



**Shaking**

**Results.**

**Stirring**

**Vortexing**



**Heating**



**Reliable.**





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JANUARY 1, 2006

## INTERNATIONAL SALES POLICY

### HOW TO ORDER

You can order by contacting one of the many authorized Glas-Col distributors located around the world. They will offer valuable assistance in your selections, delivery and service after the sale.

### TERMS OF PAYMENT

Payment may be made by wire transfer to our bank, unless other arrangements have been made.

### SHIPPING TERMS

Prices are Ex-Works, Terre Haute, Indiana, U.S.A.

### MINIMUM ORDER

A \$10.00 service charge will be added to orders totaling less than \$100 net. The minimum order for component parts is \$10.00.

### METHOD OF SHIPMENT

Unless specified by the purchaser, all orders will be shipped via the safest and most economical method based on the nature of the merchandise and the size and weight of the package. All orders will be assessed a \$5.00 Export Packaging Charge, unless other arrangements have been made.

### ORDER CANCELLATION

Order cancellation charges will be assessed against cancelled orders for special custom-designed and modified standard products. The amount of this charge will be based upon the production status of the order at the time of cancellation.

### INSPECTION/REPAIR SERVICE

A repair service is maintained at Glas-Col's plant. Repairs are made as a customer service. Resale discounts are not applicable to repair orders. Repairs will not be made on items deemed to be contaminated with potentially hazardous materials. Refer to "Returned Goods" in the Policy before returning items for either Inspection or Repair.

### RETURNED GOODS

Prior approval and a Returned Goods Authorization number must be obtained from Glas-Col before and any products may be returned. This number must be included on shipping labels and documents. A Materials Safety Data Sheet on the contaminating materials must precede products that have been contaminated. Products that have been contaminated with hazardous materials will not be accepted.

### RESTOCK

Current models of catalog items returned for credit are subject to Glas-Col's inspection and a restocking charge of 15% of the original purchase price. Items superseded by current models cannot be returned for credit.

Special custom-designed items or catalog items modified for special voltage, wattage, dimensions, etc., will not be accepted for credit.

When restock is necessary due to a Glas-Col error in fulfilling an order, full credit will be given immediately upon receipt of the merchandise in question.

Purchaser should not deduct credit until merchandise is received, inspected and a credit memo issued by Glas-Col.

### WARRANTY

Glas-Col warrants products of its manufacture to be free from defects in material and workmanship for one year, unless otherwise stated, and agree to repair or replace without charge any products found to be defective upon examination at the factory. With proper care and operation, Glas-Col products will give long and efficient service. Chemical spillage, overheating, overloading, and general misuse will greatly reduce the service life of the product. Glas-Col is not responsible for damage to apparatus due to improper installation or through attempts to operate the apparatus beyond its rated capacity, intentional or otherwise. Normally expendable parts are not covered by this warranty. Apart from such written statement of warranty, there are no other warranties, expressed, implied or statutory which extend beyond the description of the products on the face hereof.

### COMMUNICATION

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## TABLE OF CONTENTS

Series TM Mantles.....	3
SPHERICAL FLASK MANTLES.....	3
SAFETY ACCESSORIES.....	6
SPLASH GUARDS.....	7
INSULEZE <sup>®</sup> INSULATION.....	8
SERIES O MANTLES.....	9
HEMISPHERICAL FLASK MANTLES.....	9
DRY BLOCK HEATER.....	12
ALUMINUM BLOCKS.....	12
CONTROLS.....	13
POWRTROL.....	13
HOMOGENIZERS.....	16
VARIABLE SPEED MOTOR DRIVES.....	16
STRAIGHT, POTTER-ELVEHJEM TYPE HOMOGENIZERS.....	17
Straight Glass Pestles & Tubes.....	17
Straight PTFE Pestles & Straight Glass Tubes.....	18
TAPERED HOMOGENIZERS.....	19
Tapered PTFE Pestles & Tapered Glass Tubes.....	19
Tapered Glass Pestles & Tapered Glass Tubes.....	20
CHUCKS.....	20
FLEXIBLE DRIVE.....	21
LAB STAND.....	21
PNEUMATIC EGG PUNCH.....	22
NAIL HOMOGENIZER.....	22
ROTATORS.....	23
FRICTION-DRIVE TEST TUBE HEAD.....	24
TISSUE CULTURE TUBE HEAD.....	24
TWIN-DISK TEST TUBE HEAD.....	25
ERLENMEYER FLASK HEAD.....	25
TEST TUBE RACK HEAD.....	26
HEXAGONAL CLAMPING HEAD.....	26
SMALL TUBE ROTATOR.....	27
DRY POWDER ROTATOR.....	27
SHAKERS.....	28
BENCH-TOP SHAKER.....	28
SEPARATORY FUNNEL HOLDER (1000 ml & larger).....	29
UNIVERSAL MOUNTING PLATFORM.....	30
LARGE-FINGER CLAMP.....	30
TEST TUBE RACK HOLDER.....	30
PLATFORM SHAKER.....	32
WS 180° SHAKER.....	32
MID-RANGE 3D SHAKER.....	33
FUNNEL OR FLASK HOLDER.....	34

3D FLOOR SHAKER.....	35
FUNNEL OR FLASK HOLDER .....	35
SNORKEL STOPPER.....	36
SEPARATORY FUNNEL.....	37
VENTSEP .....	38
<b>STIRRERS.....</b>	<b>39</b>
GT224 STIRRING SYSTEM .....	40
PROPELLERS.....	41
PADDLES.....	41
FLEXIBLE SHAFTS .....	41
CLAMPS .....	43
LAB STANDS .....	43
CHUCKS .....	43
MISCELLANEOUS.....	43
UPWARD FLOW STIRRERS .....	44
Upward Flow Stirring Unit .....	44
<b>VORTEXERS .....</b>	<b>45</b>
MULTI-PULSE VORTEXER.....	45
Cartridges for Multi-Pulse Vortexer.....	45
VOLUMETRIC FLASK MIXER .....	47
DIGITAL PULSE MIXER.....	47
<b>LABNETIX® .....</b>	<b>48</b>
<b>EVAPORATORS .....</b>	<b>49</b>
EVAPORATOR/CONCENTRATOR .....	50
EVAPORATOR SYSTEM.....	50
DIGITAL PULSE MIXER WITH EVAPORATOR/CONCENTRATOR.....	50

## ALUMINUM HOUSED MANTLES

- Rigid housing provides strength and durability while supporting the weight of the vessel
- Fabric interior to softly nest glass vessels and reduce the chance of thermal shock
- Adaptable to most vessels including larger sizes
- Withstands 450°C internal operating temperature, enough power for most applications
- Can be adapted to special applications with custom sizes, bottom holes, and special electrical devices
- Feet on smaller sizes designed to provide stability and promote cooler exterior temperatures

### Series TM Mantles

#### SPHERICAL FLASK MANTLES

The Series TM spherical flask mantle covers only the flask's bottom half, letting you see its full contents. Larger sizes have multiple circuits for ease of temperature control when a flask is less than half full. The PTFE resin hard coat anodized aluminum housing provides corrosion resistance and dielectric strength while supporting the vessel in a soft fabric, internal operating temperature of 450° C.

#### Specifications

Electrical: Furnished with 2.5 meter cord and CEE 7/7 plug, TM121CE and TM122CE furnished with terminal box.

Rating: 230V

#### Options

Series TM mantles are available with a bottom hole for flask drain.



**Heating mantles must be operated through a power control.**

Catalog Number	Flask Capacity (ml)	Max. Flask Diameter (mm)	Watts	Inside Depth (mm)	Outside Diameter (mm)	Outside Height (mm)	Product Weight (kgs)
100B TM97CE	100	60	35	30	159	121	1.1
100B TM99CE	125	70	45	35	159	121	1.1
100B TM101CE	200	76	55	38	159	121	1.1
100B TM103CE	250	83	100	41	159	121	1.1
100B TM105CE	300	86	100	43	159	121	1.1
100B TM107CE	500	101	130	51	159	127	1.1
100B TM109CE	1,000	137	200	65	191	127	1.4
100B TM111CE	2,000	170	250	86	254	152	2.1
100B TM113CE	3,000	183	250	91	254	152	2.1
100B TM115CE	5,000	220	300	109	305	178	2.8
100B TM117CE	12,000	293	2@300	147	419	229	6.8
100B TM119CE	22,000	347	2@400	173	483	254	8.5
100B TM121CE	50,000	456	3@600	228	610	330	18.6
100B TM122CE	72,000	522	2@1,100	259	660	356	20.0

## GRIFFIN BEAKER MANTLES

The Series TM Griffin beaker mantle has a resilient and pliable interior to cradle fragile beakers. Heat is concentrated at the bottom so even small liquid volumes can be heated.

### Specifications

Electrical: Furnished with 2.5 meter cord and CEE 7/7 plug.

Rating: 230V

Consult factory for mantles to fit tall-form Griffin beakers.



**Heating mantles must be operated through a power control.**

Catalog Number	Beaker Capacity (ml)	Beaker Diameter (cm)	Inside Depth (cm)	Watts	Outside Diameter (cm)	Outside Height (cm)	Product Weight (kgs)
100B TM611CE	600	9.04	9.54	200	15.88	13.97	1.27
100B TM613CE	800	9.86	10.80	200	19.05	15.24	1.63
100B TM615CE	1,000	10.80	11.43	250	19.05	15.24	1.63
100B TM617CE	2,000	13.03	15.24	275	22.86	20.32	2.27
100B TM619CE	3,000	14.61	16.51	350	22.86	20.32	2.27
100B TM621CE	4,000	16.21	20.32	400	22.86	25.40	2.45

## RESIN REACTION FLASK MANTLES

The Series TM resin reaction flask mantle provides even heat distribution to prevent scorching of clear resinous material. One-circuit heat input simplifies temperature control.

### Specifications

Electrical: Furnished with 2.5 meter cord and CEE 7/7 plug.

