Recommended when running at higher speeds
- Glass Rod:
  - Required chuck when using glass mixing rods
  - Designed to eliminate wobble and vibration common with glass mixing rods
  - Nylon inserts help maintain the integrity of glass mixing rods



# OVERHEAD MIXERS

## Light Duty Mixers

- General purpose mixers
- Economical, compact, and durable
- Up to 7500rpm

For low viscosity mixing. These light duty mixers offer low torque for general purpose mixing and have a continuous duty rating. Mixers include collet chuck and 8" (20.3cm) mounting rod with carriage bolt and wrench for mounting motor to support stands. **Support stands and holders sold separately.**



**Model 101**

- Top mounted Basic Speed Control
- Compact and economical for light duty mixing
- Offers a single shaft, direct drive motor
- Mixes up to five gallons of water



**Model 102**

- Top mounted Basic Speed Control
- Provides increased torque with 10:1 gear reduction
- Offers the capability of two mixing shafts for multiple applications and added versatility
- Mixes up to two gallons of light weight oils



**Model 105**

- Economic, light duty batch mixer without speed control offers a fixed speed of 1550rpm.
- An internal overload feature shuts down motor when it becomes too hot.
- Mixes five gallons of water.
- Adjusta-Speed Control (part number 115) upgrade available for this model (Sold separately)

### Specifications

Model	101	102	105
Horsepower	1/75	1/75	1/80
Speed Range, Direct Drive	500 to 7500rpm	500 to 7500rpm	1550rpm
10:1	N/A	50 to 750rpm	N/A
Torque, Direct Drive	0.15 in-lbs	0.15 in-lbs	0.5 in-lbs
10:1	N/A	1 in-lbs	N/A
Electrical	120 volt, 0.33 amps	120 volt, 0.33 amps	120 volt, 0.77 amps
Shaft Size	1/4" (6.4mm)	5/16" (7.9mm)	1/4" (6.4mm)
Chuck Type	Collet	Collet	Collet
Overall Dimensions (L x W x H)	5 x 4.5 x 8" (12.7 x 11.4 x 20.3cm)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)	5 x 4.5 x 4" (12.7 x 11.4 x 10.2cm)
Ship Weight	4.6lbs (2.1kg)	5.1lbs (2.3kg)	4.6lbs (2.1kg)
Part Number	101	102	105
Price	\$317.00	\$440.00	\$220.00

- **Ideal for high speed dispersion up to 7500rpm**
- **Direct drive**
- **Continuous duty**

Compact design for low torque, high speed mixing. Perfect units for low viscosity mixing. Each is configured with different speed control options. Mixers include collet chuck and 8" (20.3cm) mounting rod with carriage bolt and wrench for mounting motor to support stands. **Support stands and holders sold separately.**



**Model 103**

- Table mounted Basic Speed Control
- The speed control is remotely attached by a 42" (107cm) cord
- This control can be placed on a counter top or shelf close to the stirring apparatus

Recommended accessory shafts:  
151, 153B



**Model 103A**

- Top mounted Basic Speed Control
- Compact, sturdy design

Recommended accessory shafts:  
151, 153B



**Model 103X**

- An economical 7500 rpm fixed speed mixer
- Powered with an on/off switch
- Adjusta-Speed Control (part number 115) upgrade available for this model (Sold separately)

Recommended accessory shafts:  
151, 153B



**Model 133**

- Top mounted Standard Speed Control
- The perfect mixer for emulsions that require high speeds and more torque
- Maintains constant speed even when viscosity changes

Recommended accessory shafts:  
151, 153B

Specifications				
Model	103	103A	103X	133
Horsepower	1/12	1/12	1/12	1/12
Speed Range, Direct Drive	1000 to 7500rpm	1000 to 7500rpm	7500rpm	500 to 7500rpm
10:1	N/A	N/A	N/A	N/A
Torque, Direct Drive	0.7 in-lbs	0.7 in-lbs	0.7 in-lbs	0.7 in-lbs
10:1	N/A	N/A	N/A	N/A
Electrical	120 volt, 1.3 amps	120 volt, 1.3 amps	120 volt, 1.3 amps	120 volt, 1.3 amps
Shaft Size	5/16" (7.9mm)	5/16" (7.9mm)	5/16" (7.9mm)	5/16" (7.9mm)
Chuck Type	Collet	Collet	Collet	Collet
Overall Dimensions (L x W x H)	5 x 4.4 x 8" (12.7 x 11.2 x 20.3cm)	5 x 4.4 x 8" (12.7 x 11.2 x 20.3cm)	5 x 4.4 x 8" (12.7 x 11.2 x 20.3cm)	5 x 4.4 x 8" (12.7 x 11.2 x 20.3cm)
Ship Weight	4.6lbs (2.1kg)	4.6lbs (2.1kg)	4.6 lbs (2.1kg)	4.6lbs (2.1kg)
Part Number	103	103A	103X	133
Price	\$425.00	\$409.00	\$333.00	\$500.00

# OVERHEAD MIXERS

## Medium Duty Mixers

- Durable and rugged multi-purpose mixers
- Wide range of speeds
- Moderate torque

The 104 models are medium duty, multi-purpose mixers that offer more power. All of these units offer two mixing shafts for versatility. The high speed drive shaft mixes emulsions. The low speed drive shaft handles high viscosity mixing. Mixers include collet chuck and 8" (20.3cm) mounting rod with carriage bolt wrench for mounting motor to support stands. **Support stands and holders sold separately.**



**Model 104**

- Table mounted Basic Speed Control
- The speed control is remotely attached by a 42" (107cm) cord
- Dual shafts add versatility



**Model 104A**

- Top mounted Basic Speed Control
- Compact design saves space
- Dual shafts add versatility



**Model 104X**

- Economic dual shaft mixer without speed control
- Outfitted with an on/off switch
- Speeds of 7500 or 750rpm
- Adjusta-Speed Control (part number 115) upgrade available for this model (Sold separately)

### Specifications

Model	104	104A	104X
Horsepower	1/18	1/18	1/18
Speed Range, Direct Drive	1000 to 7500rpm	1000 to 7500rpm	7500rpm
10:1	100 to 750rpm	100 to 750rpm	750rpm
Torque, Direct Drive	0.5 in-lbs	0.5 in-lbs	0.5 in-lbs
10:1	4.7 in-lbs	4.7 in-lbs	4.7 in-lbs
Electrical	120 volt, 1.1 amps	120 volt, 1.1 amps	120 volt, 1.1 amps
Shaft Size	5/16" (7.9mm)	5/16" (7.9mm)	5/16" (7.9mm)
Chuck Type	Collet	Collet	Collet
Overall Dimensions (L x W x H)	6.5 x 8.5 x 4" (16.5 x 21.6 x 10.2cm)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)	6.5 x 8.5 x 4" (16.5 x 21.6 x 10.2cm)
Ship Weight	5.1lbs (2.3kg)	5.1lbs (2.3kg)	5.1lbs (2.3kg)
Part Number	104	104A	104X
Price	\$645.00	\$619.00	\$504.00

- Direct drive
- Brushless motors
- Fan cooled

The 107 models are comprised of a single shaft construction to maintain quiet mixing. This product line mixes large amounts of low viscous solutions when equipped with two Model 152A propellers. Both models have a continuous duty rating. Mixers include collet chuck and 8" (20.3cm) mounting rod with carriage bolt and wrench for mounting motor to support stands. **Support stands and holders sold separately.**



### Model 107

- An economical mixer with a fixed speed of 1600rpm
- Utilizes an on/off switch
- Ideal for batch mixing
- Adjusta-Speed Control (part number 115) upgrade available for this model (Sold separately)



### Model 107SC

- Table mounted Basic Speed Control
- The speed control is remotely attached by a 42" (107cm) cord
- Offers a variable speed option
- Useful for working under a fume hood

Recommended accessory shafts:  
151, 152, 153B, 156, 166

Recommended accessory shafts:  
151, 152, 153B, 156, 166

Specifications		
Model	107	107SC
Horsepower	1/30	1/30
Speed Range, Direct Drive	1600rpm	100 to 1600rpm
10:1	N/A	N/A
Torque, Direct Drive	1.3 in-lbs	1.3 in-lbs
10:1	N/A	N/A
Electrical	120 volt, 1.2 amps	120 volt, 1.2 amps
Shaft Size	5/16" (7.9mm)	5/16" (7.9mm)
Chuck Type	Collet	Collet
Overall Dimensions (L x W x H)	5.5 x 5.5 x 4" (13.4 x 13.4 x 10.2cm)	5.5 x 5.5 x 4" (13.4 x 13.4 x 10.2cm)
Ship Weight	4.6lbs (2.1kg)	4.6lbs (2.1kg)
Part Number	107	107SC
Price	\$301.00	\$409.00

**Propeller shafts, paddles and blades are sold separately. See pages, 76-80 for options.**

# OVERHEAD MIXERS

## Heavy Duty Mixers

- **Durable and rugged, extremely versatile high viscosity mixers**
- **High torque**
- **Maintains constant speed**

This product line offers the power and versatility required for viscous mixing. Heavy Duty Mixers offer higher horsepower and greater torque over available speed ranges for difficult mixing jobs. Each mixer maintains constant speed even when the viscosity changes. Mixers are fitted with an adjustable Jacobs style chuck that accepts any accessory shaft. Mixers include adjustable chuck and 8" (20.3cm) mounting rod with carriage bolt and wrench for mounting motor to support stands. **Support stands and holders sold separately.**



### Model 134-1

- Top mounted Standard Speed Control
- Heavy duty power at an economical price
- Offers higher torque over a wide speed range
- Perfect for mixing emulsions that require high speed and torque
- Mixes light oils at speeds of 50 to 750rpm

### Model 134-2

- Top mounted Standard Speed Control
- Features a unique triple shaft design
- Extremely powerful and versatile
- Offers high torque for slow speed mixing
- Mixes small quantities of high viscosity materials

#### Recommended Accessory Shafts:

All

#### Recommended Accessory Shafts:

All

### Specifications

Model	134-1	134-2
Horsepower	1/18	1/18
Speed Range, Direct Drive	500 to 7500rpm	500 to 7500rpm
10:1	50 to 750rpm	50 to 750rpm
60:1	N/A	10 to 125rpm
Torque, Direct Drive	0.5 in-lbs	0.5 in-lbs
10:1	4.7 in-lbs	4.7 in-lbs
60:1	N/A	15 in-lbs
Electrical	120 volt, 1.1 amps	120 volt, 1.1 amps
Shaft Size	5/16" (7.9mm)	5/16" (7.9mm)
Chuck Type	Adjustable	Adjustable
Overall Dimensions (L x W x H)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)
Ship Weight	5.1lbs (2.3kg)	5.1lbs (2.3kg)
Part Number	134-1	134-2
Price	\$709.00	\$806.00



- **Powerful permanent magnet gear motors**
- **Maintains constant speed**
- **High torque**

Powerful DC permanent magnet motors deliver power and reliability for high viscosity mixing. Each mixer maintains constant speed even when the viscosity changes. The mixers are fitted with an adjustable Jacobs style chuck that accepts any accessory shaft. Model 138 (238) and 4136 mixers include collet and adjustable chucks and 8" (20.3cm) mounting rod with carriage bolt and wrench for mounting motor to support stands. The model 409 (429) mixer includes adjustable chuck and 8" (20.3cm) mounting rod for mounting motor to support stands. **Support stands and holders sold separately.**



**Model 138 (238)**

- Top mounted Standard Speed Control
- This dual shaft mixer offers high torque at all speeds
- Dual shafts add versatility
- Features a permanent magnet and high output motor



**Model 4136**

- Top mounted Standard Speed Control
- Ideal for difficult applications
- This dual shaft mixer contains multiple speed ranges with excellent torque
- Features a permanent magnet and high output motor
- Mixes high viscous materials like oils, grease, and gels



**Model 409 (429)**

- Top mounted Standard Speed Control
- The powerhouse of Overhead Mixers
- This single shaft mixer creates maximum torque
- Features permanent magnet and high output motor
- The perfect unit for mixing tar and epoxy-like materials

<b>Specifications</b>			
<b>Model</b>	<b>138</b>	<b>4136</b>	<b>409</b>
<b>Horsepower</b>	1/8	1/6	1/4
<b>Speed Range, Direct Drive</b>	500 to 7500rpm	1000 to 5000rpm	50 to 500rpm
<b>10:1</b>	50 to 750rpm	100 to 500rpm	N/A
<b>Torque, Direct Drive</b>	1.2 in-lbs	1.5 in-lbs	25 in-lbs
<b>10:1</b>	12 in-lbs	15 in-lbs	N/A
<b>Electrical</b>	120 volt, 2.2 amps	120 volt, 2.5 amps	120 volt, 1.8 amps
	230 volt, 2.2 amps	N/A	230 volt, 1.8 amps
<b>Shaft Size</b>	5/16" (7.9mm)	5/16" (7.9mm)	3/4" (19mm)
<b>Chuck Type</b>	Collet and Adjustable	Collet and Adjustable	Adjustable
<b>Overall Dimensions (L x W x H)</b>	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)	6.5 x 8.5 x 7" (16.5 x 21.6 x 17.8cm)
<b>Ship Weight</b>	6.3lbs (2.9kg)	6.3lbs (2.9kg)	5.1lbs (2.3kg)
<b>Part Number</b>	138 (120V) 238 (230V)	4136 N/A	409 (120V) 429 (230V)
<b>Price</b>	\$888.00 (120V) \$946.00 (230V)	\$910.00 N/A	\$1,280.00 (120V) \$1,442.00 (230V)

# OVERHEAD MIXERS

## Chucks / Holders



### Collet Chuck

This precision collet type chuck is used when the motor shaft and accessory shaft are the same diameter

- The precision collet chuck is true running and is the preferred choice when running at high speeds
- Made of stainless steel

Description	Part Number	Price
Fits 1/4" (6.4mm) diameter motor shafts	192	\$58.00
Fits 5/16" (7.9mm) diameter motor shafts	193	\$58.00



### Adjustable Chuck

- These products should be ordered based upon the diameter of the motor shaft you are using
- Each adjustable Jacobs style chuck can accommodate accessory shafts from 1/16" to 3/8" diameter
- Includes chuck key

Description	Part Number	Price
Fits 1/4" (6.4mm) diameter motor shafts	191C	\$73.00
Fits 5/16" (7.9mm) diameter motor shafts	191D	\$73.00
Fits 3/4" (19mm) diameter motor shafts	191L	\$218.00



### Glass Rod Chuck

This aluminum chuck holds glass mixing rods

- Eliminates wobbling and vibration problems associated with glass mixing rods
- Accepts 1/4", 5/16", or 3/8" diameter motor shafts
- Equipped with nylon inserts needed for 0.24", 0.31" and 0.39" diameter mixing rods

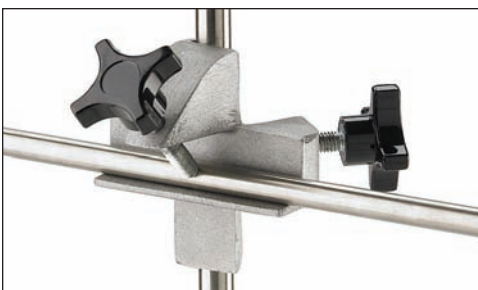
Description	Part Number	Price
Fits 1/4" (6.4mm) diameter motor shafts	199A	\$83.00
Fits 5/16" (7.9mm) diameter motor shafts	199B	\$83.00
Fits 3/8" (9.5mm) diameter motor shafts	199C	\$83.00



### Standard Support Holder

- Strong stainless steel construction
- Equipped with over-sized, easy to grip knobs for precise tightening
- Accommodates 1/2" (12.7mm) diameter shaft of a motor mounting rod and 5/8" (15.9mm) diameter support stand rod

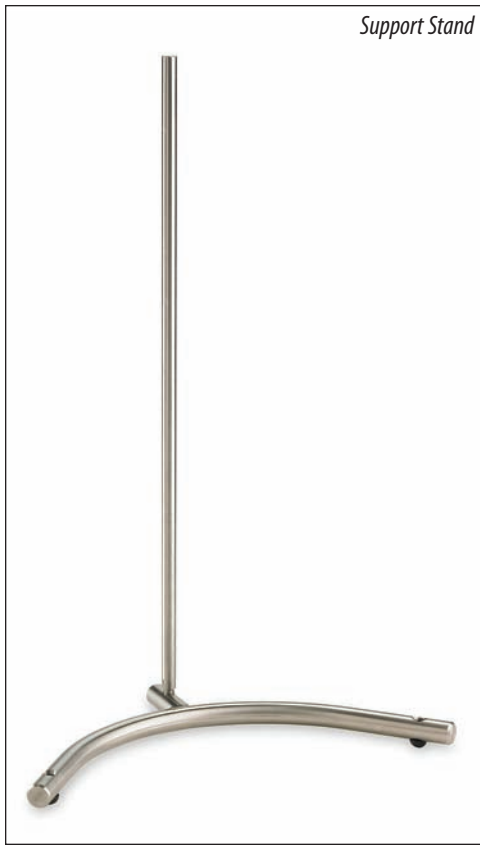
Description	Part Number	Price
Standard Support Holder	110B	\$52.00



### Heavy-Duty Holder

- Comprised of a sturdy aluminum alloy with a brushed finish
- Accommodates all shafts from 1/4" (6.4mm) diameter to 1" (25.4mm) diameter
- Equipped with over-sized, easy to grip knobs for precise tightening
- Supports rods on a 4" (101.6mm) long surface to prevent vibrations

Description	Min. to Max. Grip Size	Part Number	Price
Heavy-Duty Holder	1/4 to 1" (6.4 to 25.4mm)	112	\$68.00



### Support Stands

- Made entirely of 303 stainless steel.
- Durable base can accommodate vessels up to 18" (45.7cm) in diameter within the "U".
- Base area is 17.75" (45.1cm) across x 10.5" (26.7cm) deep overall.
- The stainless steel support rod is 5/8" (15.9mm) in diameter and is screwed to the support base.
- Two additional threaded holes in the base legs accommodate rods, enabling the stand to support two mixers.

The "U" shape of the base should be turned from the mixing apparatus when the two outside rods are in use. This balances the weight, preventing the base from tipping.

Description	Part Number	Price
Support Stand with 23" (58.4cm) Rod	110-23	\$216.00
Support Stand with 28" (71.1cm) Rod	110	\$228.00
Support Stand with 36" (91.4cm) Rod	110-36	\$261.00
Support Stand with 40" (101.6cm) Rod	110-40	\$277.00
Support Stand with 48" (121.9cm) Rod	110-48	\$291.00
Support Stand with 60" (152.4cm) Rod	110-60	\$321.00

### Support Stand Stabilizer Knobs

- Support Stand Stabilizer Knobs can be added to the two additional threaded holes in the base legs to secure the stand to a bench top.