Rating: 230V



**Heating mantles must be operated through a power control.**

Catalog Number	Flask Capacity (ml)	Max. Flask Diameter (cm)	Mantle Depth (cm)	Watts	Outside Diameter (cm)	Outside Height (cm)	Product Weight (kgs)
100B TM571CE	500	9.53	11.43	150	19.05	16.51	1.7
100B TM573CE	1,000	10.80	13.34	200	19.05	17.78	1.7
100B TM577CE	2,000	13.97	15.24	250	22.86	20.32	2.2
100B TM579CE	3,000	13.97	22.86	300	22.86	27.94	2.7
100B TM581CE	4,000	13.97	27.94	350	22.86	33.02	3.1

## METAL BEAKER MANTLES

This heating mantle can heat metal beakers safely and efficiently.

Inner glass-fabric layers prevent contact of heating elements and vessel walls.

The mantle is designed for straight-walled vessels.



### Specifications

Electrical: Furnished with 2.5 meter cord and CEE 7/7 plug.  
Rating: 230V

**Heating mantles must be operated through a power control.**

Catalog Number	Beaker Capacity (ml)	Beaker Diameter (cm)	Inside Depth (cm)	Watts	Outside Diameter (cm)	Outside Height (cm)	Product Weight (kgs)
100B TM631CE	1,200	10.49	11.43	275	19.05	17.78	1.6
100B TM633CE	2,000	12.40	13.97	300	22.86	20.32	2.3
100B TM635CE	3,300	15.57	15.24	350	25.40	20.32	2.5
100B TM637CE	4,000	16.51	15.88	375	25.40	22.23	2.6
100B TM639CE	5,800	18.42	18.42	400	30.48	24.13	2.9
100B TM641CE	8,000	20.32	20.96	500	30.48	27.94	3.9

## SAFETY ACCESSORIES

### PONCHO SAFETY SHIELDS

The Poncho Safety Shield covers a flask in a Series TM mantle, greatly improving operating safety.

In addition to reducing fire hazards, the Poncho Shield also protects flasks from falling objects such as screwdrivers or pliers, protects personnel from flying glass and liquid if flask implodes under high vacuum distillation or explodes, and serves as an efficient insulator.

The Poncho has two glass observation ports, allowing the heated material to be seen while still affording protection. The shield is furnished with a sealer ring and an NPT purge relief port (.32cm for sizes P1300 and smaller and 1.91cm for P1400 and larger). Ponchos shown in chart are for single-neck flasks and are shipped ready for use. Ponchos for multiple-neck flasks may require final fitting in lab.



**Note:** When using flasks with additional or modified necks, neck location and tubulation length are important. To reduce fitting problems, side necks should not be lower than halfway between equator and top center neck. Side necks should be nearly vertical, if possible, and necks must project through Poncho far enough to allow makeup of taper or ball joints (see chart). For larger sizes, please consult the factory.

Catalog Number	Size	Fits Mantle	Min. Neck Length (cm)	Product Weight (kgs)
100D P900	500	100B TM107CE	3.81	.23
100D P1000	1,000	100B TM109CE	3.81	.41
100D P1200	2,000 3,000	100B TM111CE 100B TM113CE	4.45	.41
100D P1300	5,000	100B TM115CE	5.08	.64
100D P1400	12,000	100B TM117CE	6.35	1.63
100D P1500	22,000	100B TM119CE	7.62	1.82
100D P1600	50,000	100B TM121CE	10.16	3.31
100D P1700	72,000	100B TM122CE	12.70	5.77



## SPLASH GUARDS

Splash Guards can help prevent mantle damage from chemical spillage and improve operating safety when heating liquids. The shield is appropriate for use with low-wattage TM mantles for flasks, glass beakers, steel beakers, and resin flasks. A rugged silicone pad grips outer circumference of vessel, holding the shield securely in place.



Catalog Number	Fits heating mantle	Vessel size and type	Product Weight (kgs)
100D SG10	100B TM103CE 100B TM105CE 100B TM107CE 100B TM611CE	250ml flask 300ml flask 500ml flask 600ml Griffin beaker	.09
100D SG11	100B TM571CE 100B TM613CE	500ml. resin flask 800ml Griffin beaker	.14
100D SG12	100B TM109CE	1,000ml flask	.14
100D SG13	100B TM573CE 100B TM615CE 100B TM631CE	1,000 resin flask 1,000ml Griffin beaker 1,200ml steel beaker	.14
100D SG14	100B TM617CE 100B TM633CE	2,000ml Griffin beaker 2,000ml steel beaker	.14
100D SG15	100B TM577CE 100B TM579CE 100B TM581CE 100B TM619CE 100B TM621CE	2,000ml resin flask 3,000ml resin flask 4,000ml resin flask 3,000ml Griffin beaker 4,000ml Griffin beaker	.14
100D SG16	100B TM111CE 100B TM635CE	2,000ml flask 3,300ml steel beaker	.14
100D SG17	100B TM113CE 100B TM637CE	3,000ml flask 4,000ml steel beaker	.14
100D SG18	100B TM639CE	5,800 ml steel beaker	.14
100D SG19	100B TM115CE 100B TM641CE	5,000ml flask 8,000ml steel beaker	.14
100D SG20	100B TM117CE	12,000ml flask	.14

## INSULEZE® INSULATION

InsulEze insulating kits make insulating in the laboratory an easy, neat job. InsulEze insulation comes in three different kits that can be used alone or combined for different insulating jobs. The kits contain everything necessary to insulate virtually any application you have against heat transfer, while protecting your personnel at the same time.

InsulEze insulation can be used:

- as a heat shield
- as a cold shield
- for insulating over heaters
- as a shock absorber
- as a light shield
- to protect personnel
- as a shatter shield
- for protecting sensitive surfaces.

The kits come with insulating materials that can be cut and shaped to almost any size, with minimum fraying of the insulation edges. The fasteners provided make InsulEze insulation quick and easy to apply and remove from your application, and it is easy to clean. Glas-Col manufactures InsulEze insulation using materials that are non-hazardous, non-flammable and inert to most chemicals. That makes this insulating product ideal for the safety conscious lab.



**100G IK220**



**100G IK220**



**100G IK230**

Catalog Number	Description	Product Weight (kgs)
100G IK210	Contains three choices of 400°C fiberglass tape .08cm thick in these lengths and widths: 3.05m x 2.54cm, 3.05m x 7.62cm and 1.52m x 5.24cm. Also includes 1.52m of 2.54cm and 1.02m of 2.54cm Velcro hook and loop fasteners	.41
100G IK220	Insulating pad 38.10cm wide x 76.20cm long x 1.27cm thick for use to 250°C. Unimpregnated fiberglass fabric on one side, moisture-resistant and cleanable silicone impregnated fiberglass fabric on the other. With 1.83m lengths of high-temperature tying cord	.64
100G IK230	400°C insulating tape 7.62cm wide x 3.05m long x 1.27cm thick. High-temp fiberglass on both sides. Dual attachment eyelets on each end. With two 1.52m lengths of high-temp tying cord.	.64
100G IK240	Includes one each of the above kits at an economy price.	2.18

## FABRIC MANTLES

- Fabric exterior provides effective heating in a space saving configuration
- Fabric interior to softly nest glass vessels and reduce the chance of thermal shock
- Withstands 450°C internal operating temperature, enough power for most applications
- Ideal for bottom holes, viewing ports, and other tubulations
- Easily customized for most applications

## SERIES O MANTLES

### HEMISPHERICAL FLASK MANTLES

This Series O mantle is hemispherical, covering only the bottom half of the flask. This allows full view of the flasks contents. This mantle accommodates single- and multi-neck flasks. It should be used with the furnished Series O support. This soft, fabric mantle is the original mantle design and still the most popular.

#### Specifications

Electrical: Furnished with 2.5 meter cord and CEE 7/7 plug.  
Rating: 230V



**Heating mantles must be operated through a power control.**

Catalog Number	Flask Capacity (ml)	Max. Flask Diameter (mm)	Watts	Inside Depth (mm)	Outside Diameter (mm)	Outside Height (mm)	Product Weight (kgs)
100A 0401CE	200	76	55	44	114	63	.4
100A 0403CE	250	83	100	48	121	67	.4
100A 0405CE	300	86	100	50	124	69	.4
100A 0407CE	500	101	130	57	139	76	.5
100A 0409CE	1,000	137	200	71	181	97	.6
100A 0411CE	2,000	170	250	91	221	117	.9
100A 0413CE	3,000	183	250	98	234	123	.9
100A 0415CE	5,000	220	300	116	271	142	1.2
100A 0417CE	12,000	293	2@300	159	369	197	2.5

## INSULATING TOPS

This mantle helps prevent vapor condensation in the upper half of a flask during distillation of high-boiling materials. The tops are designed for use with Series TM mantles.

They protect the flask, the solutions, and the laboratory in these ways:

- from stray drafts, which would disturb the reflux ratio during fractionation
- from flying glass of flask implosions in high-vacuum distillations
- from falling objects
- from thermal strain between top and lower half of flask during high-temperature operations.



With a glass-fabric construction and laced-side opening, the elliptical hole accommodates 1, 2, and 3-neck flask.

Insulating Top Catalog Number	Flask Capacity (ml)	Flask Diameter (mm)	Outside Diameter (cm)	Product Weight (kgs)
100A INS1023CE	250	83	12.12	.27
100A INS1043CE	300	86	12.42	.27
100A INS1063CE	500	101	13.92	.27
100A INS1083CE	1,000	137	18.08	.27
100A INS1103CE	2,000	170	22.10	.45
100A INS1123CE	3,000	183	23.37	.82
100A INS1143CE	5,000	220	27.08	1.27
100A INS1163CE	12,000	293	36.91	2.00
100A INS1183CE	22,000	347	42.32	3.09
100A INS1203CE	50,000	456	53.21	4.90
100A INS1223CE	72,000	522	59.31	5.36

## CUSTOM MANTLES

Column-type heating mantles provide a solution to heating problems that is often quicker and easier to install than other methods. In addition, the mantles insulate as well as heat, thereby increasing convenience and operating safety.

### Type GF Mantles

With insulation that is typically 1.9cm to 2.5cm thick, the Type GF column mantle:

- provides uniform heat and insulation for scrubbing and fractionating columns
- maintains even adiabatic conditions over the entire column, creating no hot spots
- maintains flow temperatures of high melting-point materials in pipelines
- closes with a zipper or with laces if numerous column projections exist
- has an internal operating temperature limit of 450° C



### How to order

Because of the wide range of heating requirements and environmental factors, column mantle construction varies. Each application is quoted individually, based on specific needs.

Please specify:

- the outside diameter of column
- length of mantle
- voltage
- number of circuits and length of each heating zone
- operating temperature
- unusual ambient conditions
- size and location of holes for view ports, tubulations, etc.

Please submit a sketch for complicated applications.



## DRY BLOCK HEATER

This block heater is a convenient answer to the laboratory's need for a small constant temperature heater that can accommodate a variety of different sizes. Heater opening is a standard SBS format, which allows heating of standard well plates (low or high profile). Our block heater features a digital control with easy setup and simple input commands making the control very "user friendly." This control is single-loop and auto-tuning. Automatically setting PID control parameters for optimum system performance. Maintains temperature from slightly above ambient to 125°C +/-1°C.

### Specifications

Electrical: On/Off power switch, circuit board, 2.5 meter cord and CEE 7/7 plug.  
 Dimensions: 14.4cm x 11.25cm x 16.9cm  
 Accuracy: 0.1% of span  
 Ambient temperature range: 32° – 149° F  
 Display: Dual, 4-digit LED  
 Set Point: Up/Down keys. °F or °C display, user selectable.



Catalog Number	Description	Electrical Rating	Product Weight (kgs)
099A HBC24CE	Dry Block Heater	240V, 150W	2.5

## ALUMINUM BLOCKS



Catalog Number	Description	Product Weight (kgs)
099A R34 562	Holds 24 (12mm x 32mm) vials	1.0
099A R34 561	Holds 24 (15mm x 45mm) vials	1.0
099A R34 563	Holds 20 (15mm x 16mm) vials	1.0
099A R34 516	Holds 8 EPA vials	1.0

## CONTROLS

- Designed and tested to provide accurate, long-term service
- Low profile, space-saving designs

## POWRTROL

The PowrTrol control is a solid-state, proportional-voltage power control that provides precise manual control of heating mantles and other resistive loads. The output range is conveniently adjustable from 5-100% of rated voltage.



### Specifications

Lab Bench Case: Low-profile cabinet, 20.3cm w x 15.2cm d x 8.6cm h

Electrical: Lighted on/off power switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Catalog Number	Description	Electrical Rating	Product Weight (kgs)
104A PL124CE	Proportional voltage control	8A @ 240V, 1,920W	.7

## DIGITROL II

The DigiTrol II uses a microprocessor-based, user-selectable control mode temperature control. The control features a digital dual output display for set point and process temperature indication. The automatic-tuning feature ensures increased temperature accuracy with minimum overshoot. Easy set-up and simple input commands make this control very "user friendly." The load and the thermocouple receptacles are located on the front panel for easy accessibility. Features automatic cold junction compensation and thermocouple break protection. Furnished with an immersion thermocouple with 15.2cm - long stainless steel probe.

### Specifications

Electrical: Lighted on/off power switch with auxiliary LED indication, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Control Type: PID parameters with auto/manual mode option.

Accuracy: 0.1% of span.

Ambient Temperature Range: -17.8° - 65°C

Display: Dual, 4-digit LED.

Set Point: Up/down keys. °F or °C display, user selectable.

Lab Bench Case: Low-profile cabinet, 20.3cm w x 15.2cm w x 8.6cm d



Catalog Number	Description	Range	Thermocouple Type	Electrical Rating	Product Weight (kgs)
104A PL624CE	Automatic temperature control	0-750°C	Type J	8A @ 240V, 1920W	.9
104A PL624KCE	Automatic temperature control	-200-1250°C	Type K	8A @ 240V, 1920W	.9
104A PL624TCE	Automatic temperature control	-200-350°C	Type T	8A @ 240V, 1920W	.9

## THERMOCOUPLES

These thermocouples, available in a variety of sizes and constructions, are for use with Glas-Col temperature controls and the digital thermometer. Choose features to match application. Thermocouples are type J unless identified differently in catalog number.



Catalog Number	Recommended Range	Description
104A TC105	0-370°C	24 gauge. .32cm dia. x 15.24cm long stainless steel probe. 1.22m long fiberglass insulated duplex lead with stainless steel over braid With miniature plug. For liquid immersion.
104A TC105K	95-1260°C	
104A TC105T	-200-350°C	
104A TC110	0-260°C	24 gauge. .32cm dia. X15.24cm long, PTFE coated stainless steel probe. 1.22m long, Teflon® insulated duplex lead. With miniature plug. For liquid immersion.
104A TC115	0-480°C	20 gauge. 1.83m long, fiberglass-insulated duplex lead wire with welded tip. With miniature plug. Not for liquid immersion.
104A TC120	0-370°C	24 gauge. .91m long, fiberglass-insulated duplex lead wire with welded tip. With miniature plug. Not for liquid immersion.

## DIGITAL THERMOMETER

This microprocessor-based, battery-operated thermometer monitors temperatures of furnaces, reactors, baths, appliances, and heating mantles. It can conveniently be hand-held or placed on a bench with the built-in, flip-down stand. The three-1.9cm digit, 1.3cm high LCD display is easy to read, even in direct sunlight. The sealed silicone rubber keypad allows simple, reliable operation. Four buttons control On/Off, C/F scale, Hold, and CAL for single point field calibration. Input is ANSI standard mini-connector, voltage protected. Thermocouples may be interchanged in seconds. Case is ABS/polycarbonate.

### Specifications

Accuracy:  $\pm 0.2\%$  of reading  $\pm 0.5^\circ\text{C}$  above  $99^\circ$  ( $\pm 1^\circ\text{C}$  below  $99^\circ$ ).

Batteries: Two AA batteries (included).

Thermocouple: Type J Cat. No. TC105 included.

Case Size: 8.4cm w x 15.6cm h x 3.1cm d

Ratings: UL & CUL rated intrinsically safe, certified safe for Class 1, Division 1; Groups A, B, C, and D classified hazardous location.



Catalog Number	Range	Thermocouple Type	Product Weight (kgs)
104A PR1000	-190 to + 1000° C	J	0.9



## DIGITAL LOGGING THERMOMETER

Glas-Col's portable digital thermometer logs up to 1,000 real-time readings and can send them to a printer or computer by infrared output.

- accepts up to two thermocouple inputs and provides for two-point field calibration for offset and slope
- allows selection of log interval from one second to one hour and of resolution and input filtering. LCD display can show minimum, maximum, and differential readings simultaneously
- provides field calibration anti-tampering lockout. Has easy-to-use 12-button keypad of sealed silicone rubber



### Specifications

Display: Three 4-digits: 1.02cm H and .01cm H.

Accuracy: Types J, K, T, E, and N:  $\pm 0.4^{\circ}\text{C}$  above  $-150^{\circ}\text{C}$ ,  $\pm 1^{\circ}\text{C}$  below  $-150^{\circ}\text{C}$ ,  $\pm 0.1\%$  of reading. Types R, S, and B:  $\pm 1^{\circ}\text{C}$ ,  $\pm 0.1\%$  of reading.

Resolution: Less than or equal to 999.9':0. 1'. Greater than 999.9': 1".

Battery: Two AA batteries (included).

Case Size: 8.4cm w x 15.6cm h x 3.1cm d.

Ratings: UL & CUL rated intrinsically safe, certified safe for Class 1, Division 1; Groups A, B, C, and D classified hazardous location.

Catalog Number	Range	Thermocouple Type	Product Weight (kgs)
104A PR2000	-200 to 1000° C	J	0.9
	-250 to 1372° C	K	
	-250 to 400° C	T	
	-250 to 1000° C	E	
	0 to 1768° C	R	
	0 to 1768° C	S	
	-250 to 1300° C	N	
	200 to 1800° C	B	

**Thermocouple must be ordered separately.**

- Variable speed motor drives to make the process faster, safer, and more thorough
- Straight homogenizers for softer tissue
- Tapered homogenizers for tougher tissue
- PTFE resin pestles for grinding softer material with less heat generation and contamination
- Glass reinforced PTFE pestles for moderately tough tissue maintains features of PTFE
- Ground-glass pestles for tougher sample tissue
- Manufactured for precise fit to insure complete tissue disruption

### VARIABLE SPEED MOTOR DRIVES

Glas-Col's variable-speed homogenizer drive features a totally enclosed motor.

For high-speed operation, the direct drive shaft is recommended. The geared shaft generates high torque and lower speeds. The homogenizer drive's electronic motor controller delivers versatile and reliable performance and maintains speed.

This controller also provides:

- smooth rotation and repeatability, reduced motor temperature, and reduced noise thanks to filtered circuitry.
- a switch for reversing pestle direction during homogenizing or allowing either motor shaft to rotate in the proper direction for use with the quick-change chuck
- cord connection to the motor so control can be placed away from corrosive hood environments for ease of access.

Furnished with a 3-jaw keyless chuck and 90-degree clamp.

### Optional Accessories

Flex-grip chucks for glass pestles.  
 Quick-change chucks for Teflon<sup>®</sup> pestles.  
 Flexible drive for safer homogenizing.  
 Lab stand.