Description	Part Number	Price
Support Stand Stabilizer Knobs (2 per pack)	110C	\$43.00



### Heavy-Duty Support Stands

- Four point cast iron base.
- Designed to accommodate vessels up to 12" (30.5cm) in diameter to sit close to the support rod.
- Rubber cushion on each of the four corners.
- Base area is 16.5" (41.9cm) across x 12" (30.5cm) deep overall.
- Ideal for Heavy-Duty Mixers.

Description	Part Number	Price
Heavy-Duty Support Stand with 23" (58.4cm) Rod	916232	\$239.00
Heavy-Duty Support Stand with 28" (71.1cm) Rod	916233	\$252.00
Heavy-Duty Support Stand with 36" (91.4cm) Rod	916234	\$288.00
Heavy-Duty Support Stand with 40" (101.6cm) Rod	916235	\$306.00
Heavy-Duty Support Stand with 48" (121.9cm) Rod	916236	\$322.00
Heavy-Duty Support Stand with 60" (152.4cm) Rod	916237	\$355.00

### Replacement Support Rods

Description	Diameter	Part Number	Price
18" (45.7cm) Stainless Steel Rod	0.63" (16mm)	110A-18	\$72.00
23" (58.4cm) Stainless Steel Rod	0.63" (16mm)	110A-23	\$79.00
28" (71.1cm) Stainless Steel Rod	0.63" (16mm)	110A	\$87.00
36" (91.4cm) Stainless Steel Rod	0.63" (16mm)	110A-36	\$110.00
40" (101.6cm) Stainless Steel Rod	0.63" (16mm)	110A-40	\$128.00
48" (121.9cm) Stainless Steel Rod	0.63" (16mm)	110A-48	\$139.00
60" (152.4cm) Stainless Steel Rod	0.63" (16mm)	110A-60	\$154.00

# OVERHEAD MIXERS

## Accessories

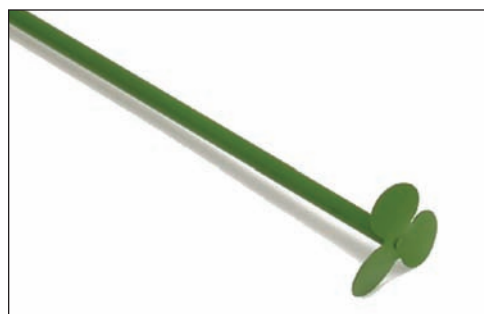
### Propeller Shafts

- All stainless steel 303/304 construction
- 15° pitched blades
- Axial flow
- Various shaft lengths and diameters with permanent 2" or 3.5" 3-blade propeller for every mixing need
- PTFE coating available



#### 2" Propeller Shafts, stainless steel

Blade Dia.	Shaft Dia.	Shaft Length	Part Number	Price
2" (51mm)	1/4" (6.4mm)	12" (305mm)	150	\$26.00
2" (51mm)	1/4" (6.4mm)	18" (457mm)	150L	\$31.00
2" (51mm)	1/4" (6.4mm)	24" (610mm)	150XL	\$35.00
2" (51mm)	5/16" (7.9mm)	12" (305mm)	151	\$26.00
2" (51mm)	5/16" (7.9mm)	18" (457mm)	151L	\$31.00
2" (51mm)	5/16" (7.9mm)	24" (610mm)	151XL	\$35.00



#### 2" Propeller Shafts, PTFE coated

Blade Dia.	Shaft Dia.	Shaft Length	Part Number	Price
2" (51mm)	1/4" (6.4mm)	12" (305mm)	150T	\$108.00
2" (51mm)	1/4" (6.4mm)	18" (457mm)	150LT	\$112.00
2" (51mm)	1/4" (6.4mm)	24" (610mm)	150XLT	\$125.00
2" (51mm)	5/16" (7.9mm)	12" (305mm)	151T	\$107.00
2" (51mm)	5/16" (7.9mm)	18" (457mm)	151LT	\$113.00
2" (51mm)	5/16" (7.9mm)	24" (610mm)	151XLT	\$125.00



#### 3.5" Propeller Shafts, stainless steel

Blade Dia.	Shaft Dia.	Shaft Length	Part Number	Price
3.5" (89mm)	5/16" (7.9mm)	12" (305mm)	152	\$38.00
3.5" (89mm)	5/16" (7.9mm)	18" (457mm)	152L	\$42.00
3.5" (89mm)	5/16" (7.9mm)	24" (610mm)	152XL	\$48.00
3.5" (89mm)	5/16" (7.9mm)	30" (762mm)	152XXL	\$55.00
3.5" (89mm)	3/8" (9.5mm)	12" (305mm)	154	\$35.00
3.5" (89mm)	3/8" (9.5mm)	18" (457mm)	154L	\$42.00
3.5" (89mm)	3/8" (9.5mm)	24" (610mm)	154XL	\$48.00
3.5" (89mm)	3/8" (9.5mm)	30" (762mm)	154XXL	\$55.00



#### 3.5" Propeller Shafts, PTFE coated

Blade Dia.	Shaft Dia.	Shaft Length	Part Number	Price
3.5" (89mm)	5/16" (7.9mm)	12" (305mm)	152T	\$135.00
3.5" (89mm)	5/16" (7.9mm)	18" (457mm)	152LT	\$146.00
3.5" (89mm)	5/16" (7.9mm)	24" (610mm)	152XLT	\$161.00
3.5" (89mm)	5/16" (7.9mm)	30" (762mm)	152XXLT	\$187.00
3.5" (89mm)	3/8" (9.5mm)	12" (305mm)	154T	\$135.00
3.5" (89mm)	3/8" (9.5mm)	18" (457mm)	154LT	\$146.00
3.5" (89mm)	3/8" (9.5mm)	24" (610mm)	154XLT	\$161.00
3.5" (89mm)	3/8" (9.5mm)	30" (762mm)	154XXLT	\$187.00

\* Additional and custom sizes are available. Call customer service for more information.



### Propeller Blades

- Made of stainless steel
- Customize propeller to the shaft of your choice
- Attach several blades for increased agitation
- Axial flow
- Blades come on a bushing with a stainless steel hex-head screw and allen key for attaching to mixing shafts

Blade Dia.	Fits Shaft Dia.	Part Number	Price
1" (25mm)	1/4" (6.4mm)	987406	\$35.00
2" (51mm)	1/4" (6.4mm)	153A	\$35.00
2" (51mm)	5/16" (7.9mm)	153B	\$35.00
3.5" (89mm)	5/16" (7.9mm)	152A	\$37.00
3.5" (89mm)	3/8" (9.5mm)	154A	\$37.00



### High Speed Dispersion Blades

- Designed for high speed dispersion
- These blades tear particles apart and disperse them uniformly throughout the sample
- Constructed of stainless steel with welded bushing and a set screw for mounting on mixer shafts

Blade Dia.	Fits Shaft Dia.	Part Number	Price
3" (76mm)	5/16" (7.9mm)	987407	\$286.00
3" (76mm)	3/8" (9.5mm)	987408	\$286.00



### Mixing Shafts

- Made of stainless steel
- Add propeller blades to these shafts to customize a propeller shaft
- Increase agitation with multiple blades on one shaft

Shaft Dia.	Shaft Length	Part Number	Price
1/4" (6.4mm)	6" (152mm)	180	\$12.00
1/4" (6.4mm)	12" (305mm)	180A	\$16.00
1/4" (6.4mm)	18" (457mm)	180L	\$21.00
1/4" (6.4mm)	24" (610mm)	180XL	\$27.00
1/4" (6.4mm)	30" (762mm)	180XXL	\$36.00
1/4" (6.4mm)	36" (914mm)	180XXXL	\$43.00
5/16" (7.9mm)	6" (152mm)	181	\$12.00
5/16" (7.9mm)	12" (305mm)	181A	\$16.00
5/16" (7.9mm)	18" (457mm)	181L	\$21.00
5/16" (7.9mm)	24" (610mm)	181XL	\$27.00
5/16" (7.9mm)	30" (762mm)	181XXL	\$36.00
5/16" (7.9mm)	36" (914mm)	181XXXL	\$43.00
3/8" (9.5mm)	6" (152mm)	182	\$12.00
3/8" (9.5mm)	12" (305mm)	182A	\$16.00
3/8" (9.5mm)	18" (457mm)	182L	\$21.00
3/8" (9.5mm)	24" (610mm)	182XL	\$27.00
3/8" (9.5mm)	30" (762mm)	182XXL	\$36.00
3/8" (9.5mm)	36" (914mm)	182XXXL	\$43.00



# OVERHEAD MIXERS

## Accessories



### Extension Sleeves

- Comprised of precision bored stainless steel tubing
- Mixing paddles are joined to shafts of the same diameter to increase the paddle length
- Connect the mixing paddle directly to the motor shaft by using the extension sleeve in place of a chuck

Description	Part Number	Price
Fits 1/4" (6.4mm) Diameter Motor Shafts	170	\$54.00
Fits 5/16" (7.9mm) Diameter Motor Shafts	171	\$54.00
Fits 3/8" (9.5mm) Diameter Motor Shafts	172	\$67.00



### Swivel Blade Paddles

- Mixes the contents of narrow-mouthed vessels
- Radial flow
- Constructed of durable stainless steel
- Swivel blade is attached to the shaft
- The blade measures 2W x 0.5H" (51 x 13mm)

Shaft Dia.	Shaft Length	Part Number	Price
0.25" (6.4mm)	12" (305mm)	165	\$34.00
0.25" (6.4mm)	18" (457mm)	165L	\$38.00
0.25" (6.4mm)	24" (610mm)	165XL	\$48.00
5/16" (7.9mm)	12" (305mm)	166	\$34.00
5/16" (7.9mm)	18" (457mm)	166L	\$38.00
5/16" (7.9mm)	24" (610mm)	166XL	\$48.00
3/8" (9.5mm)	12" (305mm)	167	\$34.00
3/8" (9.5mm)	18" (457mm)	167L	\$38.00
3/8" (9.5mm)	24" (610mm)	167XL	\$48.00



### Chain Paddles

- An efficient option for mixing the contents of narrow-necked containers
- Fits openings as small as 5/8" (15.9mm)
- Blends suspensions and mixes both low and high viscosity liquids
- Constructed entirely of stainless steel
- Shafts vary in diameter and length
- Swing diameter of chain is approximately 3" (76mm)

Shaft Dia.	Shaft Length	Part Number	Price
1/4" (6.4mm)	12" (305mm)	155	\$28.00
1/4" (6.4mm)	18" (457mm)	155L	\$32.00
1/4" (6.4mm)	24" (610mm)	155XL	\$34.00
5/16" (7.9mm)	12" (305mm)	156	\$28.00
5/16" (7.9mm)	18" (457mm)	156L	\$32.00
5/16" (7.9mm)	24" (610mm)	156XL	\$36.00
3/8" (9.5mm)	12" (305mm)	157	\$28.00
3/8" (9.5mm)	18" (457mm)	157L	\$32.00
3/8" (9.5mm)	24" (610mm)	157XL	\$34.00



### Beater Paddles

- Designed for high torque, heavy duty mixers
- Paddle design inhibits incorporation of air, making it suitable for stirring shampoos and other foaming liquids
- Constructed of stainless steel and available with PTFE coating
- Radial flow
- Small paddle blade is 4.5L x 3W" (114.3 x 76.2mm), large paddle blade is 5.5L x 4W" (139.7 x 101.6mm)

Size	Shaft Dia.	Shaft Length	Part Number	Price
Small, Stainless Steel	5/16" (7.9mm)	12" (305mm)	162S	\$86.00
Small, Stainless Steel	5/16" (7.9mm)	18" (457mm)	162SL	\$89.00
Large, Stainless Steel	5/16" (7.9mm)	12" (305mm)	162	\$86.00
Large, Stainless Steel	5/16" (7.9mm)	18" (457mm)	162L	\$89.00
Large, Stainless Steel	5/16" (7.9mm)	24" (610mm)	162XL	\$96.00
Small, PTFE Coated	5/16" (7.9mm)	12" (305mm)	162ST	\$167.00
Small, PTFE Coated	5/16" (7.9mm)	18" (457mm)	162SLT	\$171.00
Large, PTFE Coated	5/16" (7.9mm)	12" (305mm)	162T	\$167.00
Large, PTFE Coated	5/16" (7.9mm)	18" (457mm)	162LT	\$171.00
Large, PTFE Coated	5/16" (7.9mm)	24" (610mm)	162XLT	\$175.00



### U-Shaped Paddles

- Designed for high viscosity materials or large batch mixing
- Constructed of stainless steel and available with PTFE coating
- Radial flow
- Recommended for high torque, heavy duty mixers
- Paddle blade is 4.5L x 4.5W" (114 x 114mm)

Description	Shaft Dia.	Shaft Length	Part Number	Price
Stainless Steel	3/8" (9.5mm)	18" (457mm)	987409	\$166.00
Stainless Steel	3/8" (9.5mm)	24" (610mm)	987410	\$178.00
PTFE Coated	3/8" (9.5mm)	18" (457mm)	987411	\$290.00
PTFE Coated	3/8" (9.5mm)	24" (610mm)	987412	\$319.00



### Solid Glass Mixer Paddles

- Ideal for very sensitive samples
- Constructed of chemical-resistant borosilicate glass and precision ground and polished
- Radial flow
- Requires Glass Rod Chuck to attach to mixer

Blade Dia.	Shaft Dia.	Shaft Length	Part Number	Price
2.5" (64mm)	3/8" (9.5mm)	12" (305mm)	987420	\$215.00
2.5" (64mm)	3/8" (9.5mm)	18" (457mm)	987421	\$219.00
2.5" (64mm)	3/8" (9.5mm)	24" (610mm)	987422	\$225.00
3.5" (89mm)	3/8" (9.5mm)	12" (305mm)	987423	\$251.00
3.5" (89mm)	3/8" (9.5mm)	18" (457mm)	987424	\$256.00
3.5" (89mm)	3/8" (9.5mm)	24" (610mm)	987425	\$261.00

Don't see the length of the shaft you need? Gives us a call, we have other sizes in stock.

# OVERHEAD MIXERS

## Accessories



### Zig-Zag Paddles

- Stainless steel durability
- The zig-zag shape of this rod promotes mixing of heavy fluids like paints, pastes, and creams
- Offers different shaft diameters and lengths
- Available with PTFE coating

Description	Shaft Dia.	Shaft Length	Part Number	Price
Stainless Steel	1/4" (6.4mm)	12" (305mm)	160	\$25.00
Stainless Steel	1/4" (6.4mm)	18" (457mm)	160L	\$29.00
Stainless Steel	1/4" (6.4mm)	24" (610mm)	160XL	\$40.00
Stainless Steel	5/16" (7.9mm)	12" (305mm)	161	\$25.00
Stainless Steel	5/16" (7.9mm)	18" (457mm)	161L	\$29.00
Stainless Steel	5/16" (7.9mm)	24" (610mm)	161XL	\$40.11
PTFE Coated	1/4" (6.4mm)	12" (305mm)	160T	\$106.00
PTFE Coated	1/4" (6.4mm)	18" (457mm)	160LT	\$112.00
PTFE Coated	1/4" (6.4mm)	24" (610mm)	160XLT	\$120.00
PTFE Coated	5/16" (7.9mm)	12" (305mm)	161T	\$106.00
PTFE Coated	5/16" (7.9mm)	18" (457mm)	161LT	\$112.00
PTFE Coated	5/16" (7.9mm)	24" (610mm)	161XLT	\$120.00



### Coil Impellers

- Constructed of stainless steel and designed for durability
- Radial flow
- Rotating coils force the solution outward from the coil, creating a vacuum that pulls the particles through the coil, effectively reducing and dispersing the sample, ideal for dissolving powders
- Bow-Tie Coils: Ideal for lower viscosity fluids
- Straight Coils: Ideal for higher viscosity materials and larger solids

Coil Type	Coil Length	Shaft Dia.	Shaft Length	Part Number	Price
Bow-Tie	1.5" (38mm)	5/16" (7.9mm)	12" (305mm)	987426	\$47.00
Bow-Tie	2.5" (64mm)	5/16" (7.9mm)	12" (305mm)	987427	\$58.00
Bow-Tie	3.5" (89mm)	3/8" (9.5mm)	12" (305mm)	987428	\$90.00
Bow-Tie	4.5" (114mm)	3/8" (9.5mm)	18" (457mm)	987429	\$112.00
Straight	1.5" (38mm)	5/16" (7.9mm)	12" (305mm)	987430	\$47.00
Straight	2.5" (64mm)	5/16" (7.9mm)	12" (305mm)	987431	\$58.00
Straight	3.5" (89mm)	3/8" (9.5mm)	12" (305mm)	987432	\$90.00
Straight	4.5" (114mm)	3/8" (9.5mm)	18" (457mm)	987433	\$112.00



### Adjusta-Speed Control

- Excellent upgrade for units with no speed control
- Solid state, electronic, voltage control varies speed steplessly over the motor's range
- Ideal for use with models 105, 103X, 104X, and 107

Description	Part Number	Price
Adjusta-Speed Control	115	\$216.00



**Factors to think about when homogenizing**

**Wet or dry sample**

Wet samples - with some sort of liquid - best in generator system.

- Liquid allows for more cavitation breakdown.
- PTFE bearings in generators work best with some sort of liquid in sample.

Dry samples - with no liquids present - best with blade system.

**Sample size**

Generators are capable of homogenizing a sample size from 0.03mL to 20L.

5mm or 7mm generators can fit into 1.5mL to 2mL Eppendorf tubes. Generator won't touch the bottom of conical micro-tubes, but substance may get pulled up into generator. The generator will touch the bottom of flat bottom micro-tubes.

The sample, if solid, should be no longer than half the diameter of the generator.

**Generator width**

Ideally you want to homogenize with a generator as wide as the tube you are using.

- This will allow for faster and better homogenizing because no material will "escape" from the generator.
- Keep in mind that there is some displacement of material once the generator enters the tube or container.

**Location of generator within the sample**

Place the generator off-center in the tube or container for the best results.

- This will prevent material from getting "stuck" on the walls of the tube and not being homogenized.
- Place the generator 1/3 of the sample height off of the bottom of the tube or container.

**Configuration of container and generator length**

When using a generator 120mm or greater in length, it is important to remember that these generators have a mid-bearing. This bearing does not act like a normal bearing, rather it helps prevent bending or movement of the rotor within the tube.

This mid-bearing still needs to be kept moist during homogenizing and therefore must be kept covered by the substance being homogenized, not doing this will burn out the bearing and will cause the sample to become dingy and blackened.

If using too long of a generator for your sample size, you may start to pump air into the sample because the generator can not recover fast enough.

**Speed and particle size reduction**

Always begin homogenizing at a low speed, then gradually increase speed. This allows you to remain in control of the whole process.

Peripheral speed (tip speed of the generator) which is affected by the size of the container and the size of the generator is more important than RPM. The peripheral speed is directly proportional to the amount of cavitation breakdown. Cavitation breakdown allows for smaller particle reduction. Talboys Bioforce homogenizers are capable of reducing particles to 0.01 microns (1 thousandth of a millimeter) when cavitation breakdown is present.

Most homogenizing can be done in 15 - 30 seconds if not, you may be:

- Using the wrong size generator
- Not locating the generator properly in the container
- Using too viscous of a material

Product Applications		
Material	Process	Equipment Used
Aribidopsis Seedlings	RNA Extraction	BF20 with 5mm Generator
Heart Cells	Isolation of Metabolite	BF20 with 5mm Generator
Mosquitoes	Virus Analysis in Mosquitoes	BF20 with 5mm Generator
E. Coli Cells	Breakage of Cells (100%)	BF20 with 5mm Generator
Powder	Homogenization of Reconstituted Polymers	BF20 with 5mm Generator
Yeast Cells	Break Down Yeast Cells	BF20 with 5mm or 7mm Generators
Citrus Bark	Extraction	BF20 with 5mm, 7mm or 10mm Generators
Frog Embryos	Cell Disruption	BF20 with 5mm, 7mm or 10mm Generators
Rat Brains	DNA Extraction	BF20 with 7mm Generator
Virus	Hand Turned Mixer	BF20 with 10mm Generator
Chlorophilia	Water Quality Testing	BF20 with 10mm Generator
Silica Gel	Dispersion	BF25 with 20mm Generator
Soybean Cotyledon	Grinding	BF25 with 20mm Generator
Various Creams	Emulsion with Even Disbursement	BF30 with Blade and Sealed Chamber Assembly
Hair Shampoo	Mix Shampoo to Desired Consistency	BF30 with Blade and Sealed Chamber Assembly
Soil	Homogenization of Dry Soil Samples	BF30 with Blade and Sealed Chamber Assembly
Drug Tablets	Complete Dispersion	BF40 with Sealed Chamber

# HOMOGENIZERS

## Cryogenic Homogenizing System

- **Handheld homogenizer with mortars and pestles**
- **Increases sample throughput**
- **System helps preserve sample integrity**

Talboys Cryogenic Homogenizing System combines the ease and speed of a handheld homogenizer and a liquid nitrogen cooled sample to homogenize your sample faster and more efficiently. The cordless, motorized 3.6 volt unit's speed is slower than a typical homogenizer to prevent sample splattering and generation of airborne particles. Compact and versatile design allows homogenizer to be held with a pistol grip or straight.

The mortar and pestle are constructed of a durable porcelain/zirconium composite. The rugged pestle has a stainless steel shaft with a hex bit for quick connection to the motor. Mortar and pestle can be decontaminated between samples by autoclaving, dry heat, or by exposing to a commercial decontaminating solution. The Cryogenic Cooler is valuable for chilling, processing, and transporting samples.

Units include motor unit, tray with six mortar and pestles, Cryogenic Cooler with sample reservoir with mesh cover, adsorbent material. Two year limited warranty.



### Specifications

<b>Speed Range</b>	200rpm
<b>Sample Size:</b>	< 500 mg (100mg optimal)
<b>Dimensions, Overall (W x D x H)</b>	
(Homogenizer)	2 x 1.5 x 9.5" (5.1 x 3.8 x 24.1cm)
(CryoCooler)	13.5 x 9.5 x 10" (34.3 x 24.1 x 25.4cm)
(Tray)	5.5 x 5 x 1.2" (13.9 x 12.7 x 3.0cm)
<b>Shipping Weight</b>	11lbs (5.0kg)

### Ordering Information

Description	Electrical (50/60 Hz)	Part Number	Price
Cryogenic Homogenizing System	120V   3.1 amps   450 watts	930260	\$949.00

### Replacement Accessories

Description	Part Number	Price
Tray with six replacement mortar and pestles	930262	\$495.00
Pestles set of 6 (replacement)	930263	\$195.00
Mortars set of 6 (replacement)	930264	\$195.00



### Did you know?

**Accuracy is defined as how close you are to the nominal value.**



**Bioforce BF20 Homogenizer**

- **Compact and powerful for small samples**
- **Hand or stand mounted**

The BF20 Homogenizer's compact design offers plenty of power to homogenize small samples quickly and efficiently with a 125 watt motor. Variable speed control and Auto-Loc generator system make the BF20 extremely versatile and convenient. Auto-Loc generators quickly attach and remove with only a quarter turn. Homogenize samples as small as 0.03mL or as large as 2L. The BF20 is recommended for Auto-Loc generators up to 20mm in diameter and sealed tube assemblies. The BF20 GenPack kit features GenPack economy generators, ideal for repeat homogenizing without the risk of cross contamination.

**Bioforce BF20 GenPack Kit:** Contains a 125 watt, variable speed motor unit, GenPack 12: (12 7mm diameter economy generators) GenPack adapter, and tool kit.

**Bioforce BF20 Standard Kit:** Contains a 125 watt, variable speed motor unit, Support Stand Assembly with easy-lift mechanism, (3) Auto-Loc generators (5 x 7mm flat bottom, 7 x 95mm and 10 x 105mm saw tooth), tool kit, and spare bearings.

**Bioforce BF20 Motor Only:** Contains a 125 watt, variable speed motor unit.

**Support Stand Assembly:** Contains a base platform with non-skid rubber top, 24" (61cm) stainless steel, vertical support rod and easy-lift mechanism.

2 year limited warranty on parts and labor.



Specifications	
<b>Speed Control</b>	Analog, Variable Speed
<b>Speed Range</b>	5000 to 35000rpm
<b>Sample Volume Range</b>	0.03mL to 2L
<b>Wattage</b>	125 watts
<b>Noise Rating</b>	72dB
<b>Dimensions (L x W x H)</b>	1.75 x 2.15 x 8.0" (4.5 x 5.5 x 20.3cm)

Bioforce BF20 Ordering Information			
Description	Ship Weight	Part Number	Price
Bioforce BF20 GenPack Kit, 120V	5lbs (2.3kg)	987600	\$1,904.00
Bioforce BF20 GenPack Kit, 230V	5lbs (2.3kg)	987601	\$1,904.00
Bioforce BF20 Standard Kit, 120V	14lbs (6.4kg)	987602	\$4,965.00
Bioforce BF20 Standard Kit, 230V	14lbs (6.4kg)	987603	\$4,965.00
Bioforce BF20 Motor Only, 120V	3lbs (1.4kg)	987604	\$979.00
Bioforce BF20 Motor Only, 230V	3lbs (1.4kg)	987605	\$979.00
Bioforce BF20 Support Stand	7lbs (3.2kg)	987618	\$294.00

## Bioforce BF25 Homogenizer

- **Ideal for heavy laboratory use**
- **Optional external speed controls**

The BF25 is designed for heavy laboratory use. This unit is capable of batch homogenizing high viscosity materials and thoroughly homogenizes tough cellular tissue or large volumes up to 20L. Powerful 700 watt motor has variable speed control from 10000 to 30000rpm. Optional external speed control is ideal for use in fume hoods and delivers a broader speed range of 0 to 30000rpm. The BF25 is recommended for use with Auto-Loc generators up to 30mm in diameter and all sealed chamber assemblies designed to contain aerosols, prevent contamination, and provide added safety when working with hazardous materials. The Auto-Loc generator system, capable of reducing particles to 0.01 microns, makes changing the generator simple, easy and safe. The BF25 can also use the GenPack economy generators when fitted with the GenPack adapter. All Auto-Loc generators and GenPack economy generators are constructed of 316 stainless steel for maximum chemical resistance and durability.

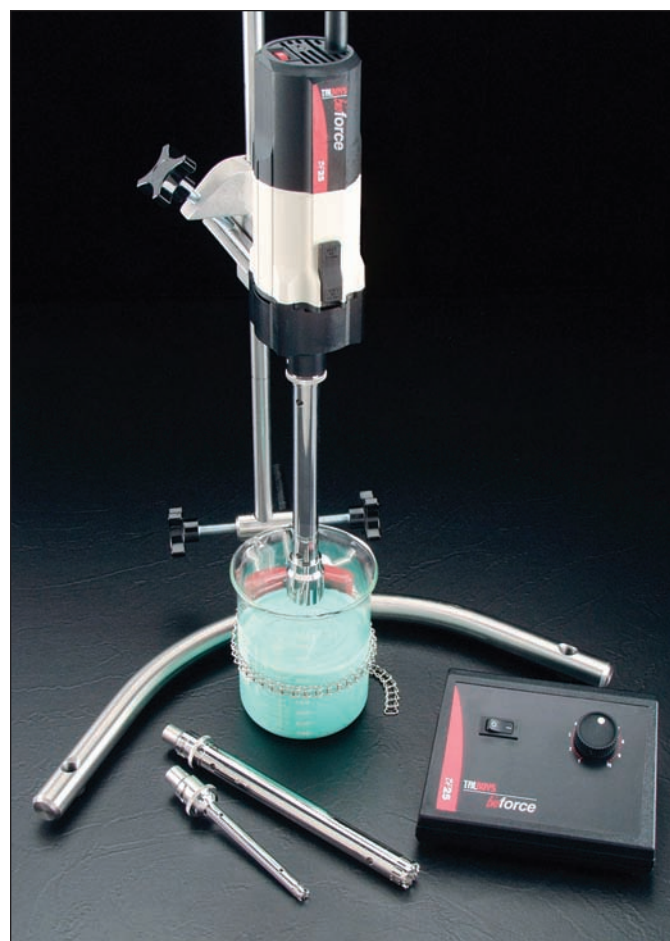
**Bioforce BF25 Standard Kit:** Contains a 700 watt, variable speed motor unit, stainless steel support stand with 24" (61cm) vertical rod, heavy-duty clamp, vessel clamp holder, three Auto-Loc generators (10 x 105mm and 20 x 200mm saw tooth, and 30 x 200mm flat bottom), tool kit, and spare bearings.

**Bioforce BF25 Motor Only:** Contains a 700 watt, variable speed motor unit.

**Stainless Steel Support Stand and Clamp:** This ultra stable support stand features all stainless steel construction which assures strength and durability. Support stand includes 24" (61cm) stainless steel, vertical support rod and U-shaped base. Cast aluminum, heavy-duty clamp secures motor unit to stand. The vessel clamp holder allows for easy depth adjustments of the vessel clamp. The vessel clamp secures containers up to 11" (27.9cm) in diameter with heavy-duty chain.

**External Speed Control:** Optional external speed control offers a broader speed range (0 to 30000rpm) and can be remotely located outside fume hoods for easy, safe speed adjustments. Analog or digital display options are available.

2 year limited warranty on parts and labor.



### Specifications

<b>Speed Control</b>	Analog, Variable Speed
<b>Speed Range</b>	10000 to 30000rpm
<b>Sample Volume Range</b>	0.03mL to 20L
<b>Wattage</b>	700 watts
<b>Noise Rating</b>	72dB
<b>Dimensions (L x W x H)</b>	2.75 x 2.75 x 9.0" (7.0 x 7.0 x 22.9cm)

### Ordering Information

Description	Ship Weight	Part Number	Price
Bioforce BF25 Standard Kit, 120V	14lbs (6.4kg)	987606	\$5,726.00
Bioforce BF25 Standard Kit, 230V	14lbs (6.4kg)	987607	\$5,726.00
Bioforce BF25 Motor Only, 120V	6lbs (2.7kg)	987608	\$1,328.00
Bioforce BF25 Motor Only, 230V	6lbs (2.7kg)	987609	\$1,328.00
Bioforce BF25 External Speed Control, analog 120V		987653	\$464.00
Bioforce BF25 External Speed Control, analog 230V		987654	\$464.00
Bioforce BF25 External Speed Control, digital 120V		987657	\$738.00
Bioforce BF25 External Speed Control, digital 230V		987658	\$738.00
Bioforce BF25 Support Stand	8lbs (3.6kg)	987620	\$221.00
Heavy-Duty Clamp		112	\$68.00
Vessel Clamp		916072	\$43.00
Vessel Clamp Holder		110B	\$52.00

## Bioforce BF30 & BF40 Homogenizer

- **High-torque bench top homogenizers**
- **Programmable operation**

Ideal for scale-up work, pilot studies, and large batch processing up to 40L. These powerful bench top homogenizers are computer controlled and capable of manual or programmable operation. Programming can be done from the touch pad on the unit or from a computer, via an RS-232 port. An infinite number of programs can be created; each program can consist of up to 23 different cycles, with each cycle defining the speed, run time and pause between cycles. Data can be graphed on the computer screen as homogenization proceeds. Both the programs and the data collected (set time and set speed versus actual time and actual speed) can be stored and recalled for screen display or printout. The Talboys Bioforce BF30 and BF40 units meet industry requirements for verification of processing and documentation maintenance. Powerful motors process tough samples quickly and effortlessly. Microprocessor speed control maintains constant speed (+/-1%) even while viscosity changes. The BF30 includes an Accu-Lift stand that requires manual adjustments. The BF40 includes a motorized Accu-Lift stand for easy, accurate vertical movement of the motor unit.

**Bioforce BF30 Standard Kit:** Contains a 700 watt, programmable motor unit, manual Accu-Lift support stand, and software, three Auto-Loc generators (10 x 105mm, 20 x 200mm sawtooth, and 30 x 200 mm flat bottom), tool kit, and spare bearings.

**Bioforce BF30 Motor Kit:** Contains a 700 watt, programmable motor unit, manual Accu-Lift support stand, and software.

**Bioforce BF40 Standard Kit:** Contains an 1800 watt, programmable motor unit, motorized Accu-Lift support stand, and software, three Auto-Loc generators (30 x 200mm, 43 x 200mm, and 59x 200mm flat bottom), tool kit, and spare bearings.

**Bioforce BF40 Motor Kit:** Contains an 1800 watt, programmable motor unit, motorized Accu-Lift support stand, and software.

2 year limited warranty on parts and labor.



Specifications	BF30	BF40
<b>Speed Control</b>	Digital/Programmable	Digital/Programmable
<b>Speed Range</b>	0 to 28000rpm	0 to 23000rpm
<b>Sample Volume Range</b>	0.03mL to 25L	0.03mL to 40L
<b>Wattage</b>	700 watts	1800 watts
<b>Noise Rating</b>	68dB	68dB
<b>Stand Type</b>	Manual Accu-Lift	Motorized Accu-Lift
<b>Dimensions (L x W x H)</b>	10.5 x 7.25 x 10.5" (26.7 x 18.4 x 26.7cm)	12.5 x 7.25 x 10.5" (31.8 x 18.4 x 26.7cm)

Ordering Information	Description	Ship Weight	Part Number	Price
	BF30 Standard Kit, 120V	50lbs (22.7kg)	987610	\$10,681.00
	BF30 Standard Kit, 230V	50lbs (22.7kg)	987611	\$10,681.00
	BF30 Motor Kit, 120V	45lbs (20.4kg)	987612	\$5,068.00
	BF30 Motor Kit, 230V	45lbs (20.4kg)	987613	\$5,068.00
	BF40 Standard Kit, 120V	61lbs (27.7kg)	987614	\$12,771.00
	BF40 Standard Kit, 230V	61lbs (27.7kg)	987615	\$12,771.00
	BF40 Motor Kit, 120V	54lbs (24.5kg)	987616	\$6,834.00
	BF40 Motor Kit, 230V	54lbs (24.5kg)	987617	\$6,834.00



## Generators



### Auto-Loc Generators

Bioforce Auto-Loc Generators are designed for quick and easy changing of generators with only a quarter turn. Built for durability, Auto-Loc Generators are constructed of 316 stainless steel and can be completely sterilized by hot air, autoclaving, flaming, or chemical

processes. All generators feature a foam-reducing design which limits the amount of air introduced into the sample during homogenization. All generators disassemble quickly and easily for cleaning.

Auto-Loc Generators						
Generator	Type	Dimensions (Dia. x L)	Sample Range	Recommended for Unit	Part Number	Price
5mm	Flat Bottom	5 x 75mm	0.03mL to 5mL	All	987621	\$1,215.00
7mm	Saw Tooth Bottom	7 x 95mm	0.1mL to 10mL	All	987622	\$1,317.00
7mm	Saw Tooth Bottom	7 x 150mm	0.1mL to 10mL	All	987623	\$1,420.00
10mm	Saw Tooth Bottom	10 x 105mm	1.5mL to 100mL	All	987624	\$1,317.00
10mm	Saw Tooth Bottom	10 x 150mm	1.5mL to 100mL	All	987625	\$1,420.00
20mm	Saw Tooth Bottom	20 x 115mm	5mL to 2L	All	987626	\$1,812.00
20mm	Saw Tooth Bottom	20 x 200mm	5mL to 2L	All	987627	\$1,925.00
30mm	Open Slotted	30 x 115mm	5mL to 20L	BF25, BF30, BF40	987628	\$2,121.00
30mm	Open Slotted	30 x 200mm	5mL to 20L	BF25, BF30, BF40	987629	\$2,178.00
37mm	Open Slotted	37 x 200mm	10mL to 30L	BF30, BF40	987630	\$2,925.00
43mm	Open Slotted	43 x 200mm	200mL to 35L	BF40	987631	\$3,239.00
59mm	Open Slotted	59 x 200mm	200mL to 40L	BF40	987632	\$3,851.00

### GenPack Multi-Generator System

Designed for molecular applications, PCR, and micro-tube assays, the GenPack Multi-Generator System features economy generators ideal for applications where cross contamination is a concern. GenPack economy generators eliminate the need for cleaning between samples and features hands free ejection of generator. GenPacks require the GenPack adapter. The GenPack 12 contains 12, 7mm economy generators and the GenPack 20 includes 20, 7mm economy generators. The GenPack Multi-Generator System works with all Bioforce motor units.



GenPack Kits						
Generator	Type	Dimensions (Dia. x L)	Sample Range	Recommended for Unit	Part Number	Price
GenPack 12 *	Flat Bottom	7 x 95mm	0.1mL to 10mL	All	987633	\$1,091.00
GenPack 20 *	Flat Bottom	7 x 95mm	0.1mL to 10mL	All	987634	\$1,952.00
GenPack Adapter	N/A	N/A	N/A	N/A	987635	\$318.00

\* Requires the GenPack Adapter.



Sealed Tubes



Sealed Chambers, stainless steel



Sealed Chambers, glass

### Sealed Chamber Assemblies

Sealed chamber assemblies are designed to protect the operator from hazardous aerosols that could be generated during processing. Sealed chambers also protect your sample from external contaminants. All sealed chambers are built for safety, and do not allow operation with the blade or generator exposed. Talboys offers a wide range of sealed chambers to accommodate various sample sizes and types. Sealed chambers with blades are ideal for larger solids or dry homogenizing. Generator systems are ideal for small particle reduction.

#### Sealed Tubes

Ideal for smaller samples ranging from 0.2mL to 40mL. Slotted sides allow easy viewing of sample. Includes tube enclosure, Auto-Loc Generator with seal, and extra tubes. Recommended for all models.