### Specifications

Lab bench case size: 20.3cm w x 15.2cm d x 8.6cm h  
 Motor size: 11.1cm w x 11.1cm d x 14.0cm h  
 Electrical: On/off power switch, circuit breaker, 2.5 meter cord, and CEE 7/7 plug.  
 Rating: 1.5A, 50/60 Hz., 240V



Catalog Number	Description	Product Weight (kgs)
099C K5424CE	Dual shaft motor and speed controller, 333/4,000rpm	7.7
099C K6424CE	Motor and speed controller, 11,500rpm.	6.4
099D A130150	Lab stand	5.4

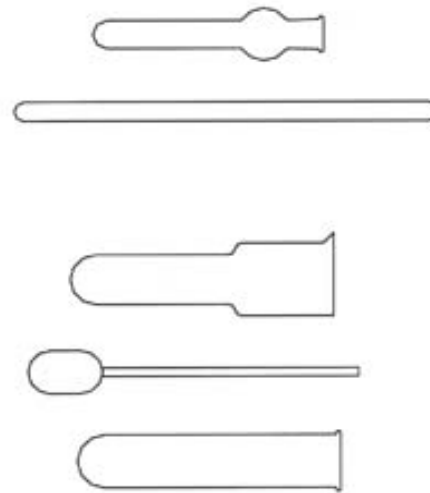
## STRAIGHT, POTTER-ELVEHJEM TYPE HOMOGENIZERS

### PTFE Pestles

- 41.3 mm long PTFE tip on a 178 mm long x 4.76 mm diameter stainless steel shaft
- shafts fit adjustable chucks on any listed motor drives
- all shafts specially notched to fit the L11 quick-change chuck

### Glass Pestles

- medium ground-glass surface tip on 10 mm diameter glass shaft
- S24 is ground its entire length and can be reversed for double life
- all sizes may be used with either the L14 or L15 flex-grip motor chuck



**Straight Pestles & Tubes**

**Note on charts: "Capacity" is the maximum usable liquid capacity with the pestle moving in the tube. "Clearance" is the difference between the pestle outside diameter and the tube inside diameter.**

### Tubes

- precision-bore borosilicate glass about 146 mm long, except the S38, which is 102 mm long for centrifuge use
- tubes for glass pestles have medium-ground surface on inside walls of grinding chamber
- tube diameter listed is the approximate outside diameter of the grinding section

### Straight Glass Pestles & Tubes

Capacity	Catalog Number Each Item	Description	Outside Diameter (mm)	Clearance (mm)	Product Weight (kgs)
8 ml	099C S24	Glass pestle	9.84	-	-
-	099C S34	Tube for S24 pestle	10.02	.18-.23	0.09
15 ml	099C S26	Glass pestle	15.14	-	-
-	099C S36	Tube for S26 pestle	15.32	.18-.23	0.09
40 ml	099C S29	Glass pestle	24.54	-	-
-	099C S39	Tube for S29 pestle	24.71	.18-.23	0.09

## Straight PTFE Pestles & Straight Glass Tubes

Capacity	Catalog Number Each Item	Description	Outside Diameter (mm)	Clearance (mm)	Product Weight (kgs)
2 ml	099C S20	PTFE pestle	7.82	-	-
-	099C S30	Tube for S20 pestle	8.00	.18-23	0.2
10 ml	099C S21	PTFE pestle	15.14	-	-
-	099C S31	Tube for S21 pestle	15.32	.18-23	0.2
15 ml	099C S21	PTFE pestle	15.14	-	-
-	099C S35	Tube with overflow chamber for S21 pestle	15.32	.18-23	0.2
5 ml	099C S21	PTFE pestle	15.14	-	-
-	099C S38	Tube, short for centrifuge use for S21 pestle	15.32	.18-23	0.2
10 ml	099C S21G	Glass reinforced PTFE pestle	15.14	-	-
-	099C S31	Tube for S21G pestle	15.32	.18-23	0.2
15 ml	099C S21G	Glass reinforced PTFE pestle	15.14	-	-
-	099C S35	Tube with overflow chamber for S21G pestle	15.32	.18-23	0.2
5 ml	099C S21G	Glass reinforced PTFE pestle	15.14	-	-
-	099C S38	Tube, short for centrifuge use for S21G pestle	15.32	.18-23	0.2
20 ml	099C S22	PTFE pestle	18.69	-	-
-	099C S32	Tube for S22 pestle, extra-heavy wall	18.87	.18-23	0.2
30 ml	099C S23	PTFE pestle	24.54	-	-
-	099C S33	Tube for S23 pestle	24.71	.18-23	0.2
40 ml	099C S23	PTFE pestle	24.54	-	-
-	099C S37	Tube with overflow chamber for S23 pestle	24.71	.18-.23	0.2
30 ml	099C S23G	Glass reinforced PTFE pestle	24.54	-	-
-	099C S39	Tube for S23G pestle	24.71	.18-.23	0.2
40 ml	099C S23G	Glass reinforced PTFE pestle	24.54	-	-
-	099C S37	Tube with overflow chamber for S23G pestle	24.71	.18-.23	0.2

## TAPERED HOMOGENIZERS

### PTFE Pestles

- precision-machined PTFE tip
- both conical and cylindrical grinding surfaces
- mounted on 178 mm long x 6.35 mm diameter stainless steel shaft, except S61 with 178 mm x 4.76 mm diameter shaft that fits quick-change chuck
- adjustable chuck fits on either homogenizer drive
- pestle diameter given is the outside diameter of cylindrical portion

### Glass Pestles

- ground-glass tip on a 10-mm diameter glass rod (diameter of S62 rod is 6 mm)
- both conical and cylindrical grinding areas with medium-ground surface
- all sizes may be used with either the L14 or L15 motor chuck
- diameter given is the outside diameter of the cylindrical grinding portion

### Tubes

- precision-bore borosilicate glass
- all tapered tubes have overflow chambers
- tubes for glass pestles have medium-ground surface on inside walls of homogenizing portion
- diameter listed is the approximate outside diameter of cylindrical homogenizing portion



**Tapered Pestle & Tube**

**Note on charts: "Capacity" is the maximum usable liquid capacity with the pestle moving in the tube. "Clearance" is the difference between the pestle outside diameter and the tube inside diameter.**

## Tapered PTFE Pestles & Tapered Glass Tubes

Capacity	Catalog Number Each Item	Description	Outside Diameter (mm)	Clearance (mm)	Product Weight (kgs)
2 ml	099C S61	PTFE pestle	7.82	-	-
-	099C S71	Tube for S61 pestle	8.00	.18-23	0.2
15 ml	099C S64	PTFE pestle	15.14	-	-
-	099C S74	Tube for S64 pestle	15.31	.18-23	0.2
40 ml	099C S68	PTFE pestle	24.54	-	-
-	099C S78	Tube for S68 pestle	24.71	.18-23	0.2

## Tapered Glass Pestles & Tapered Glass Tubes

Capacity	Catalog Number Each Item	Description	Outside Diameter (mm)	Clearance (mm)	Product Weight (kgs)
2 ml	099C S62	Glass pestle	7.82	-	-
-	099C S73	Tube for S62 pestle	8.00	.18-23	0.2
15 ml	099C S65	Glass pestle	15.31	-	-
-	099C S75	Tube for S65 pestle	19.00	.18-23	0.2
40 ml	099C S69	Glass pestle	24.54	-	-
-	099C S79	Tube for S69 pestle	30.00	.18-23	0.2

## CHUCKS

### Quick-Change Chuck

- for 4.8mm diameter notched pestle rods
- allows one-hand introduction and locking of notched pestle rod
- permits rapid and convenient homogenizing procedure
- particularly useful where a separate pestle must be used with each tube to prevent cross contamination



099C L14 - 099C L15 - 099C L11

### Flex-Grip Chuck

- flexible, self-aligning, slip-clutch
- for glass pestle and stirrer rods

Catalog Number	Description	Product Weight (kgs)
099C L11	Quick-change chuck for 4.8mm notched pestle rod	0.2
099C L14	Flexgrip chuck for 10mm glass pestle	0.1
099C L15	Flexgrip chuck for 6mm glass pestle	0.1

## FLEXIBLE DRIVE

The flexible homogenizer drive allows up-and-down motion of rotating pestle in a stationary tube that can be mounted in ice or controlled-temperature bath.

- accepts the adjustable chucks furnished with the motor drives as well as the L11 quick-change chuck and the L14 and L15 flex-grip chucks
- eliminates handholding of tubes and pestles
- furnished with clamp for holding homogenizer tube and shaft restrainer for top of support stand
- fits Glas-Col motor drives or any 8mm diameter motor shaft
- 91.4cm long
- convenient for processing several samples: pestle may be rinsed or separate pestle used to avoid sample contamination



Catalog Number	Description	Product Weight (kgs)
099C L73	Flexible homogenizer drive for 5/16" dia. motor shafts	1.01

## LAB STAND

Catalog Number	Description	Shaft Length (mm)	Product Weight (kgs)
099C L70	Horseshoe-base laboratory stand with 19mm diameter aluminum mast. Accepts containers up to 229mm diameter.	610	4.5
099D A130150	Heavy-duty lab stand with 19mm diameter nickel-plated mast. Cast iron base. Accepts containers up to 406mm diameter.	762	5.4



## PNEUMATIC EGG PUNCH

Glas-Col's hand-held pneumatic egg punch produces a clean, circular fracture in embryonated chicken eggs. The lab technician holds the egg punch in one hand and centers the bottom of the punch over the end of the egg. As the trigger button is pushed and released, the knife makes a 25.4mm diameter cut, and the circular cap of the egg is ready to be lifted off. The lower air sac membrane is exposed, intact and readily accessible. Because the unit is hand-held, it can be used at any convenient height. Each unit includes brass fittings and six feet of tubing to connect to a compressed air source. The egg punch may be sterilized by suitable disinfectants or by heating in dry air. It should not be totally immersed in liquids.

### Specifications

Construction: all stainless steel with black foam grip  
 Knife Diameter: 25.4mm  
 Overall Diameter: 28.6mm  
 PSI Range: 50-100



Catalog Number	Description	Product Weight (kgs)
099C E90	Pneumatic egg punch	0.7

## NAIL HOMOGENIZER

The Nail Homogenizer is a hand-held attrition mill that easily pulverizes small nail samples for more reliable dermatological testing. When treated with 10% KOH, the micronized samples spread out rapidly and evenly beneath a cover slip, making study easier and more accurate. The homogeneous sample derived from using the Nail Homogenizer increases the chances of discovering fungal hyphae in a specimen. Additionally, using pulverized samples increases the possibility of culture isolation by permitting greater numbers of potentially viable fungal cells to come into direct contact with the isolation medium. Pulverizing in the Nail Homogenizer is a simple task, and laboratory safety is improved since no sharp-edged tools are required. The technician places a specimen in the mill cavity, presses the two mill halves together, and rotates the halves in opposite directions several times. This process is successful with other tough, resilient materials in addition to nail clippings.

Cutting head inserts are replaceable, and the entire unit is autoclavable in preparation for the next sample.