#### Sealed Chambers, stainless steel

Features all stainless steel and PTFE construction. Designed for samples ranging from 10mL to 500mL. Available with Auto-Loc Generator or blade system. Recommended for models BF25, BF30, and BF40.

#### Sealed Chambers, glass

View your homogenization process with these glass enclosures. Process samples as small as 50mL or as large as 800mL. Available as a generator or blade system. All wetted components are constructed of glass, stainless steel, or PTFE. Recommended for models BF25, BF30 and BF40.

Sealed Chamber Assemblies						
Assembly	Chamber Size	Treatable Volume	Blade/Generator	Recommended for Unit	Part Number	Price
Sealed Tube	1.5 to 2mL	0.2 to 2mL	Generator	All	987649	\$1,286.00
Sealed Tube	5mL	0.2 to 3mL	Generator	All	987636	\$1,190.00
Sealed Tube	16mL	0.5 to 11mL	Generator	All	987637	\$1,190.00
Sealed Tube	19mL	0.5 to 13mL	Generator	All	987638	\$1,293.00
Sealed Tube	50mL	5 to 40mL	Generator	All	987639	\$1,293.00
Sealed Chamber, Stainless Steel	70mL	10 to 65mL	Blade	BF25, BF30, BF40	987640	\$994.00
Sealed Chamber, Stainless Steel	70mL	10 to 65mL	Generator	BF25, BF30, BF40	987641	\$1,193.00
Sealed Chamber, Stainless Steel	600mL	40 to 500mL	Blade	BF25, BF30, BF40	987642	\$1,231.00
Sealed Chamber, Stainless Steel	600mL	40 to 500mL	Generator	BF25, BF30, BF40	987643	\$1,414.00
Sealed Chamber, Glass	473mL	50 to 450mL	Blade	BF25, BF30, BF40	987644	\$1,801.00
Sealed Chamber, Glass	473mL	50 to 450mL	Generator	BF25, BF30, BF40	987645	\$1,622.00
Sealed Chamber, Glass	946mL	100 to 800mL	Blade	BF25, BF30, BF40	987646	\$2,055.00
Sealed Chamber, Glass	946mL	50 to 800mL	Generator	BF25, BF30, BF40	987647	\$1,575.00



# HOMOGENIZERS

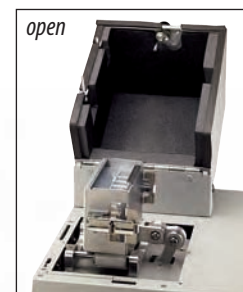
## High Throughput Homogenizer

- Ability to process small quantities
- Eliminates cross contamination
- Rapid sample processing

The Talboys High Throughput Homogenizer is specifically designed for high throughput sample processing in a microplate or vial set format to produce effective homogenization of tissue samples. Shaker produces a reciprocal motion that is optimized for grinding difficult samples. Easy-to-load tray securely locks microplate or vial set in place. The high speed linear motion of the homogenizer allows for rapid sample processing; in most cases two minutes or less. Analog controls.

Homogenized samples can be subsequently handled manually or in an automated system. The High Throughput Homogenizer is suitable for the isolation of protein, DNA, RNA, viruses, and other biological components released during homogenization. Animal tissue, seeds, tubers, leaf punches, soil and sediment samples, insects, and microbial cultures can all be effectively homogenized in a 96-well or vial set format. Isolation of protein, DNA, RNA, viruses, and any other biological components released during homogenization. The unit is also useful for pulverizing dry samples for chemical analysis and solubility studies.

Unit includes a 92" (234cm), 3-wire cord and plug (230 volt units are supplied with Euro type plug). 2 year limited warranty on parts and labor.



### Specifications

<b>Speed Range</b>	0 to 1600rpm
<b>Timer</b>	1 to 10 minutes
<b>Maximum Capacity</b>	1 deep well plate, 4 stacked standard well plates, or 1 vial set; 300 gram maximum
<b>Reciprocal Strokes</b>	1.2" (3.1cm)
<b>Dimensions, Overall (L x W x H)</b>	17.5 x 15 x 14.2" (44.5 x 38.1 x 36.1cm)
<b>Shipping Weight</b>	75lbs (34.1kg)

### Ordering Information

Description	Electrical (50/60 Hz)	Part Number	Price
High Throughput Homogenizer	120V   6.3 amps   450 watts	930145	\$6,100.00
High Throughput Homogenizer	230V   3.1 amps   450 watts	930146	\$6,400.00

### Grinding Accessories

**Grinding Vial Sets** combine the benefits of the microplate format and the size of vials to provide a tool for higher throughput sample grinding. Vials are available in either polycarbonate or polyethylene materials. The polyethylene vial set is offered in a 24 vial, 4mL size. The polycarbonate vial set is offered in two sizes; 24 vial, 4mL size and 5 vial, 15mL size. The 4mL vial size is conveniently packaged as a set or in bulk.

**Grinding balls** are used with deep well plates and vial sets to bead beat plant tissues, seeds, and animal tissues. These grinding balls are made of 440C stainless steel which allows them to be retrieved with a magnet while making them resistant to tarnishing. Grinding balls are treated to remove residual oils and contaminants prior to packaging.

#### Recommended Applications:

- 3/8" Good for homogenizing seeds and larger samples of animal tissue in 4mL vials.
- 7/16" Suitable for larger grinding jobs, such as pooled seeds, in 15 mL vials.
- 5/32" Use with deep well plates for leaf punches or animal tissue of 50mg or less.

When homogenization is complete, grinding balls can be removed with optional 24-Pin Magnet.

corn



rice



soy beans



### Replacement Accessories

Description	Lid	Part Number	Price
Bulk 4mL Polyethylene Vials, case of 240	Unlined	930148	\$115.00
Bulk 4mL Polyethylene Vials, case of 240	With PTFE Lining	930155	\$157.00
Bulk 4mL Polycarbonate Vials, case of 240	Unlined	930147	\$131.00
Bulk 4mL Polycarbonate Vials, case of 240	With PTFE Lining	930154	\$167.00
3/8" Stainless Steel Grinding Balls, pack of 1000	N/A	930156	\$575.00
5/32" Stainless Steel Grinding Balls, pack of 5000	N/A	930151	\$575.00

### 24-Well 4mL Vial Sets, polyethylene

Plastic case with foam rack holds 24, 4mL polyethylene vials. Each vial includes one, 3/8" (1cm) stainless steel grinding ball and threaded lid. Lid is available unlined or with a PTFE lining for added secure closure. Sold as a case of 10.

Description	Lid	Part Number	Price
24-Well 4mL Vial Set, Polyethylene	Unlined	930136	\$277.00
24-Well 4mL Vial Set, Polyethylene	With PTFE Lining	930153	\$308.00



### 24-Well 4mL Vial Sets, polycarbonate

Plastic case with foam rack holds 24, 4mL polycarbonate vials. Each vial includes one, 3/8" (1cm) stainless steel grinding ball and threaded lid. Lid is available unlined or with a PTFE lining for added secure closure. Sold as a case of 10.

Description	Lid	Part Number	Price
24-Well 4mL Vial Set, Polycarbonate	Unlined	930135	\$340.00
24-Well 4mL Vial Set, Polycarbonate	With PTFE Lining	930152	\$376.00



### 5-Well 15mL Vial Set, polycarbonate

Plastic case with foam rack holds 5, 15mL polycarbonate vials for larger samples. Each vial includes two, 7/16" (1.1cm) stainless steel grinding balls and threaded lid. Sold as a case of 10.

Description	Lid	Part Number	Price
5-Well 15mL Vial Set, Polycarbonate	Unlined	930137	\$312.00



### 24-Pin Magnet and Magnet Stand/Ball Separator

The 24-Pin Magnet can be used to remove grinding balls before samples are added to the vials and then, with the use of the Magnet Stand/Ball Separator, used to align and drop grinding balls into vials. Each 2" (5.1cm) pin is capped with a strong neodymium rare earth magnet. The pins of this magnet can also be used to remove smaller grinding balls from 96-well plates.

Description	Part Number	Price
24-Pin Magnet	930138	\$496.00
Magnet Stand/Ball Separator	930139	\$157.00



### Magnet Pipette Tips

Magnet Pipette Tips are a simple, cost effective solution for removing stainless steel grinding balls from 96-well plates and grinding vials. The tips are made to fit most 0-200µl pipets and work with steel and 440C stainless steel balls.

Description	Part Number	Price
Magnet Pipette Tips, pack of 12	930149	\$131.00

### Ball Dropper/Bead Dispenser

Ball Dropper/Bead Dispenser can be used to add 5/32" stainless steel balls to deep well plates, and to dispense small grinding beads into empty micro-well plates. Includes ball dropper, reservoir tray, grinding bead swipe card, and plastic retaining sheet.

Description	Part Number	Price
Ball Dropper/Bead Dispenser	930150	\$575.00



# LABJAWS

The unique design of these clamps, rods and supports, connectors, and accessories, conceivably offers one of the most extensive selections in the industry. With a variety of sizes, materials, hardware, and designs, there is always an option to accommodate any application.

- **Clamps firmly grip lab apparatus**
- **Ergonomic designs**
- **Durable, heavy-duty parts**
- **Built to last**

The following are many options to consider when choosing the right clamp to suit your needs:

### **Material:**

A majority of the LabJaws are made of nickel-plated zinc which possess a high tensile strength paired with an economical price. Stainless steel is an option that offers higher chemical resistance and durability. Aluminum is another material that is used in some of the products to offer a greater strength with a lighter weight.

### **Configuration:**

Multi-purpose extension clamps allow placement of apparatus at various distances from a lab-frame. They are constructed with round extension arms, which allow the clamps to be rotated 360°. Attachment to lab-frames and other apparatus is easily accomplished with a variety of holders that are purchased separately. See Connectors & Holders section of this catalog (pages 101-103 ). Other clamps such as the swivel, fixed position, and some of the specialty clamps, have a built in holder for attaching to lab-frames or other apparatus at a closer distance to the support.

### **Prong Type:**

Two-prong clamps are ideal for holding straight-sided apparatus such as burets, thermometers, beakers, and flask necks. Three-prong clamps are more versatile and have the added capability of holding irregularly shaped objects. Clamps are supplied with both non-slip vinyl sleeves and, for temperatures above 100°C, fiberglass covers.

### **Prong Adjustment:**

Single adjust clamps are great for applications where limited jaw adjustment is required. One prong or "finger" is adjusted using a wing nut, while the other prong remains stationary. Dual adjust clamps offer a greater flexibility because both prongs are adjustable over a wider range. Thumbscrews are utilized for easier prong adjustment.

### **Holders and Connectors:**

A variety of holders and connectors are available to secure apparatus specific to the different angles, diameters, and weights in your application allowing you to customize as needed.

### **Lab-Frames:**

LabJaws offers a complete choice of standard and custom frames and rods. Corrosion resistant frames and rods are available in aluminum, fiberglass, and stainless steel. Individual rods are available in standard lengths from 1.61 to 96" (41 to 2438mm). Standard lab-frame sets are available in five sizes. Combined with LabJaws accessories, these frames and rods can be adjusted to fit any need. Custom lab-frame designs are available to meet your exacting requirements.

Depend on LabJaws for your custom mounting and sizing needs. Simply contact Talboys for personal design and fabrication assistance.

### UltraJaws Heavy-Duty Clamps

- Large grip adjustment range
- Single or dual adjust
- Available in three sizes; small, medium, and large
- Nickel-plated zinc

Talboys patented multi-purpose UltraJaws Heavy-Duty Clamps feature an innovative closed yoke construction that minimizes contamination and corrosion of internal components. The unique design enables secure gripping and positioning with added strength and durability.

Available in both single and dual prong adjustment, prongs open gradually to maximize grip size without binding. Both designs feature precise pressure regulation when gripping glassware surfaces to reduce the chance of breakage. UltraJaws clamps are constructed with extension rods for easy attachment to lab-frames and other apparatus. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

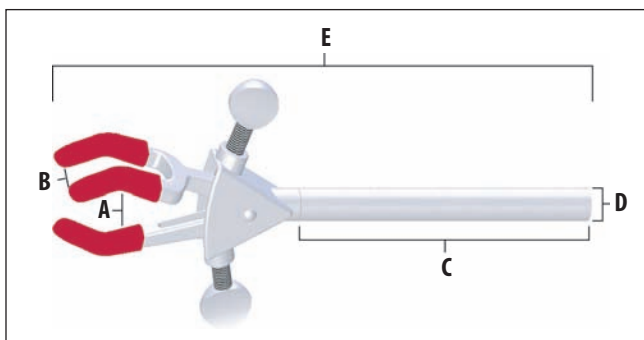
The prong height of the UltraJaws Heavy-Duty Clamps make them ideal for use in holding and securing glassware with precision ground glass joints. The chart details which UltraJaws Clamps are recommended.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus.

See the Connectors & Holders section of this catalog, pages 101-103.

Replacement vinyl and fiberglass sleeves are available, page 100.

GROUND GLASS JOINT REFERENCE CHART	
Clamp	Joint Size (mm)
Small Dual Adjust	10/30, 12/30, 14/20, 19/22, 24/40, 29/42, 34/45
Medium Dual Adjust	14/40, 19/38
Large Dual Adjust	45/50



### Single Adjust Clamps



916114



916112



916110

### Dual Adjust Clamps



916109



916111



916113

### 3-Prong Single Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Small	0 to 23mm (0 to 0.91")	6mm (0.24")	102mm (4")	8mm (0.32")	162mm (6.38")	916114	\$34.60
Medium	0 to 50mm (0 to 1.97")	19mm (0.75")	127mm (5")	11mm (0.43")	229mm (9.02")	916112	\$35.70
Large	0 to 72mm (0 to 2.83")	29mm (1.14")	127mm (5")	11mm (0.43")	260mm (10.24")	916110	\$39.30

### 3-Prong Dual Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Small	0 to 32mm (0 to 1.26")	6mm (0.24")	102mm (4")	8mm (0.32")	152mm (5.98")	916113	\$34.60
Medium	0 to 70mm (0 to 2.76")	19mm (0.75")	127mm (5")	11mm (0.43")	222mm (8.74")	916111	\$35.70
Large	0 to 103mm (0 to 4.06")	29mm (1.14")	127mm (5")	11mm (0.43")	260mm (10.24")	916109	\$39.30



## MULTI-PURPOSE

### Heavy-Duty Tapered Clamps

Heavy-Duty 4-prong, dual adjust tapered clamps are designed to hold large vessels with ground glass joint necks. Clamps are constructed with extension rods for easy attachment to lab-frames and other apparatus. Nickel-plated zinc construction.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus.

See the Connectors & Holders section of this catalog, pages 101-103.



Size	Joint Size	Prong Width	Arm Length	Arm Dia.	Overall Length	Part Number	Price
Small	24/40mm	16mm (0.63")	229mm (9.02")	13mm (0.51")	356mm (14")	915290	\$97.00
Large	34/45mm	19mm (0.75")	229mm (9.02")	13mm (0.51")	381mm (15")	915291	\$97.00

### Stainless Steel Multi-Purpose Clamps

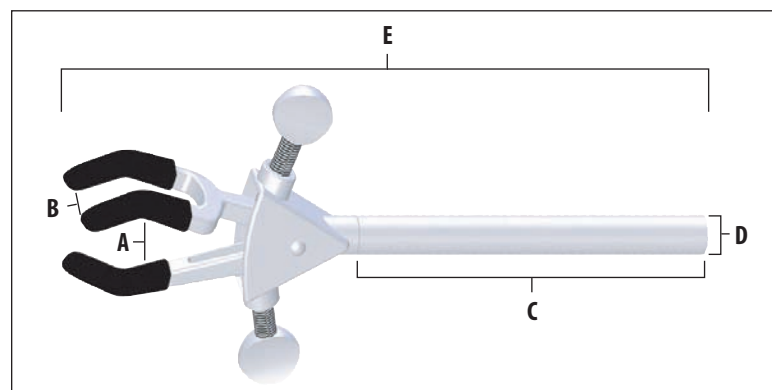
- **Stainless steel, electro-polished finish**
- **Large dual adjustment range**
- **Available in three sizes; small, medium, and large**

These durable, multi-purpose clamps are made entirely of stainless steel with an electro-polished finish and offer excellent chemical resistance and overall strength. The versatile 3-prong design secures various lab apparatus such as jointed glassware, columns, flasks, and tubes. Dual prong adjustments offer a wide range of motion. Long stainless steel extension arm offers easy positioning and depth adjustment. Autoclavable. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus.

See the Connectors & Holders section of this catalog, pages 101-103.

Replacement vinyl and fiberglass sleeves are available, page 100.



### 3-Prong Stainless Steel Dual Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Small	0 to 48mm (0 to 1.9")	13mm (0.51")	102mm (4")	10mm (0.39")	172mm (6.77")	916352	\$57.00
Medium	0 to 69mm (0 to 2.72")	19mm (0.75")	127mm (5")	13mm (0.51")	229mm (9.02")	916351	\$66.00
Large	0 to 102mm (0 to 4")	29mm (1.14")	127mm (5")	13mm (0.51")	273mm (10.75")	916350	\$73.00



### 3-Prong Multi-Purpose Clamps

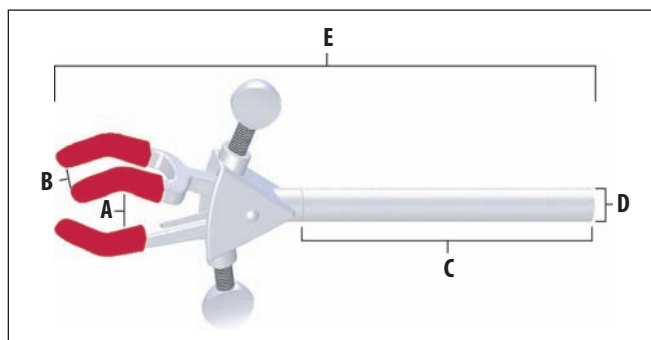
- Large grip adjustment range
- 3-prong construction
- Single or dual adjust
- Nickel-plated zinc

Designed to securely hold every type of laboratory glassware and apparatus. Long, seamless nickel plated brass tubing attaches clamp head securely and offers easy positioning in the deepest fume hoods. Clamps are constructed with round extension arms, which allow the clamps to be rotated 360°. Extension arms also allow placement of apparatus at various distances from lab-frames without compromising the integrity of your experiment. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus.

See the Connectors & Holders section of this catalog, pages 101-103.

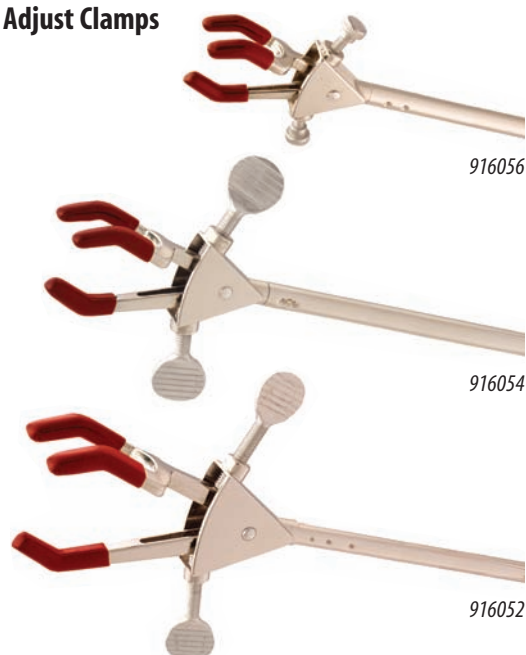
Replacement vinyl and fiberglass sleeves are available, page 100.



### 3-Prong Single Adjust Clamps



### 3-Prong Dual Adjust Clamps



### 3-Prong Single Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Small	0 to 39mm (0 to 1.54")	11mm (0.43")	102mm (4")	8mm (0.32")	160mm (6.3")	916057	\$30.40
Medium	0 to 71mm (0 to 2.8")	19mm (0.75")	127mm (5")	11mm (0.43")	218mm (8.58")	916055	\$32.00
Large	0 to 108mm (0 to 4.25")	29mm (1.14")	127mm (5")	11mm (0.43")	248mm (9.76")	916053	\$33.60

### 3-Prong Dual Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Small	0 to 46mm (0 to 1.81")	11mm (0.43")	102mm (4")	8mm (0.32")	168mm (6.61")	916056	\$30.40
Medium	0 to 69mm (0 to 2.72")	19mm (0.75")	127mm (5")	11mm (0.43")	229mm (9.02")	916054	\$32.00
Medium (extended)	0 to 69mm (0 to 2.72")	19mm (0.75")	305mm (12")	11mm (0.43")	406mm (16")	916370	\$40.00
Large	0 to 105mm (0 to 4.13")	29mm (1.14")	127mm (5")	11mm (0.43")	273mm (10.75")	916052	\$33.60
Large (extended)	0 to 105mm (0 to 4.13")	29mm (1.14")	305mm (12")	11mm (0.43")	451mm (17.76")	916371	\$42.00

## MULTI-PURPOSE

### 2-Prong Multi-Purpose Clamps

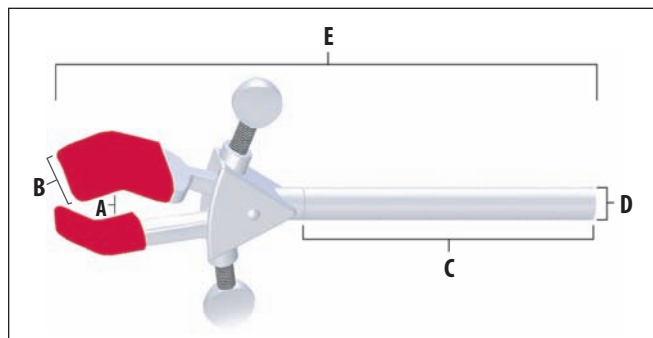
- Large grip adjustment range
- 2-prong construction
- Single or dual adjust
- Nickel-plated zinc

Designed to securely hold laboratory glassware and apparatus. Long, seamless nickel plated brass tubing attaches clamp head securely and offers easy positioning in the deepest fume hoods. Clamps are constructed with round extension arms, which allow the clamps to be rotated 360°. Extension arms also allow placement of apparatus at various distances from lab-frames without compromising the integrity of your experiment. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus.

See the Connectors & Holders section of this catalog, pages 101-103.

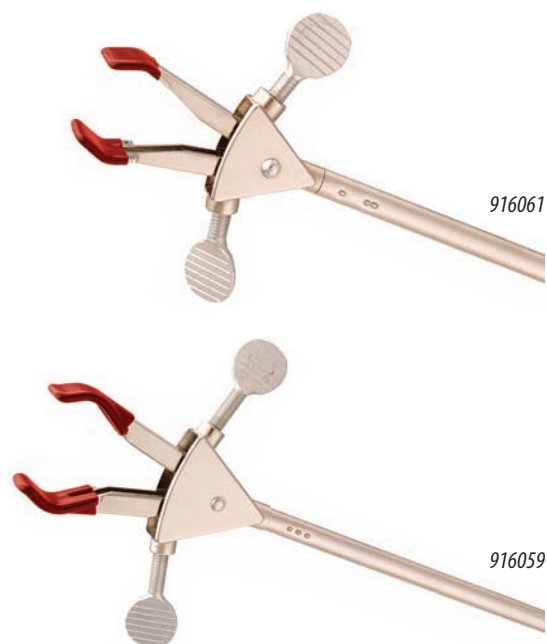
Replacement vinyl and fiberglass sleeves are available, page 100.



### 2-Prong Single Adjust Clamps



### 2-Prong Dual Adjust Clamps



#### 2-Prong Single Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Medium	0 to 78mm (0 to 3.07")	23mm (0.91")	127mm (5")	11mm (0.43")	216mm (8.5")	916060	\$24.10
Large	0 to 92mm (0 to 3.62")	23mm (0.91")	127mm (5")	11mm (0.43")	229mm (9.02")	916058	\$25.90

#### 2-Prong Dual Adjust Clamps

Size	(A) Min. to Max. Grip Size	(B) Prong Width	(C) Arm Length	(D) Arm Dia.	(E) Overall Length	Part Number	Price
Medium	0 to 75mm (0 to 2.95")	23mm (0.91")	127mm (5")	11mm (0.43")	229mm (9.02")	916061	\$24.10
Large	0 to 95mm (0 to 3.74")	23mm (0.91")	127mm (5")	11mm (0.43")	248mm (9.76")	916059	\$25.90

### Swivel Clamps

Used to hold apparatus near the lab-frame. Unlike extension clamps, the swivel clamps have an integral holder for attaching to a lab-frame or other apparatus. Built-in holder grips rods up to 19mm (0.75") in diameter and is adjustable for forward or reverse-facing adjustment screws. Shaft wing-nut allows the holding angle of the swivel clamp to adjust through 360° of rotation and can be locked in place once desired position is achieved. Nickel-plated zinc construction. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** Replacement vinyl and fiberglass sleeves are available, page 100.



Description	Size	Min. to Max. Grip Size	Prong Width	Overall Length	Part Number	Price
2-Prong Single Adjust	Medium	0 to 76mm (0 to 3")	23mm (0.91")	163mm (6.42")	916067	\$23.40
2-Prong Single Adjust	Large	0 to 95mm (0 to 3.74")	23mm (0.91")	180mm (7.09")	916068	\$26.40
3-Prong Dual Adjust	Medium	0 to 69mm (0 to 2.72")	20mm (0.79")	178mm (7.01")	916066	\$34.60

### Fixed-Position Clamps

Used to hold apparatus near the lab-frame where no adjustment is required after set-up. Built-in holder grips rods up to 19mm (0.75") in diameter. Fixed-position clamps have an integral holder but can be rotated after attachment to a lab-frame or other apparatus. Available in 2-prong or 3-prong. Nickel-plated zinc construction. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** Replacement vinyl and fiberglass sleeves are available, page 100.



Description	Size	Min. to Max. Grip Size	Prong Width	Overall Length	Part Number	Price
2-Prong Single Adjust	Medium	0 to 77mm (0 to 3.03")	23mm (0.91")	133mm (5.24")	916070	\$23.30
3-Prong Dual Adjust	Medium	0 to 69mm (0 to 2.72")	20mm (0.79")	146mm (5.75")	916069	\$30.00

### Double Jaw Utility Clamp

Swivels 360° and locks securely in desired position. These 2-prong clamps have a medium and a large clamp on each end. Nickel-plated zinc construction. Supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** Replacement vinyl and fiberglass sleeves are available, page 100.



Description	Min. to Max. Grip Size	Prong Width	Overall Length	Part Number	Price
Medium 2-prong	0 to 76mm (0 to 3")	23mm (0.91")	222mm (8.74")	916073	\$31.70
Large 2-prong	0 to 95mm (0 to 3.74")				

## MULTI-PURPOSE

### Thermometer Swivel Clamp

Holds glass tubes and thermometers 114mm (4.49") from support rod. Clamp features safety adjust spring plate jaws that adjust to any angle with locking wing nut. Built-in holder grips rods up to 19mm (0.75") in diameter. Lightweight, rust, and corrosion-resistant. Nickel-plated construction.

Min. to Max. Grip Size	Overall Length	Part Number	Price
6 to 8mm (0.24 to 0.32")	159mm (6.26")	916075	\$28.60

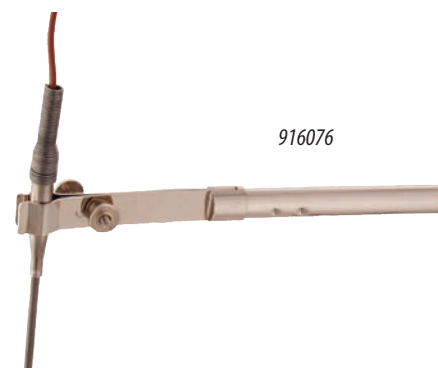


### Thermometer / Thermocouple Extension Clamp

Lightweight clamp holds glass tubing/thermometers or thermocouples up to 178mm (7") from support rod. Tightening wing nut applies tension to the nickel-plated jaws.

**NOTE:** An additional holder must be purchased in order to attach clamps to frames or other apparatus. See the Connectors & Holders section of this catalog, pages 101-103.

Min. to Max. Grip Size	Ext Arm Length	Arm Dia.	Overall Length	Part Number	Price
6 to 12mm (0.24 to 0.47")	127mm (5")	11mm (0.43")	210mm (8.27")	916076	\$24.10



### Wall Clamp

Ideal for securing fermentation tubes, burets or other small objects to walls where no frames are available. Integral self-tapping screw secures clamp to wall. Nickel-plated construction.

Min. to Max. Grip Size	Overall Length	Part Number	Price
5 to 10mm (0.2 to 0.39")	80mm (3.15")	916081	\$22.00

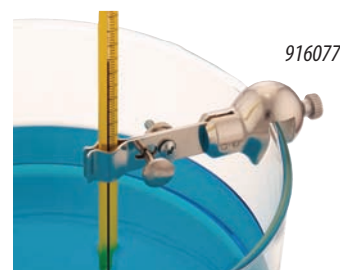


### Water Bath Clamps

Holds a variety of apparatus, including glass tubes and thermometers onto glass water bath walls. Built-in holder grips walls of varying thickness, up to 9mm (0.35"). Knurled thumbscrew tightens jaws to hold objects firmly. Nickel-plated zinc construction. Large water bath clamp is supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

**NOTE:** Replacement vinyl and fiberglass sleeves are available, page 100.

Size	Min. to Max. Grip Size	Prong Width	Overall Length	Part Number	Price
Small	5 to 10mm (0.2 to 0.39")	N/A	89mm (3.5")	916077	\$21.50
Large	0 to 46mm (0 to 1.81")	11mm (0.43")	117mm (4.61")	916078	\$32.00



For the items listed below an additional holder must be purchased in order to attach clamps to frames or other apparatus. See the Connectors & Holders section of this catalog, pages 101-103.

### Chain Clamps

Holds large round or irregular shaped objects firmly, yet gently to lab-frames and rods. Quick and secure slip-on chain connection with large, easy-to-turn adjusting knob. Extension arm allows user to vary distance from the frame. Constructed of nickel-plated zinc with strong, chromed-brass chain.

Size	Min. to Max. Dia. Size	Ext. Arm Length	Arm Dia.	Overall Length	Part Number	Price
Small	35 to 170mm (1.38 to 6.69")	127mm (5")	13mm (0.51")	188mm (7.4")	916072	\$43.00
Large-5	35 to 280mm (1.38 to 11.02")	127mm (5")	13mm (0.51")	206mm (8.11")	916129	\$61.40
Large-12	35 to 280mm (1.38 to 11.02")	305mm (12")	13mm (0.51")	384mm (15.12")	916372	\$76.75

### Column Clamps

These sturdy, easily adjusted, multi-purpose clamps are ideal for holding large cylindrical glassware and similar objects. A large, flat thumbscrew/worm-drive permits maximum tightening or removal in minimum time. Clamp is constructed of corrosion-resistant stainless steel. Ideal for chromatography columns.

Size	Min. to Max. Dia. Size	Ext. Arm Length	Arm Dia.	Overall Length	Part Number	Price
Small	65 to 89mm (2.56 to 3.5")	211mm (8.31")	11mm (0.43")	282mm (11.1")	916188	\$49.30
Medium	91 to 114mm (3.58 to 4.49")	211mm (8.31")	11mm (0.43")	315mm (12.4")	916189	\$50.40
Large	64 to 140mm (2.52 to 5.51")	211mm (8.31")	11mm (0.43")	338mm (13.31")	916190	\$51.40
X-Large	92 to 165mm (3.62 to 6.5")	211mm (8.31")	11mm (0.43")	368mm (14.49")	916191	\$51.40

### Nester Extension Clamp

Securely holds large or small glass distillation columns and odd-shaped glassware. Constructed of stainless steel with strong, chromed-brass band and chain.

Min. to Max. Dia. Size	Ext. Arm Length	Arm Dia.	Overall Length	Part Number	Price
50 to 102mm (1.97 to 4")	152mm (5.98")	10mm (0.39")	262mm (10.32")	916192	\$65.60

### PVC Coated Open Extension Rings

Ideal for supporting funnels, round bottom flasks, reaction vessels, and other apparatus that requires lower support. Opening in PVC coated aluminum ring allows for easy removal of sample container. PVC coating protects glassware. Long extension arm permits depth adjustment of the open ring from the lab-frame or ring stand.

Ring Dia.	Ext. Arm Length	Arm Dia.	Overall Length	Part Number	Price
76mm (3")	254mm (10")	9mm (0.35")	328mm (12.91")	916330	\$39.00
102mm (4")	305mm (12")	9mm (0.35")	404mm (15.91")	916331	\$52.00
127mm (5")	305mm (12")	11mm (0.43")	427mm (16.81")	916332	\$69.00

### Open Rings

Lightweight rings mount funnels, boiling flasks, and other irregular-shaped objects to lab-frames. Open ring section allows items to pass in and out of support area easily, reducing risk of breakage. Aluminum construction.

Ring Dia.	Ext. Arm Length	Arm Dia.	Overall Length	Part Number	Price
76mm (3")	58mm (2.28")	9mm (0.35")	132mm (5.2")	916208	\$21.50
102mm (4")	58mm (2.28")	9mm (0.35")	158mm (6.22")	916209	\$28.80
127mm (5")	61mm (2.4")	11mm (0.43")	183mm (7.2")	916210	\$39.30





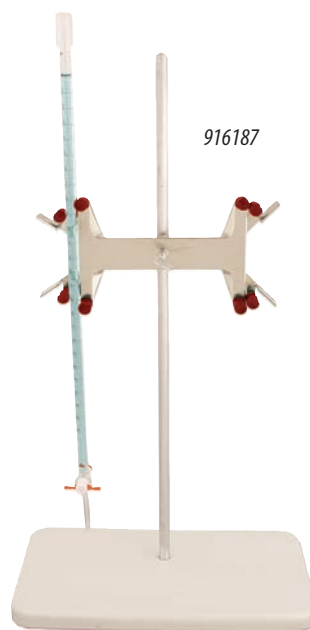
## SPECIALTY

### Buret Holders

Double Buret Clamp holds any size buret from micro to 100mL capacity. Simply compress the scissor-like mechanism, insert buret and gently release to grip. Numbers and graduation on buret remain easy to read. For height adjustments, recompress mechanism and slide buret up or down and gently release. Clamp unit attaches to optional standard support rod with built-in reinforced hook connector. Adjusting nut faces forward for easy use. Aluminum support rod attaches to optional porcelain base.

**Support Rod (dia. x L):** 13 x 578mm (0.51 x 22.76")  
**Porcelain Base (L x W x H):** 178 x 330 x 25mm (7 x 13 x 1")

Description	Part Number	Price
Double Buret Clamp (only)	916071	\$44.70
Support Stand with Rod (only)	916186	\$126.00
Double Buret Clamp & Support Stand with Rod (complete)	916187	\$175.00



### Kettle Clamps

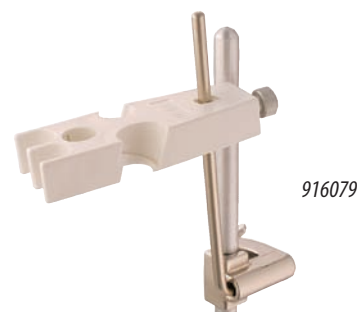
Holds flask and cover together firmly. Three insulated spring-activated clamping arms. Stainless steel springs. For use on reaction kettles.

Flask Size	Inside Dia.	Part Number	Price
500mL, 1000mL	125mm (4.92")	971065	\$119.00
2000mL, 3000mL, 4000mL	142mm (5.59")	971066	\$121.00

### Electrode Support Clamp

Permits suspension of electrodes over beaker for potentiometric titrations. Holds any electrode clamp at desired level. Built-in nickel-plated zinc holder grips rods up to 19mm (0.75") in diameter.

Overall Length	Part Number	Price
178mm (7")	916079	\$46.90



### Suspension Clamp

Holds thermometers, potash bulbs or drying tubes 114mm (4.49") from support rod. Machine tapered, nickel-plated brass hook won't bend, rust, or corrode. Built-in holder grips rods up to 19mm (0.75") in diameter.

Overall Length	Part Number	Price
137mm (5.39")	916080	\$22.00



### Support Clamp

Supports electrolysis apparatus, glass rods or tubing at any angle. Arms are nickel-plated brass with vinyl coating. Easily supports cylindrical objects up to 19mm (0.75") diameter. Built-in holder grips rods up to 19mm (0.75") in diameter.

Overall Length	Prong Width	Part Number	Price
152mm (5.99")	25mm (1")	916074	\$59.30



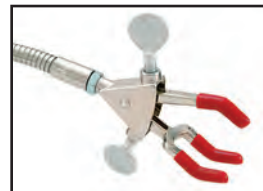
Ultra Flex Support Systems have unique flexible arms that are extremely versatile and can be placed in virtually any position or angle. The Ultra Flex comes in three different systems; base plate, lab-frame connector, and bench clamp. Each system includes a 2-Prong Clamp Head, 3-Prong Clamp Head, Spring Clamp Head, nickel-plated flex arm in 305mm (12") or 457mm (18") length, and utility wrench. 2-prong and 3-prong clamp heads also supplied with vinyl and fiberglass sleeve prong covers for high temperature applications.

<b>Arm Length, Ultra Flex 12:</b>	305mm (12")
<b>Ultra Flex 18:</b>	457mm (18")
<b>Arm Diameter:</b>	13mm (0.51")
<b>Max. Grip Size, 2-Prong Clamp Head:</b>	75mm (2.95")
<b>3-Prong Clamp Head:</b>	69mm (2.72")
<b>Spring Clamp Head:</b>	13mm (0.51")

2-Prong Clamp Head



3-Prong Clamp Head



Spring Clamp Head



### Ultra Flex Support System with Base Plate

- Stable base plate
- All metal construction

Talboys Ultra Flex Support System with Base Plate is designed with a stable, steel base plate with chemical resistant black finish, that fits easily on bench tops or in fume hoods.