### Specifications

Construction: 100% stainless steel  
 Work Surface Of Cutting Head Diameter: 1.6cm  
 Clearance Between Cutting Heads: adjustable (set at .01cm)  
 Overall Diameter: 5.1cm  
 Overall Height: 3.8cm



Catalog Number	Description	Product Weight (kgs)
099C E2000	Complete Nail Homogenizer	.7



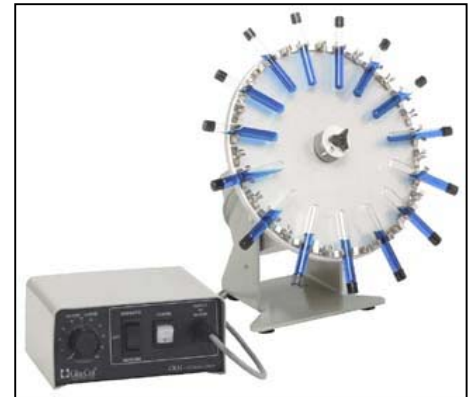
- Variable speed motor drives to make the process faster, safer, and more thorough
- Interchangeable heads for most rotating processes
- Replaceable head design to allow for customizing to meet special applications
- Motors and controls designed for use in fume hoods and cabinets

## RUGGED ROTATOR

Variable speed adjusts mixing action from a gentle slosh to rapid agitation. Driven by a continuous-duty motor, it can stand up to demanding schedules and long hours of operation.

Some of the procedures it can be used for are:

- embedding electron microscopy
- tissue-culture specimens
- blood cell suspensions
- suspension preparation
- washing of precipitates
- disintegrating tablets
- extracting
- dissolving slow reacting samples
- testing biodegradable materials
- homogenizing blood solids with plasma
- rotating closed containers for dialysis bags



The rotator is easy to use. A unique clamping device utilizes leverage to assure positive maintenance of selected motor position and permits positioning of the motor at any point within a 110° arc. One thumbscrew permits easy changing of heads. Containers remain visible during rotating. Sturdy, stable, well-balanced, compact base handles substantial loads. Cord-attached speed control module allows convenient placement. It avoids the danger of reaching around behind load to start or stop rotation and permits rotator to be used inside constant temperature ovens and hoods while the control is outside. Keeps electronics out of high temperature or other hostile environments. Furnished complete with the friction-drive test tube head (099A RD65).

### Specifications

Size: 26cm w x 27.1cm d x 24.9 cm h

Rating: 1.5A, 50/60Hz., 240V

Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Maximum load weight capacity: 2.5 kgs.

Catalog Number	Description	RPM	Product Weight (kgs)
099A RD4524CE	Motor drive and base.	2-83	7.7
099A RD5524CE	Motor drive and base.	.17-8.3	7.7
099A RR1	Riser for Rotator. (Optional riser lifts unit so larger glassware will clear bench)		2.0

### FRICITION-DRIVE TEST TUBE HEAD

This aluminum disk is equipped with spring clips to hold test tubes for such operations as:

- blood agitations
- isotopic competitive protein binding assays

A clutch permits stopping the head to insert and remove tubes without turning off the motor. The spring clips permit the tubes to be inserted radially from the side of the clip rather than the top. The clips are adjustable.

#### Specifications

Size: 36cm, anodized aluminum disk.  
 Furnished with 31 spring clips to accommodate 10 mm- to 18 mm-diameter tubes and 16 spring clips to accommodate 20 mm- to 30 mm-diameter tubes.



Catalog Number	Description	Product Weight (kgs)
099A RD65	Friction-drive test tube head	1.5

### TISSUE CULTURE TUBE HEAD

Designed to hold as many as 108 mini tissue-culture tubes, each up to 16 mm in diameter, this head facilitates simultaneous rotating. Quickly attaches to any Rugged Rotator and, when mounted, is still compact enough to fit into a tabletop incubator.

#### Specifications

Size: 33cm w x 35.6cm d x 33cm h.  
 Consists of a drum, 30.5cm in diameter with 108 spaces for tubes.  
 Angle can be adjusted so that tube contents won't touch cap while rotating.



Catalog Number	Description	Product Weight (kgs)
099A TC108	Tissue culture tube head	1.5

## TWIN-DISK TEST TUBE HEAD

Frequently used for embedding tissue for electron microscopy, the no-slip design of spaced disks with springs conveniently holds a combination of test, bottles, syringes, etc. Tube are easily inserted or removed by deflecting leaf spring between disks. Clamps will not scratch glassware.

### Specifications

Accepts 22 pieces of glassware each up to 25mm in diameter or 44 pieces up to 16mm in diameter

Head may be adjusted so that tube contents won't touch cap.

Adjustable disk orientation provides gentle mixing (tube axis parallel to rotor shaft) or more active motion (a three-dimensional figure-8 motion).



Catalog Number	Description	Product Weight ( kgs)
099A RD10	Twin-disk test tube head	2.5

## ERLENMEYER FLASK HEAD

Conveniently rotates a large number of Erlenmeyer flasks at once. Attaches with ease to our 099A RD5524CE rotator base.

### Specifications

Simple, long wearing design consists of aluminum disk, 45.7 cm in diameter, with 52 holes to accept stainless-steel flask clamps (order separately).

Clamp sizes may be intermixed on disk.

Clamps sold one to a package.



**Requires 099A RD5524CE**

Catalog Number	Description	Disk Capacity	Product Weight (kgs)
099A RD3018	Erlenmeyer flask head		2.4
R96227	Flask clamp, 10 ml	40	.05
R96123	Flask clamp, 25 ml	40	.05
R96124	Flask clamp, 50 ml	40	.05
R96122	Flask clamp, 125 ml	26	.05

### TEST TUBE RACK HEAD

Holds a complete rack of stoppered test tubes for rotating end-over-end.

Does double duty as a holder for:

- bottles
- Erlenmeyer flasks
- other stoppered containers

#### Specifications

Retaining plate is polyfoam-lined, making it easy on glassware, and is held by two knurled nuts.  
 Head will hold rack 30.5cm X 12.7 cm, with tubes 75-200 mm long.  
 Quick adjustment permits load to be balanced on motor-drive axis.



Requires 099A RD5524CE

Catalog Number	Description	Product Weight (kgs)
099A RD50	Test tube rack head	1.5

### HEXAGONAL CLAMPING HEAD

Excellent for rotating an assortment of glassware up to 57 mm in diameter. Equipped with six large finger clamps that hold securely without scratching. Head easily attaches directly onto any Rugged Rotator.

#### Specifications

Hexagonal casting mounts quickly on rotator.  
 Clamps attach to casting individually with lockable thumbscrews.  
 Clamp position is adjustable to permit axial or end-over-end rotation of container.



Catalog Number	Description	Product Weight (kgs)
099A RD20	Hexagonal clamping head	2.5

## SMALL TUBE ROTATOR

Modeled after our Rugged Rotator, this unit offers a multi tube head suitable for applications requiring the use of small samples with reliable results. Up to 40, 5-10mm micro tubes can be attached and mixed from a gentle slosh to a rapid agitation. Equipped with tilting motor brackets, a variety of mixing actions can be obtained.

The cord attached speed control module allows convenient placement to avoid danger when starting or stopping rotation.



### Specifications

Dimensions: 25.4cm w x 26.7cm d x 25.4cm h

Rating: 180VA, 50/60 Hz.

Electrical: On/Off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Maximum load weight capacity: 2.5kgs

Catalog Number	Description	RPM	Product Weight (kgs)
099A CR4024CE	Small Tube Rotator	2-83	7.5

## DRY POWDER ROTATOR

Glas-Col's Dry Powder Rotator is ideal for hard-to-mix powders. By setting the drive bar at a 20° angle, the motion of this rotator closely reproduces the mixing action achieved when mixing by hand. Not only is the powder tossed from end-to-end, it is rotated around the inside of the vessel as well. This gives a more thorough mixing action than ordinary reciprocal shakers. Other features include:

- adjustable rack fits bottles from 17.8cm to 25.4cm in height and up to 17.8cm in diameter
- silicone lined rack reduces chemical deterioration
- tilting motor bracket for variations of mixing action



### Specifications

Rating: 1.5A, 50/60Hz., 240V

Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Dimensions: 30.5cm w x 30.5cm d x 43.2cm h

Maximum load weight capacity: 4.5kgs

Catalog Number	Description	RPM	Product Weight (kgs)
099A RD9924CE	Dry powder rotator	2-80	16.6

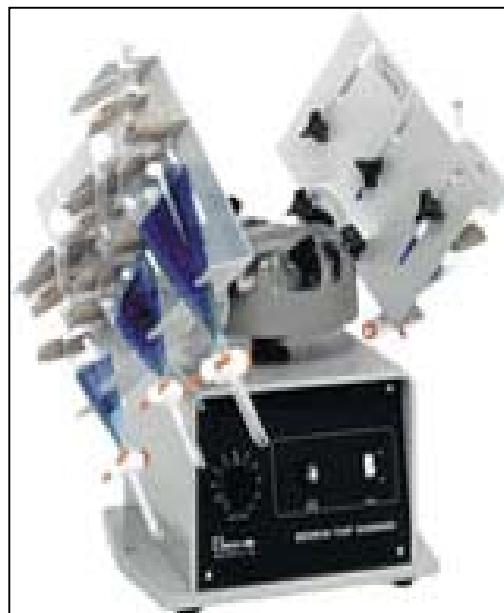
- Designed to accept a variety of holders to meet a wider range of shaking needs
- Motions designed to simulate shaking by hand
- Designed to reduce the handling of glassware for greater safety and cost saving

## BENCH-TOP SHAKER

Reciprocating shaking and mixing with bench-top convenience. Glas-Col's Bench-Top Shaker is an adaptable, user-friendly shaker that is capable of many hours of continuous shaking and mixing.

The shaker:

- features a variable-speed motor that provides gentle, low-speed shaking to vigorous, high-speed shaking
- requires no load balancing
- features a built-in shaking head with easy-to-adjust knobs for quick loading
- will accept a variety of glassware holders for mixing and shaking
- may be placed inside a fume hood for added safety



## Specifications

Maximum load weight capacity: 9.1kgs

Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug

Electrical Rating: 1.5A, 50/60 Hz., 240V

Size: 33.0cm w x 25.4cm d x 29.9cm h

Catalog Number	Description	RPM	Product Weight (kgs)
099A S60024CE	Shaker Base	2-125	22.7

### SEPARATORY FUNNEL HOLDER (up to 500 ml)

The funnel holder will accommodate up to three funnels at once, depending on size, and can hold funnels as large as 500 ml. You can mount one or two of these holders on the shaker base.

Just load the funnels with the stopcock down, adjust to the desired shaking position, and turn on the shaker. An easily adjusted yoke secures the funnel, and the stopper is held in place by a built-in elastic band.

If you're mixing materials that create pressure while being shaken, the pressure can be relieved automatically with the Snorkel Stopper, which is substituted for the regular stopper, and is held in place with the elastic band. It automatically relieves pressure over 0.5 psi.



Catalog Number	Description	Product Weight (kgs)
099A FR435SS	One, two, or three 60-250 ml funnels	1.5
099A FR600SS	Two 125-500 ml funnels	2.0

### SEPARATORY FUNNEL HOLDER (1000 ml & larger)

The separatory funnel holder is designed to allow 1- or 2-liter separatory funnels to be held in the positions necessary for sample processing, but with minimum handling of fragile funnels.

From the upright, or fill, position the funnel may be rotated to the 45° or 60° position for shaking and then returned to the upright position for the addition of materials or extracting. The flask may remain in the holder during the entire cycle.

This holder requires the use of the Universal Mounting Platform (099A BT6000).

When using standard funnels with glass, plastic, or PTFE stoppers, our Stopper Retainer is required.



Requires 099A BT6000

Catalog Number	Description	Dimensions (cm)	Product Weight (kgs)
099A BT2000S	2-liter separatory funnel holder (099A BT6000 required)	31.75cm w x 24.1cm d x 3.9cm h	1.5
099A BT1000S	1-liter separatory funnel holder (099A BT6000 required)	28.58cm w x 24.1cm d x 3.9cm h	1.5
R80 258	Up to 1L stopper retainer		.2
R80 255	2L stopper retainer		.2

## UNIVERSAL MOUNTING PLATFORM

The Universal Mounting Platform is required for mounting Series BT glassware holders. The Series BT holders install quickly atop the platform through pre-located mounting holes. Two locking knobs secure each holder in place. The platform will accept two holders.

It also provides a horizontal surface for the easy attachment of a wide variety of vessels that need to be shaken.

The Universal Mounting Platform is set conveniently on top of the shaker head and is held securely with three hand-tightened locking knobs.



Catalog Number	Description	Product Weight (kgs)
099A BT6000	Universal mounting platform	1.8

## LARGE-FINGER CLAMP

Large finger clamps are available for use with the Bench-Top Shaker. They can hold various types of glassware up to 57 mm diameter. The clamps may also be adjusted to hold glassware at the most effective shaking angle. Sold individually.



Catalog Number	Description	Product Weight (kgs)
R96 344	Large-finger clamp, each	0.5

## TEST TUBE RACK HOLDER

The test tube rack holder lets you shake one or two entire racks of test tubes at once. Even racks containing different size tubes can be shaken simultaneously. Racks are held in place by a restraining cover. This cover automatically releases and remains captive when retaining nuts are loosened for rack insertion or removal. Existing racks up to 30.5 x 12.7cm may be used with capped or stoppered tubes from 75 to 200mm long.



Catalog Number	Description	Dimensions	Product Weight (kgs)
099A TR700	Test tube rack holder	4.5cm h x 5.2cm w x 2.7cm d	1.5



### ERLENMEYER FLASK HOLDER

Model 099A EF521 lets you shake one to four Erlenmeyer flasks at a time. It will work with uncapped flasks (for gentle shaking), or you can close them with screw caps or tapered stoppers. An elastic band automatically holds the stoppers in place. One or two flask holders can be shaken at once. A locking knob secures holder in optimum positions for both loading flasks and for effective shaking. While mounted on shaker, the holder can be rotated 180°. Each holder adjusts to accommodate three 500 ml flasks or four 125 or 250 ml flasks. A combination of flasks is possible, as well.



Catalog Number	Description	Dimensions	Product Weight (kgs)
099A EF521	Erlenmeyer flask holder	20.3cm h x 32.4cm w x 11.4cm d	2.5

### CENTRIFUGE TUBE HOLDER

The centrifuge tube holder allows shaking vertically to let gases escape, or horizontally with stoppers secured by a plate. Each holder accommodates up to eight tubes. Up to three holders can be shaken at once. The total load may be up to 2.27 kgs and need not be balanced. If sizes other than those listed in the table are needed, call us with your requirements.



Catalog Number	Description	Dimensions	Product Weight (kgs)
099A SR815	15 ml glass centrifuge tubes Test tubes up to 16 mm dia. 126-160 mm long (stoppered)	22.9cm h x 16.5cm w x 17.2cm d	.6
099A SR850	50 ml glass centrifuge tubes Test tubes up to 28 mm dia. 140-180 mm long (stoppered)	22.9cm h x 16.5cm w x 17.2cm d	1.0

### FAT-EXTRACTION TUBE HOLDER

This tube holder lets you use the Bench-Top Shaker for Mojonnier fat extraction. Each holder accepts up to four flasks, 37 mm in diameter.

Maximum of two holders can be shaken at one time. The load max of up to 2.27 kgs need not be balanced. Unstoppered flasks may be shaken vertically. For horizontal shaking, flasks should be stoppered and stoppers held with built-in restrainers.



Catalog Number	Description	Dimensions	Product Weight (kgs)
099A MFG3	Fat-extraction tube holder	22.2cm h x 33cm w x 11.4cm d	1.0

## PLATFORM SHAKER

Because the versatile, variable-speed Platform Shaker can handle a variety of mixing applications, it's a great choice for any laboratory. The shaking action can range from a gentle rock to firm 3D shaking. Furnished with metallic rack and non-slip rubber pad.

Delivers results for the following applications:

- hybridizations
- DNA extraction
- immunoassays
- staining and destaining of gels
- mixing of blood samples
- reconstituting antibiotics

### Specifications

Size: 33.0cm w x 25.4cm d x 29.9cm h  
 Electrical Rating: 1.5A, 50/60Hz., 240V  
 Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.  
 Maximum load weight capacity: 9.1kgs



Catalog Number	Description	RPM	Product Weight (kgs)
099A TDS124CE	Platform shaker base	0-82	26.5
099A TDS100	Multi-tier platform		1.5

## WS 180° SHAKER

This shaker efficiently agitates solid phase peptide synthesis flasks, small to medium. It is also useful for shaking culture flasks and for agitating hard-to-dissolve solids such as polymers. Rotation through 180° of arc effectively simulates shaking by hand. This shaker may be used with screw-cap top or side-arm flasks. It will shake two flasks simultaneously.

Two standard large finger laboratory clamps (included) hold glassware securely for shaft diameters up to 57 mm. Design of shaft bearing permits operation in a cold room or incubator. DC filtering allows the motor to run cooler and promotes longer motor life. Base configuration prevents "walking" on bench top.



### Specifications

Electrical: On/Off switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug.  
 Electrical Rating: 1.5A, 50/60 Hz., 240V  
 Size: 35.6cm w x 16.5cm d x 17.8cm h.  
 Maximum load weight capacity: 1.5kgs per side

Catalog Number	Description	RPM	Product Weight (kgs)
099A WS18024CE	180° shaker with two large finger clamps.	2-30	11.5

## MID-RANGE 3D SHAKER

The Mid-Range 3D Shaker gives you the same convenient, consistent 3D shaking on your bench top as you get with our 3D Floor Shaker.

- mechanically shakes glassware for consistent, repeatable results
- fits in fume hood to protect personnel from fumes (Minimum 76.2 cm d x 91.4cm l x 91.4cm h for 2-liter sep funnels; 61cm d x 182.8cm l x 91.4cm h for sizes up to 1-liter)
- "Lazy Susan" design allows 360° rotating of platform for easy loading and unloading
- platform locks in place for added safety

### Specifications

Motor: 1/4-hp continuous-duty motor

Maximum load weight capacity: 18.1kgs

Electrical: Power switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug. Digital speed and countdown interval timers.

Electrical Rating: 660 volt-amps, 240V

Size: Shaker base dimensions - 55.9cm d x 43.2cm w.

Height to platform 35.6cm. Octagonal platform - 48.3cm across corners.

USB: Port can be used with LabNetix software



Catalog Number	Description	RPM	Product Weight(kgs)
*099A VS20024CE	Shaker base only	10-170	75.0
099A VS21024CE	Shaker base w/four 1-liter separatory funnel holders	10-170	75.0
099A VS22024CE	Shaker base w/four 2-liter separatory funnel holders	10-170	75.0

\*Note: Glassware holders not included. Order separately.

## FUNNEL OR FLASK HOLDER

Each separatory funnel holder will hold one funnel.

While the rear support of the funnel holder remains stationary, the front part holding the funnel can be released and rotated 360°. This permits the funnel to be filled, inverted for shaking, and then reinverted for addition and/or extraction, all while the flask remains in the holder.

This also helps to eliminate breakage of glassware caused by handling.

When using standard funnels with glass, plastic, or PTFE stoppers, our Stopper Retainers are required. Inverting the funnel and shaking with the stopcock open can release gas pressure.

Gas pressure can also be released automatically by using Glas-Col's patented VentSep separatory funnels.

The Erlenmeyer flask holder and the volumetric flask holder each hold one flask.

You can use up to four holders, which mount to the platform without fasteners.

Catalog Number	Description	Height (cm)	Width (cm)	Depth (cm)	Product Weight (kgs)
099A VH0250S	Holder for 250-ml separatory funnel	27.9	17.8	20.9	3.0
099A VH0500S	Holder for 500-ml separatory funnel	27.9	17.8	20.9	3.0
099A VH1000S	Holder for 1000-ml separatory funnel	27.9	17.8	21.6	3.0
099A VH2000S	Holder for 2000-ml separatory funnel	27.9	18.4	24.1	3.0
099A VH0250E	Holder for 250-ml Erlenmeyer flask	27.9	18.4	22.9	3.0
099A VH0500E	Holder for 500-ml Erlenmeyer flask	27.9	18.4	23.5	3.0
099A VH1000E	Holder for 1000-ml Erlenmeyer flask	27.9	17.8	25.4	3.0
099A VH1000V	Holder for 1000-ml volumetric flask	27.9	17.8	21.6	3.0
099A VH2000V	Holder for 2000-ml volumetric flask	27.9	18.4	24.1	3.0

## 3D FLOOR SHAKER

This shaker eliminates time-consuming and tiring shaking of large vessels by hand.