Description	Part Number	Price
Ultra Flex 12 with Base Plate	916310	\$199.00
Ultra Flex 18 with Base Plate	916311	\$239.00



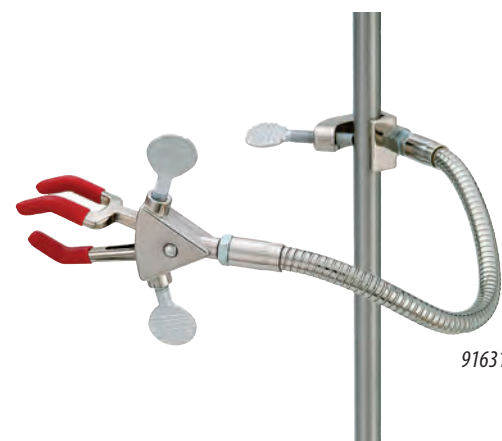
916311

### Ultra Flex Support System with Lab-Frame Connector

- Cast alloy lab-frame connector
- Mounts to lab-frames or support stands

Ultra Flex Support System with Lab-Frame Connector securely attaches to support stands, lab-frames, or any support rod up to 19mm (0.75") in diameter. Ideal for use in fume hoods. Lab-frame connector is made of cast alloy.

Description	Part Number	Price
Ultra Flex 12 with Lab-Frame Connector	916314	\$154.00
Ultra Flex 18 with Lab-Frame Connector	916315	\$184.00



916314

### Ultra Flex Support System with Bench Clamp

- Aluminum bench clamp
- Easily attaches to most lab benches

Ultra Flex Support System with Bench Clamp easily attaches to the side of your lab bench or counter top, which helps utilize more space in your lab. Bench clamp is aluminum.

Description	Part Number	Price
Ultra Flex 12 with Bench Clamp	916312	\$176.00
Ultra Flex 18 with Bench Clamp	916313	\$210.00



916313

### Replacement Parts

Description	Part Number	Price
2- Prong Clamp Head	916321	\$22.00
3- Prong Clamp Head	916322	\$29.20
Spring Clamp Head	916323	\$22.90
12" Flex Arm	916320	\$93.00
18" Flex Arm	916328	\$138.00
Base Plate	916324	\$108.00
Lab-Frame Connector	916326	\$36.70
Bench Clamp	916325	\$66.60

## ACCESSORIES

### Replacement Sleeves

Sleeves are easily removed for cleaning or replacement. Both vinyl and fiberglass sleeves are available. Fiberglass sleeves are recommended for all applications above 100°C (212°F).



Clamp Size	Red Vinyl Sleeve		Black Vinyl Sleeve		Fiberglass Sleeve	
	Part Number	Price	Part Number	Price	Part Number	Price
Medium 2-Prong (2 pack)	916115	\$6.40	N/A	N/A	916116	\$6.40
Large 2-Prong (2 pack)	916117	\$6.40	N/A	N/A	916118	\$6.40
Small 3-Prong (3 pack)	916119	\$6.40	916249	\$6.40	916120	\$6.40
Medium 3-Prong (3 pack)	916121	\$6.40	916250	\$6.40	916122	\$6.40
Large 3-Prong (3 pack)	916123	\$6.40	916251	\$6.40	916124	\$6.40

### Thumbscrew Knob

Thumbscrew tightening knob features a 32mm (1.25") slot in the center of a nylon disc that will accept thumbscrews supplied with the LabJaws and UltraJaws Multi-Purpose Clamps, excluding the stainless steel version. Makes tightening of clamps easier on the hands and wrists.



Overall Diameter	Thumbscrew Slot	Part Number	Price
64mm (2.5")	32mm (1.25")	915043	\$30.70



### Regular Holder

Ideal for holding clamps to lab-frames. Use wherever clamping at 90° is required. Nickel-plated zinc construction.

Min. to Max. Grip Size	Part Number	Price
0 to 18mm (0 to 0.71")	916051	\$15.40



### Jumbo Holder

Stainless steel electro-polished finish or aluminum construction. Ideal for holding clamps to lab-frames or ring stands.

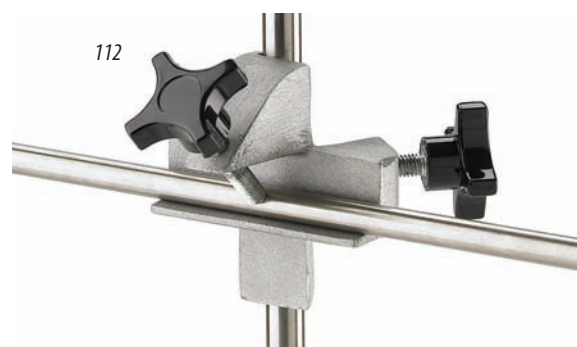
Material	Min. to Max. Grip Size	Part Number	Price
Stainless Steel	0 to 21mm (0 to 0.83")	916357	\$39.00
Aluminum	0 to 21mm (0 to 0.83")	916050	\$23.40



### Heavy-Duty Holder

For mounting stirrers and other apparatus. Clamp is constructed of strong aluminum alloy; fitted with over-sized knobs for very secure positioning. Rods supported on 102mm (4") long surface to avoid vibration and wobble.

Material	Min. to Max. Grip Size	Part Number	Price
Aluminum	6 to 24mm (0.24 to 0.95")	112	\$68.00



### Swivel Holder

Two rod holders with center swivel capacity allow tilting of clamps at any angle in parallel planes. Outside adjustment screw allows close proximity between items being held. Nickel-plated zinc construction

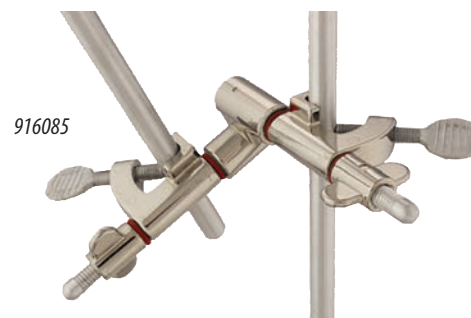
Min. to Max. Grip Size	Part Number	Price
0 to 19mm (0 to 0.75")	916065	\$21.20



### All-Position Clamp Holder

Surpass standard holding capabilities. The all-position clamp holder permits adjustment at any angle in any plane. Holders are set at 90° to each other, connected by a 90° connector, allowing 360° rotation. Nickel-plated zinc construction

Min. to Max. Grip Size	Part Number	Price
0 to 19mm (0 to 0.75")	916085	\$43.00



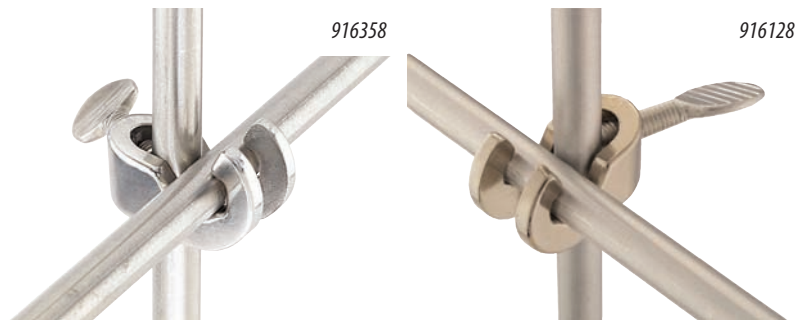


## CONNECTORS & HOLDERS

### Hook Connector

Stainless steel electro-polished finish or nickel-plated zinc construction. Simple, versatile, and easy-to-use. Hook connectors allow one-handed assembly of two components with one adjustment screw.

Material	Min. to Max. Grip Size	Part Number	Price
Stainless Steel	0 to 13mm (0 to 0.51")	916358	\$22.00
Nickel-Plated Zinc	0 to 13mm (0 to 0.51")	916128	\$8.50



### End-to-End Connector

Extend the length of lab-frame rods. Strong aluminum alloy connector permits end-to-end joining of rods. Precision boring of connector ensures perfect alignment of rods. Corrosion-resistant. Comes with two set screws.

Min. to Max. Grip Size	Part Number	Price
0 to 13mm (0 to 0.51")	916133	\$16.20



### Rod End Connector

Holds rods firmly at 90°. Use when semi-permanent installations are required. Comes with two set screws and is precision bored for close fit. Nickel-plated zinc construction.

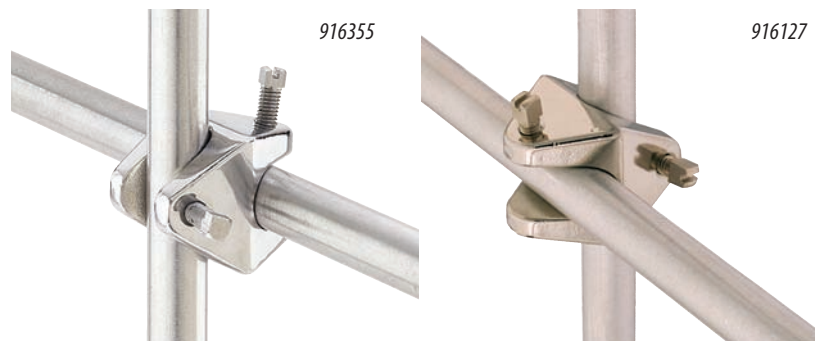
Min. to Max. Rod Size	Part Number	Price
0 to 13mm (0 to 0.51")	916126	\$9.70



### S-Connector

Stainless steel electro-polished finish or nickel-plated zinc. Clamp is ideal for constructing lab-frames or other supports requiring the connection of two perpendicular rods. Clamp connects two 13mm (0.51") rods at a 90° angle and features separate adjustment screws for each rod location.

Material	Min. to Max. Grip Size	Part Number	Price
Stainless Steel	0 to 13mm (0 to 0.51")	916355	\$23.00
Nickel-Plated Zinc	0 to 13mm (0 to 0.51")	916127	\$14.00



### Frame Connector (pack of 12)

Improved contour delivers simplicity and strength. Angled adjustment screws allow easy set-up and prevent misalignment. Smooth, rounded surfaces are easy-to-clean. Small size maximizes lab-frame space. Bright dipped aluminum finish sealed with silicon for maximum protection against corrosion.

Min. to Max. Grip Size	Part Number	Price (12 pack)
0 to 13mm (0 to 0.51")	916125	\$148.00





### Universal Stirrer Mounting Bracket

Use to mount stirrers and other devices to lab-frames. Aluminum mounting bracket with attachment screws.

Max. Weight Mounted	Min. to Max. Grip	Part Number	Price
5lbs (2.27kg)	0 to 20mm (0 to 0.78")	916134	\$5.70



### Multi-Rod Connector

Maximum adjustment capability within one connector. Two adjustment rods fit into the oval hole in the connector, preventing turning when tightened. Side and front 13mm (0.51") holes allow creation of a variety of configurations. Nickel-plated zinc construction.

Min. to Max. Rod Size	Part Number	Price
0 to 13mm (0 to 0.51")	916131	\$24.70



### Wrench

Special adjusting wrench is for use with lab-frame items with set screws.

Length	Part Number	Price
79mm (3.11")	916139	\$36.70



### Channel Connector

Special connector fastens lab-frame rod to steel 41mm (1.61") channels. Loosen the connector and slide up or down for easy adjustment of rod position.

Dimensions	Part Number	Price
33 x 40mm (1.3 x 1.58")	916130	\$15.70



### Horizontal Mounting Bars with Coupler

Threaded end for direct installation into channels. Comes with spring coupler for use in steel 41mm (1.61") channels. Locking nut included. Use with steel channel frames.

Bar Length	Part Number	Price
51mm (2")	916135	\$18.90
102mm (4")	916136	\$21.00
152mm (6")	916137	\$22.80
203mm (8")	916138	\$24.70



## LAB-FRAMES

### Frame Rods

Everything you need to customize a lab-frame to your laboratory space. Quality construction throughout. Frame rods are available in many lengths and materials.

#### Aluminum

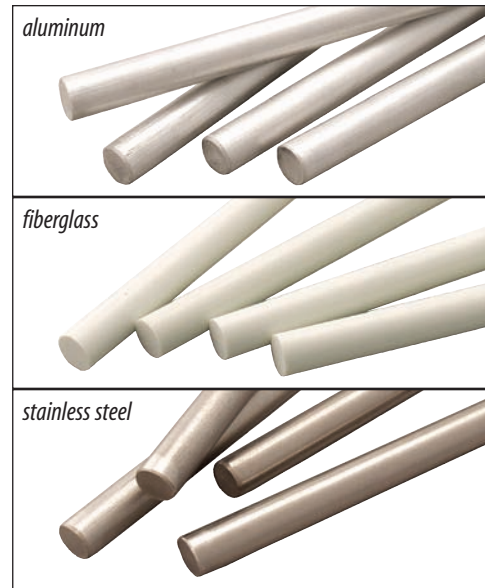
Center-less ground for precise fit. These hard aluminum rods provide a smooth fit with lab-frames. Corrosion resistant with chamfered ends for easy location.

#### Fiberglass

Strong and resilient, fiberglass rods will not corrode or rust. Structurally strong and resilient to clamp compression scars.

#### Stainless Steel

Heavy-duty, top-of-the-line rods provide maximum strength and durability. Constructed of 303 stainless steel.



Rod Diameter	Rod Length	Aluminum		Fiberglass		Stainless Steel	
		Part Number	Price	Part Number	Price	Part Number	Price
0.51" (13mm)	1.61" (41mm)	916140	\$3.70	916151	\$3.40	916162	\$5.60
0.51" (13mm)	2" (51mm)	916141	\$4.80	916152	\$3.40	916163	\$5.60
0.51" (13mm)	6" (152mm)	916142	\$6.60	916153	\$5.80	916164	\$8.90
0.51" (13mm)	12" (305mm)	916143	\$10.80	916154	\$8.90	916165	\$14.90
0.51" (13mm)	18" (457mm)	916144	\$12.30	916155	\$11.30	916166	\$19.60
0.51" (13mm)	24" (610mm)	916145	\$14.90	916156	\$13.40	916167	\$24.70
0.51" (13mm)	36" (914mm)	916146	\$16.50	916157	\$15.20	916168	\$35.70
0.51" (13mm)	48" (1219mm)	916147	\$25.70	916158	\$23.10	916169	\$45.10
0.51" (13mm)	60" (1524mm)	916148	\$29.40	916159	\$27.50	916170	\$52.50
0.51" (13mm)	72" (1829mm)	916149	\$33.00	916160	\$28.30	916171	\$62.90
0.51" (13mm)	96" (2438mm)	916150	\$42.00	916161	\$39.30	916172	\$82.90

### Lab-Frame Foot

Stainless steel electro-polished finish or nickel-plated zinc construction. Strong, durable lab-frame foot is designed for mounting lab-frames permanently to bench tops, fume hoods, walls, and floors. Spilled fluids roll right off the smooth body contour, minimizing contamination and easing clean-ups. Features a set screw and includes three 0.75" (19mm) mounting screws.



Material	Min. to Max. Grip Size	Dimensions (Dia. x H)	Part Number	Price
Stainless Steel	0 to 0.51" (0 to 13mm)	2.75 x 1.25" (70 x 32mm)	916356	\$35.30
Nickel-Plated Zinc	0 to 0.51" (0 to 13mm)	2.75 x 1.25" (70 x 32mm)	916132	\$17.60



### Need a custom Lab-Frame?

Talboys has the ability to customize a Lab-Frame to your specifications. Call or visit [www.Talboys.com](http://www.Talboys.com) for assistance.

### Lab-Frame Kits

Talboys offers the widest choice of standard frames available, plus the accessories to custom-fit any laboratory with the right frame for the job. Standard Lab-Frame sets are available in six sizes. Options of traditional center-less ground aluminum, non-corroding fiberglass, or tough stainless steel rods are available. Nickel-plated zinc connectors and lab-frame feet are standard with all kits.

### Small Lab-Frame

Vertical mounting, great for glassware set-ups in small laboratories or where space is limited. Frame measures 24 x 24" (610 x 610mm). Base is 18" (457mm) wide for stability. Base may be permanently mounted to bench top with screws (included).

- Components:**
- (8) 2" (51mm) rods
  - (2) 18" (457mm) rods
  - (8) 24" (610mm) rods
  - (18) S-Connectors
  - (4) Rod End Connectors
  - (4) Lab-Frame Feet



Frame Dimensions	Base Dimension	Aluminum		Fiberglass		Stainless Steel	
		Part Number	Price	Part Number	Price	Part Number	Price
24 x 24" (610 x 610mm)	18" (457mm) wide	916173	\$337.00	916193	\$404.00	916197	\$556.00

### Medium Lab-Frame

Horizontal or vertical mounting, convenient for distillation or general set-up. Frame measures 24 x 48" (610 x 1219mm). Base is 18" (457mm) wide for stability.

- Components:**
- (8) 2" (51mm) rods
  - (2) 18" (457mm) rods
  - (7) 24" (610mm) rods
  - (4) 48" (1219mm) rods
  - (35) S-Connectors
  - (4) Rod End Connectors
  - (4) Lab-Frame Feet



Frame Dimensions	Base Dimension	Aluminum		Fiberglass		Stainless Steel	
		Part Number	Price	Part Number	Price	Part Number	Price
24 x 48" (610 x 1219mm)	18" (457mm) wide	916174	\$423.00	916194	\$561.00	916198	\$786.00

## LAB-FRAMES

### Large Lab-Frame

This 48 x 48" (1219 x 1219mm) frame is ideal for complex glassware setups. Base is 18" (457mm) wide for stability.

- Components:**
- (10) 2" (51mm) rods
  - (3) 18" (457mm) rods
  - (2) 36" (914mm) rods
  - (10) 48" (1219mm) rods
  - (38) S-Connectors
  - (4) Rod End Connectors
  - (6) Lab-Frame Feet



Frame Dimensions	Base Dimension	Aluminum		Fiberglass		Stainless Steel	
		Part Number	Price	Part Number	Price	Part Number	Price
48 x 48" (1219 x 1219mm)	18" (457mm) wide	916175	\$650.00	916195	\$754.00	916199	\$1,110.00

### Extra-Large Lab-Frame

Versatile, adaptable Extra-Large Lab-Frame measures 48 x 72" (1219 x 1829mm) and may be used either horizontally or vertically.