- 3D motion circulates liquid up, down, sideways, and around for effective mixing
- excellent for hemolyzing blood, water pollution analysis, or drug analysis
- shakes up to eight 1 or 2-liter funnels or eight 1 or 2-liter volumetric flasks; no balancing required
- holder design minimizes strain on drains and stopcocks and reduces the possibility of broken glassware
- custom holders can be adapted to accommodate other types of vessels



### Specifications

Maximum load weight capacity: 36.3 kgs

Electrical: Power switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug. Digital speed and countdown interval timers.

Electrical Rating: 660 volt-amps, 240V

Size: Base dimensions of 69cm w x 77cm d x 66cm h

Platform working height of 91.4 cm

USB: Port can be used with LabNetix software

Catalog Number	Description	RPM	Product Weight (kgs)
099A VS50024CE	Shaker base only	10-170	181.5

Note: Glassware holders not included. Order separately.

## FUNNEL OR FLASK HOLDER

While the rear support of the holder remains stationary, the front part holding the glassware can be released and rotated 360°. This permits the glassware to be filled, inverted for shaking, and then reinverted for addition and/or extraction, all while the glassware remains in the holder. This also helps to eliminate breakage of glassware caused by handling. You can use up to four holders, which mount to the platform without fasteners.

Each separatory funnel holder will hold two funnels. When using standard funnels with glass, plastic, or PTFE stoppers, our Stopper Retainers are required. Inverting the funnel and shaking with the stopcock open can release gas pressure. Gas pressure can also be released automatically by using Glas-Col's patented VentSep separatory funnels.

The volumetric flask holder will hold two flasks.

Catalog Number	Description	Height (cm)	Width (cm)	Depth (cm)	Product Weight (kgs)
099A VH1000DS	Double holder for 1 liter separatory funnel	27.9	35.6	21.6	4.5
099A VH2000DS	Double holder for 2 liter separatory funnel	27.9	36.7	24.1	4.5
099A VH1000DV	Double holder for 1 liter volumetric flask	27.9	35.6	21.6	4.5
099A VH2000DV	Double holder for 2 liter volumetric flask	27.9	36.7	24.1	4.5

## SNORKEL STOPPER

With a patented Glas-Col Snorkel Stopper, you'll never again have to take time to open the stopcock and relieve pressure when vigorously shaking a separatory funnel, because our Snorkel Stopper does the task automatically.

When you use a Glas-Col shaker, you can simply load the funnels onto it and get on with more important things without worrying about exploding glass.

The Snorkel Stopper features a one-way check valve that automatically relieves gas pressure. The non-sticking, ground glass valve is backed with a stainless-steel spring and a PTFE closure screw for maximum chemical resistance.

The valve releases pressure of more than 1 psi and prevents direct air contact with the vessel.

The shape of the stopper allows manual or machine shaking and avoids solution leakage.

For manual shaking, the stopper is held in place by hand. On Glas-Col shakers, glassware holders automatically restrain the stopper.

Select the Snorkel Stopper from the chart that corresponds to the standard tapered stopper size on the funnels you use. Size charts are in many laboratory supply or glassware catalog.



Catalog Number	Fits Standard Taper Stopper Size	Product Weight (kgs)
099A SST13	13	.14
099A SST16	16	.14
099A SST22	22	.18
099A SST27	27	.18
099A SST38	38	.23

## PRESSURE RELEASE VALVE

Designed to work specifically with Glas-Col's separatory funnels, these pressure release valves reduce the hazards of pressure build-up. They simply slip over the drain of a Glas-Col funnel and tighten down with a twist of the wrist. The valve can be easily removed when it is time to drain the funnel. Each valve is made of PTFE resin and is factory preset to release at 1 psi of pressure. The valve can be adjusted to release at pressures up to 5 psi by turning the pressure release slug on the top of the valve with a screwdriver. Models are also available to convert other separatory funnels to automatically vent.



Catalog Number	Description	Product Weight (kgs)
099A PRV6	For Glas-Col funnels SEP0060-SEP0125 or spout OD 7.5-9.5 mm	.09
099A PRV10	For Glas-Col SEP2000 or spout OD 12.5-13.0 mm	.09

## SEPARATORY FUNNEL

Glas-Col's separatory funnel is designed to offer a new level of convenience and safety when used with Glas-Col shakers. This funnel has a screw cap with a PTFE resin lining to reduce the possibility of contamination. The drain spout is a screw-on PTFE resin design which reduces the chance of breakage and allows for easier cleaning. When used with Glas-Col's new pressure relief valve, it offers the convenience of self-venting for applications where pressure build-up is a concern.

Catalog Number	Description	Product Weight (kgs)
099A SEP 0060	Separatory funnel with PTFE cap and spout, 60 ml	.14
099A SEP 0125	Separatory funnel with PTFE cap and spout, 125 ml	.23
099A SEP 0250	Separatory funnel with PTFE cap and spout, 250 ml	.36
099A SEP 0500	Separatory funnel with PTFE cap and spout, 500 ml	.41
099A SEP 1000	Separatory funnel with PTFE cap and spout, 1000 ml	.45
099A SEP 2000	Separatory funnel with PTFE cap and spout, 2000 ml	.91



**When used with the Glas-Col Pressure Release Valve, this separatory funnel becomes self-venting.**

## VENTSEP

VentSep, a special 1-liter or 2-liter separatory funnel with a built-in relief valve.

What's more, VentSep features a screw cap instead of a penny-head stopper. As a result, VentSep is safer to use in the laboratory because the screw cap doesn't need restraining and won't come off at inappropriate times, though it will come off easily when you want it to.

VentSep will vent gas pressure over 1 psi automatically. This means you reduce the possibility of unsuspected pressure buildups that could cause exploding glass and personnel injury. As a result, vigorous hand or machine shaking can be done with confidence.



Catalog Number	Description	Product Weight (kgs)
099A SST555	Separatory funnel with automatic pressure relief. PTFE resin stopcock and screw cap with PTFE resin liner, 1000 ml.	1.5
099A SST655	Separatory funnel with automatic pressure relief. PTFE resin stopcock and screw cap with PTFE resin liner, 2000 ml.	2.7



- Feedback circuitry to maintain speed even when viscosity changes
- Propellers and paddles for most applications
- Cord-connected controls for safety and convenience

## GT331 STIRRING SYSTEM

The GT331 is an improved version of the standard dual-shaft stirring system that has been a favorite with chemists and lab technicians everywhere. It has a totally enclosed, 1/40 hp, permanent-magnet motor with two output shafts for maximum speeds of 4,000 and 333 rpm and continuous variable speed control.

The armature shaft provides high speeds for mixing light materials, while the geared shaft generates higher torque at slower speeds for stirring more viscous mixtures.

The GT331 stirring system is furnished complete with motor and mounting bracket, controller, and the following accessories:

099D A210101 3-jaw, keyless chuck  
 099D A210106 paddle  
 099D A210107 propeller  
 099D A283040 right angle clamp

Lab stand 099D A130150 is recommended.

### Specifications

Lab bench case: 20.3cm w x 15.2cm d x 8.6cm h  
 Motor bracket: 11.1cm w x 11.1cm d x 14.0cm h, with 21.6cm rod  
 Electrical: On/off switch separate from speed control, circuit breaker,  
 2.5 meter cord and CEE 7/7 plug.  
 Rating: 1.5A, 50/60 Hz., 240V



Catalog Number	Description	Max rpm	Torque kg-cm	Torque Nm	Product Weight (kgs)
099D GT331CE	Dual-shaft 18:1 gearmotor	333/4,000	4.2/ .3	.4/ .03	7.7

## GT224 STIRRING SYSTEM

The GT224 stirring system offers the user a stirrer with more power than the GT331CE and a selection of speed ranges up to 2,500 rpm. This model combines today's permanent-magnet motor technology with solid-state electronics.

Totally enclosed, 1/17 hp, cool, quiet-running motors with direct-drive and geared options and continuous variable speed control.

The GT224 stirring system is furnished complete with motor, mounting bracket, controller, and the following accessories:

- 099D A210106 paddle
- 099D A210107 propeller
- 099D A210101 3-jaw, keyless chuck (with GT224NCE only)
- 099D A260108 3-jaw, keyless chuck and arbor (with GT22406CE and GT22412CE only)
- 100D LC300 heavy-duty 90° clamp

Lab stand 099D A130150 is recommended.



### Specifications

Lab bench case: 20.3cm w x 15.2cm d x 8.6cm h

Motor bracket: 11.1cm w x 11.1cm d x 14.0cm h, with 21.6cm rod

Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Rating: 1.5A, 50/60Hz., 240V

Catalog Number	Description	Max rpm	Torque kg-cm	Torque Nm	Product Weight (kgs)
099D GT224NCE	Single-shaft motor, direct drive	2500	1.7	.17	7.3
099D GT22406CE	Single-shaft, 6:1 gearmotor	417	6.2	.60	7.7
099D GT22412CE	Single-shaft motor, 12:1 gearmotor	208	13.8	1.32	7.7

## PROPELLERS

Catalog Number	Description	Shaft Length (mm)	Max. Vessel Size (mm)	Product Weight (kgs)
099D A100103	Stainless steel, 4-bladed propeller, 38 mm dia. on 6.4 mm dia. shaft. For general purpose mixing applications.	229	102	0.09
099D A100104		305	102	0.09
099D A100105		457	102	0.13
099D A130153	Stainless steel, 4-bladed propeller, 50.8 mm dia. on 6.4 mm dia. shaft. For general purpose mixing applications.	229	140	0.09
099D A130154		306	140	0.09
099D A130155		457	140	0.13
099D A210107	Stainless steel, 3-bladed propeller, 38 mm dia. on 7.9 mm dia. shaft. For general purpose mixing applications. Blades can be bent to desired pitch.	222	102	0.09
099D A210119		305	102	0.13
099D A210121		457	102	0.18
099D A260106	Heavy-duty stainless steel, 3-bladed propeller, 152 mm dia. on 12.7 mm dia. shaft. High viscosity impeller for hard-to-mix solutions.	305	305	0.40

## PADDLES

Catalog Number	Description	Shaft Length (mm)	Max. Vessel Size (mm)	Product Weight (kgs)
099D A210106	Stainless steel, 3-bladed paddle, 63.5 mm dia. on 7.9 mm dia. shaft. High efficiency paddle for viscous liquids or semi-solids.	222	220	0.13
099D A210109		305	220	0.18
099D A210120		457	220	0.23
099D A219106	A210106 paddle with PTFE coating.	222	220	0.13



**A260106**

**A210109**

**A130154**

**A100103**

**A210107**

## FLEXIBLE SHAFTS

Catalog Number	Description	Length (mm)	Product Weight (kgs)
099D A210312	8 mm shaft end/ 7.9mm end fitting, clockwise direction	914	.6
099D A260375	9.5 mm shaft end/ 7.9mm end fitting, clockwise direction	914	.6
099D A260500	12.78 mm shaft end/ 7.9mm end fitting, clockwise direction	914	.6
099D A260625	15.9 mm shaft end/ 7.9mm end fitting, clockwise direction	914	.6

## GLASS & PTFE STIRRING ASSEMBLIES

Glas-Col's glass and PTFE stirring assemblies are designed for overhead agitation in airtight systems with single- or multiple-neck flasks. They also reduce the possibility of sample contamination and are well suited for agitating corrosive and caustic samples.