- Components:**
- (6) 2" (51mm) rods
  - (6) 12" (305mm) rods
  - (2) 24" (610mm) rods
  - (7) 48" (1219mm) rods
  - (5) 72" (1829mm) rods
  - (45) S-Connectors
  - (4) Rod End Connectors
  - (8) Lab-Frame Feet



Frame Dimensions	Aluminum		Fiberglass		Stainless Steel	
	Part Number	Price	Part Number	Price	Part Number	Price
48 x 72" (1219 x 1829mm)	916176	\$902.00	916196	\$991.00	916200	\$1,219.00

### Heavy-Duty Lab-Frame

Floor mounted, free-standing unit is specifically designed for heavy-duty work such as pilot plant set-ups. Outside frame is constructed of a strong, but light weight steel channel. Interior lattice uses a horizontal channel connector; one end accommodates the rod, the other end fits into the channel and locks tightly with a bolt. Loosen the bolt, and the connector slides easily along the channel track for simple lattice adjustment. Entire apparatus is supported on sturdy, counter-weighted cast iron feet, which may be bolted to the floor for added stability required in top-heavy installations.

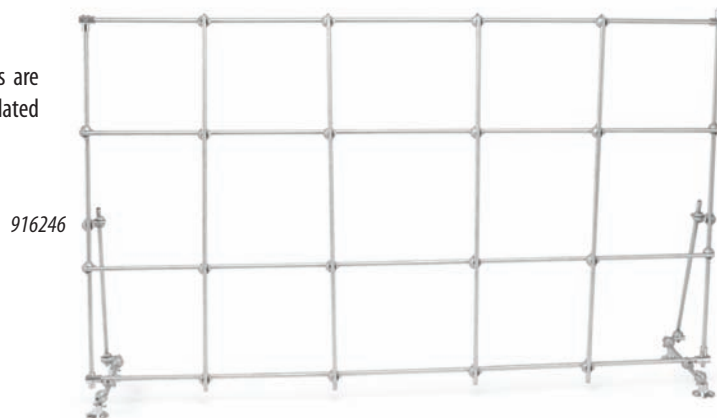
- Components:**
- (5) 48" (1219mm) rods
  - (3) 72" (1829mm) rods
  - (15) S-Connectors
  - (16) Channel Connectors
  - (24) clamping nuts
  - (2) 21.7" (551mm) cast iron feet
  - (1) frame kit
  - (1) wrench



Frame Dimensions	Overall Dimension	Aluminum		Fiberglass		Stainless Steel	
		Part Number	Price	Part Number	Price	Part Number	Price
48 x 72" (1219 x 1829mm)	75"H (1219mm) x 72"W (1829mm)	916178	\$1,267.00	916201	\$1,783.00	916202	\$2,370.00

### Fume Hood Kits

Choose from four kits specifically designed to fit within laboratory fume hoods. Rods are constructed of stainless steel. Connectors and lab-frame feet are constructed of nickel-plated zinc.



#### 4' (1.22m) Fume Hood Kit

- Components:**
- (8) 2" (51mm) rods
  - (2) 12" (305mm) rods
  - (2) 18" (457mm) rods
  - (4) 36" (914mm) rods
  - (4) 38" (965mm) rods
  - (30) Frame Connectors
  - (4) Rod End Connectors
  - (4) Lab-Frame Feet

**Frame:** 36 x 38" (914 x 965mm)  
**Base:** 12" (305mm) wide

#### 5' (1.52m) Fume Hood Kit

- Components:**
- (8) 2" (51mm) rods
  - (2) 12" (305mm) rods
  - (2) 18" (457mm) rods
  - (5) 36" (914mm) rods
  - (4) 50" (1270mm) rods
  - (34) Frame Connectors
  - (4) Rod End Connectors
  - (4) Lab-Frame Feet

**Frame:** 36 x 50" (914 x 1270mm)  
**Base:** 12" (305mm) wide

#### 6' (1.83m) Fume Hood Kit

- Components:**
- (8) 2" (51mm) rods
  - (2) 12" (305mm) rods
  - (2) 18" (457mm) rods
  - (6) 36" (914mm) rods
  - (4) 62" (1575mm) rods
  - (38) Frame Connectors
  - (4) Rod End Connectors
  - (4) Lab-Frame Feet

**Frame:** 36 x 62" (914 x 1575mm)  
**Base:** 12" (305mm) wide

#### 8' (2.44m) Fume Hood Kit

- Components:**
- (10) 2" (51mm) rods
  - (3) 12" (305mm) rods
  - (2) 18" (457mm) rods
  - (8) 36" (914mm) rods
  - (4) 86" (2184mm) rods
  - (45) Frame Connectors
  - (4) Rod End Connectors
  - (6) Lab-Frame Feet

**Frame:** 36 x 86" (914 x 2184mm)  
**Base:** 12" (305mm) wide

Part Number	Price
916244	\$715.00

Part Number	Price
916245	\$775.00

Part Number	Price
916246	\$835.00

Part Number	Price
916248	\$955.00



## SUPPORT STANDS

### Support Stands

This Support Stand is made entirely of 303 stainless steel. It consists of a sturdy base that can accommodate vessels up to 18" (457mm) in diameter within the "U" shaped base. The threaded stainless steel support rod is 0.63" (16mm) in diameter and is screwed into the support stand base. The base measures 17.75" (451mm) across and 10.5" (267mm) deep overall.

\* Includes support rod.

Description	Part Number	Price
Support Stand with 23" Rod	110-23	\$216.00
Support Stand with 28" Rod	110	\$228.00
Support Stand with 36" Rod	110-36	\$261.00
Support Stand with 40" Rod	110-40	\$277.00
Support Stand with 48" Rod	110-48	\$291.00
Support Stand with 60" Rod	110-60	\$321.00

### Support Stand Stabilizer Knobs

Support Stand Stabilizer Knobs can be added to the two additional threaded holes in the base legs to secure the stand to a bench top.

Description	Part Number	Price
Support Stand Stabilizer Knobs (2 per pack)	110C	\$43.00

### Heavy-Duty Support Stands

Heavy-Duty Support Stand was designed to permit cylindrical vessels up to 12" (305mm) in diameter to sit close to the support rod. Support rod is ideal for mounting stirring motors for heavy equipment. Each of the four corners rests on a rubber cushion. The cast iron base measures 16.5" (419mm) across and 12" (305mm) deep overall and has a black enamel finish.

\* Includes support rod.

Description	Part Number	Price
Heavy-Duty Support Stand with 18" Rod	916204	\$227.00
Heavy-Duty Support Stand with 23" Rod	916232	\$239.00
Heavy-Duty Support Stand with 28" Rod	916233	\$252.00
Heavy-Duty Support Stand with 36" Rod	916234	\$288.00
Heavy-Duty Support Stand with 40" Rod	916235	\$306.00
Heavy-Duty Support Stand with 48" Rod	916236	\$322.00
Heavy-Duty Support Stand with 60" Rod	916237	\$355.00

### Replacement Support Rods

Description	Diameter	Part Number	Price
18" (457mm) stainless steel rod	0.63" (16mm)	110A-18	\$72.00
23" (584mm) stainless steel rod	0.63" (16mm)	110A-23	\$79.00
28" (711mm) stainless steel rod	0.63" (16mm)	110A	\$87.00
36" (914mm) stainless steel rod	0.63" (16mm)	110A-36	\$110.00
40" (1016mm) stainless steel rod	0.63" (16mm)	110A-40	\$128.00
48" (1219mm) stainless steel rod	0.63" (16mm)	110A-48	\$139.00
60" (1524mm) stainless steel rod	0.63" (16mm)	110A-60	\$154.00

Support Stand



Heavy-Duty Support Stand



Cast iron support stand bases are constructed with black enamel finish. All bases feature a built-in support rod holder with locking knob that accepts a 0.51" (13mm) dia. support rod.  
 \* Support rods are not included.

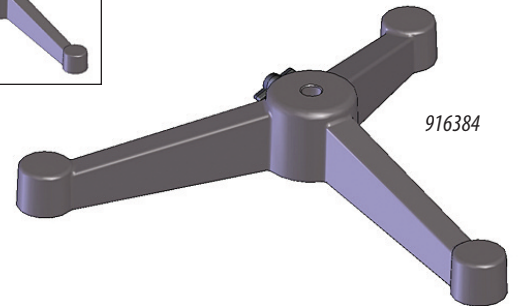
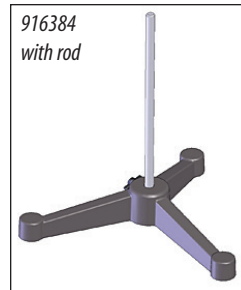
### Rectangular Base Support Stand, cast iron

Description	Dimensions	Part Number	Price
Rectangular Base (only)	4 x 6" (102 x 152mm)	916380	\$28.00
Rectangular Base (only)	5 x 8" (127 x 203mm)	916381	\$46.00
Rectangular Base (only)	6 x 9" (152 x 229mm)	916382	\$60.00
Rectangular Base (only)	8 x 10" (203 x 254mm)	916383	\$88.00



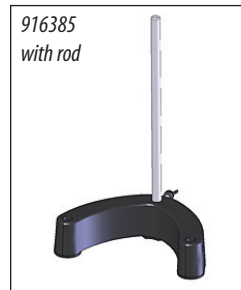
### Tripod Base Support Stand, cast iron

Description	Diameter	Part Number	Price
Tripod Base (only)	6" (152mm)	916384	\$56.00



### U-Shaped Base Support Stand, cast iron

Description	Dimensions	Part Number	Price
U-Shaped Base (only)	7 x 7" (178 x 178mm)	916385	\$28.00



### Aluminum Support Rods

Description	Diameter	Part Number	Price
12" (305mm) Aluminum Rod	0.51" (13mm)	916143	\$10.80
18" (457mm) Aluminum Rod	0.51" (13mm)	916144	\$12.30
24" (610mm) Aluminum Rod	0.51" (13mm)	916145	\$14.90
36" (914mm) Aluminum Rod	0.51" (13mm)	916146	\$16.50

### Stainless Steel Support Rods

Description	Diameter	Part Number	Price
12" (305mm) Stainless Steel Rod	0.51" (13mm)	916165	\$14.90
18" (457mm) Stainless Steel Rod	0.51" (13mm)	916166	\$19.60
24" (610mm) Stainless Steel Rod	0.51" (13mm)	916167	\$24.70
36" (914mm) Stainless Steel Rod	0.51" (13mm)	916168	\$35.70

## SUPPORTS

### Round Support Plate

Aluminum plate supports beakers, mantles and petri dishes. Fits standard lab-frames using Talboys connectors or holders, shown on pages 101-103.

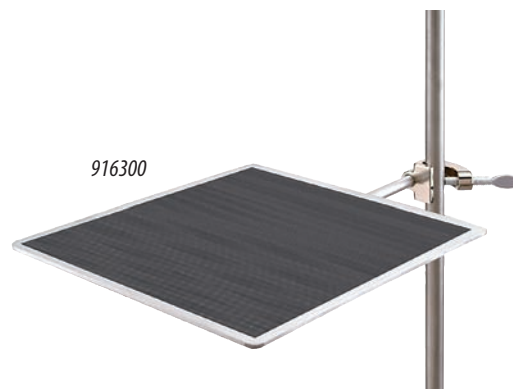
Plate Diameter	Distance from Rod	Part Number	Price
6" (152mm)	2.6" (66mm)	916206	\$53.80



### Support Plates

Designed to hold Hotplates/Stirrers and other apparatus to lab-frames or ring stands. Aluminum construction offers strength and durability. Support plates include a non-skid rubber mat and a built-in holder that grips rods up to 0.75" (19mm) in diameter.

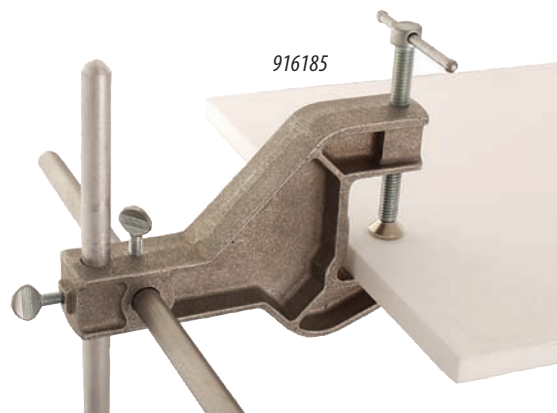
Size	Plate Dimensions	Distance from Rod	Part Number	Price
Small	9.5 x 6.5" (241 x 165mm)	1.9" (48mm)	916299	\$98.00
Medium	12.75 x 9" (324 x 229mm)	1.9" (48mm)	916300	\$158.00
Large	15.75 x 12" (400 x 305mm)	1.9" (48mm)	916302	\$198.00



### Bench Clamp

Aluminum bracket with arm fastens quickly and firmly to any convenient shelf. Accepts 0.51" (13mm) rods vertically and horizontally, to which ordinary rings and clamps attach, leaving bench surface clear for apparatus.

Clamp Opening	Depth of Grip	Overall Length	Part Number	Price
1.7" (43mm)	2" (51mm)	7.75" (197mm)	916185	\$160.00



### Cylinder Bench Clamps

Rugged cast aluminum clamps safely secure gas cylinders to benches, tables or other flat surfaces up to 2.5" (64mm) thick. The 1" (25mm) wide, 54" (1372mm) long nylon strap features a nickel-plated, non-slip spring catch and buckle for easy adjustment around cylinders from 4 to 14" (102 to 356mm) in diameter. Models 711 and 716 available with or without a "Secure Cylinder" safety message strap.

#### Model 711 Bench Clamp

This bench clamp has a large tightening handle for mounting to any flat surface up to 2.5" (64mm) thick. A nylon pad prevents damage to the bench or table surface. Two tapered mounting screw holes are provided for permanent attachment to bench-top.



safety message strap



Description	Dimensions L x W x H (closed)	Cylinder Diameter	Part Number	Price
Model 711 Bench Clamp with strap	3.25 x 5.25 x 6.5" (83 x 133 x 165mm)	4 to 14" (102 to 356mm)	970036	\$47.00
Model 711 Bench Clamp with safety message strap	3.25 x 5.25 x 6.5" (83 x 133 x 165mm)	4 to 14" (102 to 356mm)	973036	\$56.00

#### Model 716 Bench Clamp

This bench clamp is similar to Model 711, but includes a sturdy safety chain for extra security. Chain measures 49" (124.5cm)



safety message strap



Description	Dimensions L x W x H (closed)	Cylinder Diameter	Part Number	Price
Model 716 Bench Clamp with strap & chain	3.25 x 5.25 x 6.5" (83 x 133 x 165mm)	4 to 14" (102 to 356mm)	972036	\$51.00
Model 716 Bench Clamp with safety message strap & chain	3.25 x 5.25 x 6.5" (83 x 133 x 165mm)	4 to 14" (102 to 356mm)	974036	\$62.00

#### Model 712 Heavy-Duty Bench Clamp

This bench clamp has two screw clamps to tighten for extra firm mounting to any flat surface up to 1.75" (45mm) thick with a 1.25" (32mm) overhang. Especially convenient for temporary storage situations. Rugged cast aluminum bench clamp features a 1" (25mm) wide, 54" (1372mm) long nylon strap with nickel-plated, non-slip spring catch buckle to hold cylinders from 4 to 14" (102 to 356mm) in diameter. This clamp is not available with a safety message strap.



Description	Dimensions L x W x H (closed)	Cylinder Diameter	Part Number	Price
Model 712 Heavy-Duty Bench Clamp with strap	3.25 x 6 x 4.5" (83 x 152 x 114mm)	4 to 14" (102 to 356mm)	970035	\$50.00

## GAS CYLINDER SUPPORTS

### Cylinder Wall Brackets

#### Model 715 Wall Bracket

Cylinder wall-mount brackets are constructed of cast aluminum and contoured to allow cylinders to fit firmly along the support edge. Recessed screw holes at each side of the bracket allow for easy wall mounting. Features a 1" (25mm) wide, 54" (1372mm) long nylon strap with nickel-plated, non-slip spring catch and buckle for fast, easy adjustment. Available with or without a "Secure Cylinder" safety message strap. For cylinders from 4 to 14" (102 to 356mm) in diameter.



*safety message strap*



Description	Dimensions L x W x H	Cylinder Diameter	Part Number	Price
Model 715 Wall Bracket with strap	1.875 x 8.125 x 4.625" (48 x 206 x 118mm)	4 to 14" (102 to 356mm)	970037	\$42.00
Model 715 Wall Bracket with safety message strap	1.875 x 8.125 x 4.625" (48 x 206 x 118mm)	4 to 14" (102 to 356mm)	973037	\$51.00

#### Model 717 Wall Bracket

This wall bracket is similar to Model 715, but includes a sturdy safety chain for extra security. Chain measures 49" (124.5cm)



*safety message strap*



Description	Dimensions L x W x H	Cylinder Diameter	Part Number	Price
Model 717 Wall Bracket with strap & chain	1.875 x 8.125 x 4.625" (48 x 206 x 118mm)	4 to 14" (102 to 356mm)	972047	\$47.00
Model 717 Wall Bracket with safety message strap & chain	1.875 x 8.125 x 4.625" (48 x 206 x 118mm)	4 to 14" (102 to 356mm)	974037	\$58.00



### Cylinder Stands

#### Model 701 PVC Coated Stand

The PVC coated stand has a flat bottom support so it can't "ride up" on the cylinder. Includes an adjustable 1" (25mm) wide, 54" (1372mm) long nylon strap with nickel-plated, non-slip spring catch and buckle for fast, easy adjustment to keep the cylinder safely in place against upper support bar. Lower support bar stops cylinder shift. The PVC coating prevents marring of the cylinder surface. This clamp is not available with a safety message strap.



Description	Dimensions L x W x H	Cylinder Diameter	Part Number	Price
Model 701 PVC Coated Stand	17.25 x 17.25 x 10.75" (438 x 438 x 273mm)	7 to 10" (178 x 254mm)	970045	\$332.00

#### Model 703 Stand

This cast aluminum stand hinges open and has 4 thumbscrews to tightly grip cylinders from 8 to 9" (203 to 229mm) in diameter.



Description	Dimensions (Dia. x H)	Cylinder Diameter	Part Number	Price
Model 703 Stand	18.25 x 6" (464 x 152mm)	8 to 9" (203 x 229mm)	970040	\$254.00

#### Model 704 Adjustable Stand

Heavy-duty, cast aluminum stand with adjustable "L" brackets hold cylinders from 6 to 9.25" (152 to 235mm) in diameter. Hinges open for installation without lifting the cylinder or disturbing connections. Prevents accidental tipping. Hinges open for easy, no-lifting installation.



Description	Dimensions (Dia. x H)	Cylinder Diameter	Part Number	Price
Model 704 Adjustable Stand	18.5 x 7.5" (470 x 191mm)	6 to 9.25" (152 x 235mm)	970039	\$294.00

#### Model 713 Portable Stand

This cast iron portable cylinder stand offers a sturdy cylinder stand and a convenient cylinder dolly all-in-one. This cylinder stand is designed in two interlocking halves and can be installed without lifting the tank. Built-in rubber wheels for easy mobility. Three thumbscrews tightly grip cylinder.



Description	Dimensions (Dia. x H)	Cylinder Diameter	Part Number	Price
Model 713 Portable Stand	14.5 x 15.5 x 3" (368 x 394 x 76mm)	7 to 9.25" (178 x 235mm)	970041	\$287.00

## LAB-LIFTS

### Talboys Aluminum Lab-Lifts

- Exceptional stability and durability
- Aluminum construction
- Three convenient sizes

Aluminum Lab-Lifts provide stable height adjustment for various items in the lab such as flasks, baths, and small equipment. Top and bottom decks are constructed of anodized aluminum. Internal supports and drive screws are constructed of stainless steel. Oversized sure-grip adjustment knobs provide smooth and accurate height adjustment. Lab-Lifts accept optional Support Rod Kit which mounts to the upper deck.



Deck Size	Min. to Max. Height	Max Load*	Part Number	Price
4 x 4" (102 x 102mm)	2.5 to 5" (64 to 127mm)	25lbs (11.35kg)	960080	\$129.00
6 x 6" (152 x 152mm)	3 to 9.75" (76 to 248mm)	30lbs (13.62kg)	960081	\$149.00
8 x 8" (203 x 203mm)	3.5 to 13" (89 to 330mm)	45lbs (20.43kg)	960082	\$180.00

\* Maximum load rating represents static weight only. Static weight is the amount a unit can hold, not lift.

### Optional Accessory

#### 17" Support Rod Kit

Ideal for creating an adjustable support stand for mounting various items such as thermometer clamps, temperature probes, flask and column clamps. This kit allows you to mount a 17" (432mm) threaded vertical support rod to the upper deck of a 6 x 6" or 8 x 8" Lab-Lift by screwing the rod into the pre-drilled hole.

17" Support Rod Kit includes: 1 - 17" (432mm) stainless steel rod  
1 - jam nut  
1 - flat washer

Description	Rod Diameter	Part Number	Price
17" Support Rod Kit	0.51" (13mm)	960030	\$23.00

960030

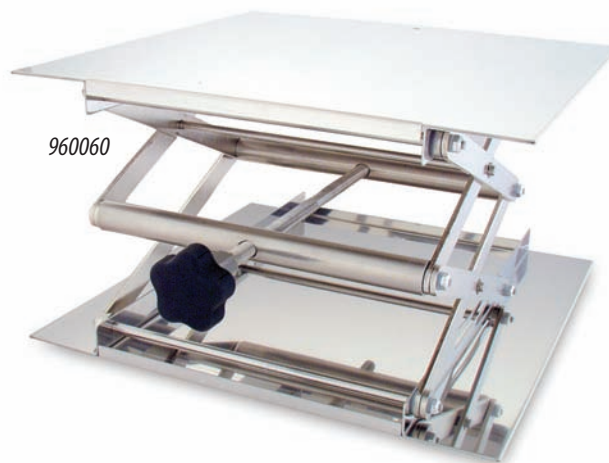
960081



### Talboys Heavy-Duty Lab-Lifts

- **Stainless steel construction**
- **Seven convenient sizes to choose from**
- **Autoclavable and chemical resistant**

These heavy-duty, stainless steel Lab-Lifts are ultra-stable lifting platforms with exceptional strength and durability. Constructed of 300 series stainless steel, Lab-Lifts are designed for use in extreme environments and high load applications. Equipped with over-sized, sure-grip adjustment knobs that provide extra leverage for easy height adjustments. Durable construction allows lifts to be autoclaved or chemically cleaned. Ideal for use in fume hoods or bench tops and hold a variety of items such as glassware, hotplates, baths, and magnetic stirrers.



Deck Size	Min. to Max. Height	Max. Load*	Part Number	Price
3 x 3" (76 x 76mm)	2.5 to 5" (64 to 127mm)	20lbs (9.08kg)	960054	\$139.00
4 x 4" (102 x 102mm)	2.5 to 5" (64 to 127mm)	30lbs (13.62kg)	960055	\$160.00
6 x 6" (152 x 152mm)	3 to 9.75" (76 to 248mm)	35lbs (15.89kg)	960056	\$164.00
8 x 8" (203 x 203mm)	3.5 to 13" (89 to 330mm)	55lbs (24.97kg)	960057	\$221.00
10 x 10" (254 x 254mm)	3.5 to 13" (89 to 330mm)	80lbs (36.32kg)	960058	\$240.00
12 x 12" (305 x 305mm)	4 to 19.5" (102 to 495mm)	150lbs (68.1kg)	960059	\$633.00
16 x 16" (406 x 406mm)	4 to 19.5" (102 to 495mm)	180lbs (81.72kg)	960060	\$1,128.00

\* Maximum load rating represents static weight only. Static weight is the amount a unit can hold, not lift.

### Optional Accessories

#### 17" Support Rod Kit

Ideal for creating an adjustable support stand for mounting various items such as thermometer clamps, temperature probes, flask and column clamps. This kit allows you to mount a 17" (432mm) threaded vertical support rod to the upper deck of a 6 x 6", 8 x 8", 10 x 10", 12 x 12", or 16 x 16" Lab-Lift by screwing the rod into the pre-drilled hole.

17" Support Rod Kit includes: 1 - 17" (432mm) stainless steel rod  
1 - jam nut  
1 - flat washer



#### Ratchet Tool

Designed to add extra leverage to your 12 x 12" or 16 x 16" Lab-Lift. This recommended Ratchet Tool easily attaches to the actuating rod to allow easy, accurate adjustments.

Description	Rod Diameter	Part Number	Price
17" Support Rod Kit	0.51" (13mm)	960030	\$23.00
Ratchet Tool	N/A	960061	\$46.00



## FLOW CONTROL

Talboys' flow control devices offer selection and quality. They are finely machined to deliver accurate regulation or interruption of fluid flow. Every flow control device resists corrosion and rust. Hosecocks offer easy one-hand operation. Convex bearing surfaces and rounded edges protect tubing. Pinchcocks are designed to quickly start and stop flow and provide complete closure without damaging tubing. Operated with a simple squeeze. Nickel-plated construction.

### Regular Hosecock

Adjustment screw with oversized head for accurate regulation. Built-in side lugs for foot mounting. Tubing retainer screw.

Min. to Max. Grip	Dimensions (W x H - open)	Part Number	Price
0 to 17mm (0 to 0.67")	37 x 62mm (1.46 x 2.44")	916062	\$17.30

### Heavy-Duty Hosecock

Large handwheel for ease of flow adjustment. Unique design offers unparalleled control. Works well with heavy cut nylon braided tubing.

Min. to Max. Grip	Dimensions (W x H - open)	Part Number	Price
0 to 29mm (0 to 1.14")	57 x 106mm (2.24 x 4.17")	916184	\$45.10

### Hosecock Extension Clamp

Similar to regular hosecock but with 145mm (5.7") bottom mounted extension rod for attachment to frames/rods.

Min. to Max. Grip	Arm Length	Arm Diameter	Overall Length	Part Number	Price
0 to 17mm (0 to 0.67")	145mm (5.71")	8mm (0.32")	175mm (6.89")	916064	\$35.30

### Hosecock Foot

Add this option to 916062 for bench or table mounting. Includes two mounting screws.

Diameter	Part Number	Price
27mm (1.06")	916063	\$4.60

### Regular Pinchcock

For routine stop/start flow operation.

Min. to Max. Grip	Clamp Height	Part Number	Price
0 to 12mm (0 to 0.47")	47mm (1.85")	916082	\$18.40

### Variable Flow Pinchcock

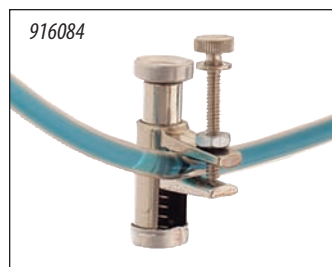
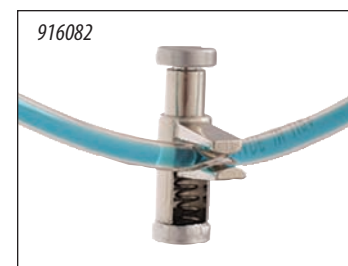
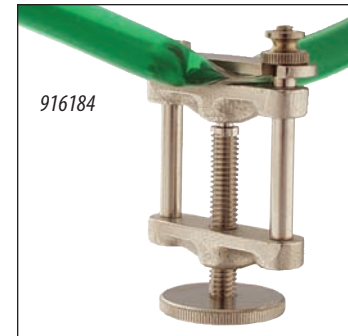
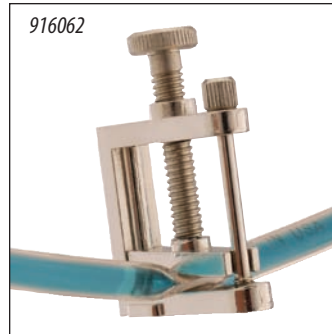
For precise flow adjustment and duplication of flow rates.

Min. to Max. Grip	Clamp Height	Part Number	Price
0 to 13mm (0 to 0.51")	47mm (1.85")	916084	\$22.40

### Heavy-Duty Pinchcock

Equipped with heavy-duty spring for tough jobs. Ensures complete closure.

Min. to Max. Grip	Clamp Height	Part Number	Price
0 to 11mm (0 to 0.43")	48mm (1.89")	916083	\$18.40







### For Prevention of "Bumping" in Boiling Liquids

In any laboratory procedure involving the boiling of a liquid, inert and insoluble, Hengar Granules effectively prevent super-heating with its attendant dangerous explosive vaporization commonly known as "bumping".

A few Hengar Granules in any boiling liquid permit a steady copious stream of bubbles to escape without this spasmodic splatter. Evaporation or distillation proceeds quietly and smoothly. Sharper fractions result. Flask breakage is reduced and watching time is minimized. Froth is spread out evenly and does not climb the neck of the flask. Especially useful in boiling soap solutions and evaporating ethereal extracts of fat. With Hengar Granules in the vessel, any gases formed are extracted from the liquid quickly and completely.

Insoluble, Hengar Granules cannot contaminate the liquid. They remain at the bottom of the flask or beaker, permitting the liquid to be readily poured off. After use, the granules are simply discarded. Hengar Granules are also available with a pure selenium coating, for use in the Kjeldahl digestion and distillation method of organic nitrogen determination.

### Hengar Granules, Plain

High purity, white, amphoteric alundum granule. Extremely hard porous surface. Will not crumble or "powder". Four mesh granule size. Specific gravity 3.97.

### Hengar Granules, Plain Micro

High purity, white amphoteric alundum granule. Extremely hard porous surface. Will not crumble or "powder". Ten mesh granule size. Specific gravity 3.97.

### Hengar Selenized Granules

High purity, amphoteric alundum, specially treated with selenium for use in determination of amino and cyanide nitrogen. Four mesh granule size, iridescent bluish black color. Selenium as a solid is relatively nontoxic. Its vapor or fumes are highly toxic. TLV 0.2 mg/cubic meter. Specific gravity 4.10.

### Hengar Selenized Granules, Micro

High purity, amphoteric alundum, specially treated with selenium for use in determination of amino and cyanide nitrogen. Ten mesh granule size, iridescent bluish black color. Specific gravity 4.10.

### Hengar Carborundum #12 Granules

Hard, bluish black, iridescent silicon carbide granule. No reduction characteristics. Oxidizes slowly at 1540°C. Twelve mesh granule size. Specific gravity 3.20.

### Aitch-Tu-Ess (H<sub>2</sub>S)

An economical way to produce hydrogen sulfide gas for use in qualitative analysis and the general chemistry laboratory. Aitch-Tu-Ess is a dry mixture of sulfur, a highly condensed hydrocarbon, and an inert dispersal agent. The sulfur and the hydrocarbon are combined in the proportion most conducive to maximum yield of H<sub>2</sub>S gas, while the inert dispersal agent serves to support the reactants. This material, when heated, produces H<sub>2</sub>S gas which is highly toxic. Heating and all experiments should be conducted under a fume hood. The threshold limit value of H<sub>2</sub>S is 10 parts per million or 15 milligrams per cubic meter.

Description	Quantity Per Package	Part Number	Price
136A Plain Granules	100g	901600	\$12.00
136B Plain Granules	250g	901700	\$18.00
136C Plain Granules	500g	901800	\$26.00
136D Plain Granules	10kg	901900	\$304.00

Description	Quantity Per Package	Part Number	Price
136AA Plain Micro Granules	100g	903700	\$23.00
136CC Plain Micro Granules	500g	903800	\$47.00

Description	Quantity Per Package	Part Number	Price
132A Selenized Granules	100g	901100	\$31.00
132B Selenized Granules	250g	901200	\$52.00
132C Selenized Granules	500g	901300	\$94.00

Description	Quantity Per Package	Part Number	Price
132AA Selenized Micro Granules	100g	901400	\$36.00
132CC Selenized Micro Granules	500g	901500	\$111.00

Description	Quantity Per Package	Part Number	Price
133A Carborundum #12 Granules	100g	902000	\$25.00
133B Carborundum #12 Granules	500g	902100	\$46.00

Description	Quantity Per Package	Part Number	Price
310A Aitch-Tu-Ess	1 Kilo. Box	903400	\$47.00
330A Aitch-Tu-Ess	1-Doz. 5g Cartridges (1 Dozen/Box)	903500	\$21.00
330B Aitch-Tu-Ess	1-Gross 5g Cartridges (1 Dozen/Box)	903600	\$122.00



# MISCELLANEOUS

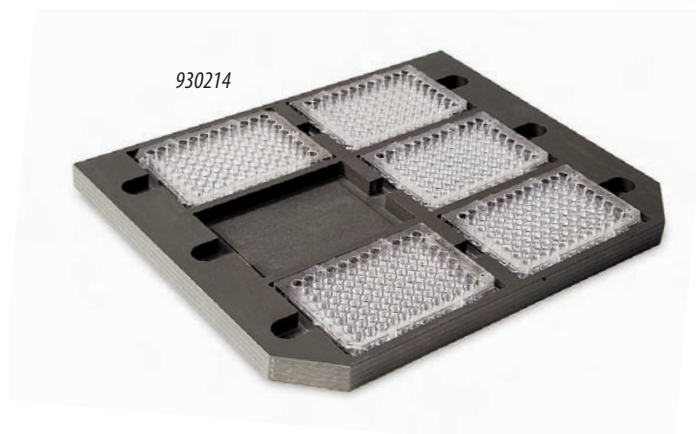
## Microplate Stability Chamber

The Microplate Stability Chamber is a tool proven to reduce the variation often experienced in cell-based assays. This chamber is inserted into standard or CO<sub>2</sub> incubators. Traditional incubators often create heterogeneous environments for cell growth and biochemical assays due to frequent door openings and "hot spots" within the incubator. This chamber uses the incubator heat and atmosphere to create a homogeneous microenvironment for microwell plates. High humidity within the chamber eliminates evaporation from the plates that causes the edge effect. The thick aluminum shelf distributes heat evenly to the plates thus creating excellent temperature uniformity. Variation in cell-based assays has been reduced by as much as 50% using the Microplate Stability Chamber. The chamber includes a fan driven by the appropriate power adapter.

### Microplate Stability Tray

The shelf used in the Microplate Stability Chamber can improve temperature uniformity of microwell plates in incubators. The anodized aluminum shelf holds six plates. One included with unit.

Description	Part Number	Price
Microplate Stability Chamber, 120V	930212	\$752.00
Microplate Stability Chamber, 230V	930213	\$807.00
Microplate Tray	930214	\$269.00



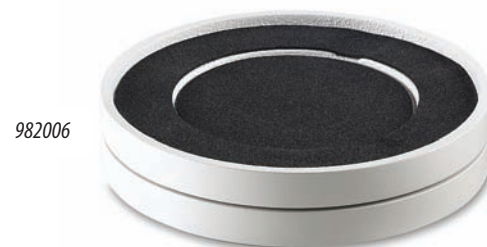
## Inoculating Turntables

Talboys hand-operated inoculating turntables produce almost concentric circles of bacterial colonies that are evenly distributed across petri dishes. Cast iron turntables are coated with gray baked acrylic enamel.

The 76mm (3") high, small turntable accommodates 100mm petri dishes. It has a tripod base to bring work approximately to eye level. It has a center disk covered with non-skid rubber lining.

The large turntable accommodates 100mm or 150mm petri dishes. It has a height of only 32mm (1.26"), ideal for steadying a forearm on the work surface while plating. The large turntable contains two circular sections. The top section has a raised gripper lip as well as a recessed center disk covered with non-skid rubber lining.

Description	Dimensions (Dia. x H)	Part Number	Price
Small Turntable	114 x 77mm (4.49 x 3.03")	982007	\$129.00
Large Turntable	150 x 32mm (5.91 x 1.26")	982006	\$155.00



## Slide Staining Rack

Constructed of stainless steel, the Talboys Slide Staining Rack will resist corrosion under normal use. Adjustable to fit trays or sinks up to 533mm (21") inside.

Description	Dimensions (L x W)	Part Number	Price
Slide Staining Rack	603 x 89mm (23.74 x 3.5")	954002	\$50.00



## Airejector

Rapid air removal evacuates 1 liter of air to 711mm (28") of vacuum in 30 seconds. Works with compressed air sources to 60 psi. Nickel-plated construction.

Description	Length	Part Number	Price
Airejector	140mm (5.51")	982001	\$79.00





- High Precision Calibrations
- NVLAP\* Accreditation
- UKAS\*\* Accreditation
- ISO/IEC 17025 Compliant
- Lowest Measurement Uncertainties
- Highly Skilled Metrologists and Technicians
- For more information on weights and services visit [www.troemner.com](http://www.troemner.com)



\*NVLAP Laboratory Code 105013-0

\*\*A UKAS Accredited Calibration Laboratory No. 0516

## Mass Calibration

- From 0.050 mg to 2000 kg (0.00001 oz to 5000 lb)
- NVLAP\* Accredited
- UKAS\*\* Accredited

## Temperature Calibration

- -196°C to 660°C NVLAP\* Accredited
- Up to 1100°C ISO/IEC 17025 compliant

## Pressure Calibration

- From 0 to 1000 psi with accuracy as low as 0.005% of reading
- NVLAP\* Accredited

## Humidity Calibration

- From 10% to 95%
- NVLAP\* Accredited

## Pipette Calibration

- 0.1  $\mu$ l up to 10 ml NVLAP\* Accredited
- Up to 100 ml ISO/IEC 17025 compliant

## Electrical Calibration

- Calibration of various electrical devices and multimeters.
- NVLAP\* Accredited

## Dimensional Calibration

- From 0.1" to 18" with accuracy  $\pm$  50 microinches for calipers, micrometers and depth gauges and accuracy  $\pm$  1/1000 microinches for rulers.

## Thermal Mass Flow Calibration

- From 2 sccm to 100 slpm
- ISO/IEC 17025 compliant

## Time & Frequency Calibration

- Accuracy  $4 \times 10^{-8}$  Hz
- ISO/IEC 17025 compliant



# TALBOYS

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