The glass stirring rod is precision ground and polished to reduce abrasion to the sealing surface of the PTFE bearing, thereby allowing a vacuum-tight seal. Each stirring rod includes a PTFE nut and bolt. Each PTFE bearing consists of a threaded glass adapter, a saddle O-ring, a body bushing with a compression and locking nut, and a precision PTFE inner gearing. PTFE stirring blades rotate to permit easy insertion into a flask.

The Flex-Coupling permits the use of the glass-stirring rod with a motor drive. The 7.5cm epoxy-coated spring compensates for misalignment, reduces the chance for breakage, and eliminates the need for special adapters.

**GS300**



**GS100**

Catalog Number	Description	Minimum Joint Size	Product Weight (kgs)
099D GS100	Stirring shaft w/PTFE nut and bolt, 445 mm, 10mm O.D.		0.2
099D GS110	Stirring shaft w/PTFE nut and bolt, 515 mm, 10mm O.D.		0.2
099D GS010	Stirring bearing, PTFE, 10 mm diameter.	24/40	0.2
099D GS015	Stirring bearing, PTFE, 10 mm diameter.	29/42	0.2
099D GS020	Stirring bearing, PTFE, 10 mm diameter.	45/50	0.2
099D GS210	Stirring blade, PTFE 100-500 ml, 19 x 48 mm.	24/40	0.2
099D GS220	Stirring blade, PTFE 250-500 ml, 19 x 60 mm.	24/40	0.2
099D GS230	Stirring blade, PTFE 500 ml-1 L, 19 x 76 mm.	24/40	0.2
099D GS240	Stirring blade, PTFE 2-3 L, 24 x 110 mm.	29/42	0.2
099D GS250	Stirring blade, PTFE 5-12 L, 24 x 130 mm.	29/42	0.1
099D GS005	PTFE nut and bolt replacement set.		0.2
099D GS300	Flex-Coupling for 10 mm O.D. glass shaft. Fits 7.9mm motor shaft.		0.3

### CLAMPS

Catalog Number	Description	Product Weight (kgs)
099D A283040	Right-angle clamp for up to 19 mm diameter rods.	0.05
099D LC300	Heavy-duty 90° clamp designed to be more user friendly. Larger knobs make hand tightening easier and provide sufficient pressure to hold rods securely. Can be used on conventional round support rods from 12.7mm to 19mm diameter.	0.50

### LAB STANDS

Catalog Number	Description	Shaft Length (mm)	Product Weight (kgs)
099C L70	17 mm diameter aluminum mast. Accepts containers up to 229 mm diameter.	584	4.54
099D A130150	Heavy-duty lab stand with 19 mm diameter nickel-plated mast. Cast iron base. Accepts containers up to 406 mm diameter.	711	5.44



**A130150**

### CHUCKS

Catalog Number	Description	Capacity (mm)	Product Weight (kgs)
099D A210101	3-jaw, keyless chuck with arbor for 8 mm motor shaft.	9.5	0.50
099D A260100	Precision 3-jaw, keyless chuck with arbor for 9.5 mm motor shaft.	12.7	0.54
099D A260108	Precision 3-jaw, keyless chuck with arbor for 12.7 mm motor shaft.	12.7	0.54
099D A260200	Precision 3-jaw, keyless chuck with arbor for 15.9 mm motor shaft.	12.7	0.54
099D A260275	Precision 3-jaw, keyless chuck with arbor for 19 mm motor shaft.	12.7	0.54



**A260200**

**A260100**

### MISCELLANEOUS

Catalog Number	Description	Product Weight (kgs)
099A LCS	Shelf Adjustable w/knob 17.8cm x 25.4cm	0.7



## UPWARD FLOW STIRRERS

The upward flow stirrer mixes without introducing air. The unique, continuous-shearing and blending action occurs entirely below the solution's surface, creating a thorough mixing action without foaming or splashing. Even at high speeds in nearly full containers, there is minimal surface disturbance.

The upward flow stirrer may be used effectively in many procedures. It may be used with pharmaceuticals, cosmetics, paints, inks, petroleum, and foods. It is also useful in stirring hot and cold solutions in small or large volumes. It can provide rapid disbursement or re-suspension of heat-sensitive substances, proteins, oils, or food essences. It also emulsifies liquids of different densities, dissolves low-soluble solids, and resuspends bacteria into solution. Operation in open containers of all sizes is possible.

All wetted parts are made of corrosion-resistant stainless steel, which allows easy cleaning. The self-lubricating PTFE bushing requires no maintenance and adds to the stirrer's long life. The shielded stirring blades cannot damage the mixing vessel. To use as a conventional stirrer, the stirring blade and shaft may be used without the outer housing.

### Specifications

Dimensions: 11.13cm w x 33cm d x 24cm h

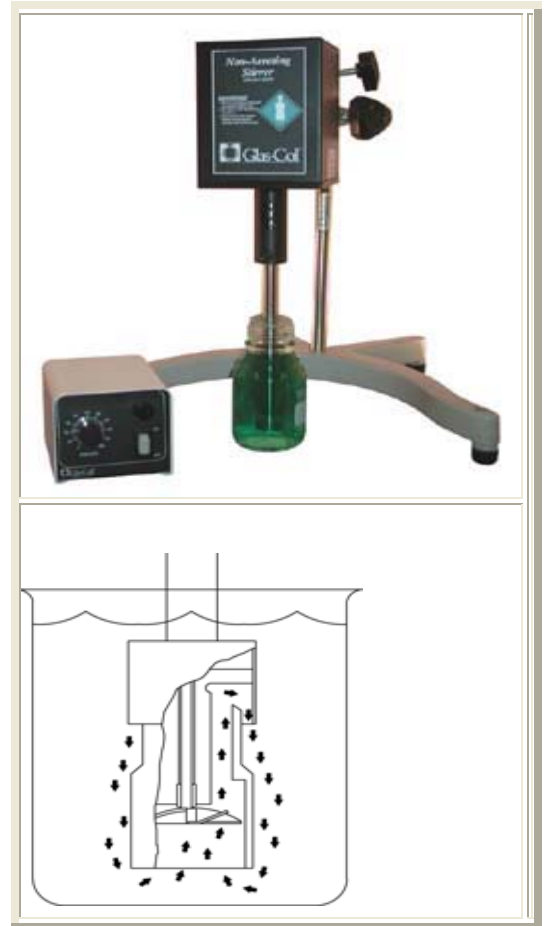
Electrical: On/off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Rating: 5A, 50/60Hz, 240V

Furnished with 90-degree lab clamp

### Optional Accessory

099D A130150 Lab Stand



The unique flow of the solution created by the upward flow stirrer allows it to mixer thoroughly with no foaming, splashing, or introduction of air.

Catalog Number	Description	RPM	Product Weight (kgs)
099D UF24CE	Motor Drive	11,500	5.0

### Upward Flow Stirring Unit

Catalog Number	Mixing Range		Specifications	Product Weight (kgs)
	Aqueous*	Viscous (Centipoise)		
099D 25A	Will work in 25 mm test tube, 12 ml minimum solution for non-aeration maximum approx. 1 liter	Not advised	Diameter 19 mm, length 241mm overall.	0.4
099D 25B	250-8,000 ml	Up to 3000	Diameter 38 mm, length 305mm overall	0.7

## VORTEXERS

- Pulsing feature interrupts action for more thorough mixing
- Interchangeable cartridge system allows units to be adapted to different vessels
- Easily customized for special applications

### MULTI-PULSE VORTEXER

The cartridge design of Glas-Col's Multi-Pulse Vortexer allows the user to switch the size of tubes to be mixed simply by changing the cartridge size, thus eliminating the need for extra racks. Cartridges are available for test tubes and centrifuge tubes and can be used with capped or uncapped tubes. The blank cartridges allow the use of most standard tube racks. Each cartridge is constructed of chemical resistant foam and ABS plastic. The unit easily adjusts for different height tubes. The contents of the tubes remain visible during mixing, and sample can be added to uncapped tubes without stopping the action.

The drive base and upper section is hard coat anodized for resistance to most acids and solvents. Each Multi-Pulse Vortexer comes with two cartridges, one for 12-13 mm diameter tubes and one for 15-16 mm diameter tubes.

#### Specifications

Size: 46.4cm w x 17.8cm d x 43.8cm h.

Rating: 1.5A, 50/60Hz., 240V

Electrical: On/off switch separate from speed control, circuit board, 2.5 meter cord and CEE 7/7 plug.

Maximum load weight capacity: 2.0kgs

Patent: U.S. Patent Nos. 4202634.



Catalog Number	Description	RPM	Product Weight (kgs)
099A VB424CE	Multi-Pulse Vortexer with two cartridges	100-2000	17.2

### Cartridges for Multi-Pulse Vortexer

Catalog Number	Vessels Size and Type	Cartridge Capacity	Product Weight (kgs)
099A VC13100	Test tubes, 12-13 mm diameter	22	.4
099A VC17150	Test tubes, 15-16 mm diameter	22	.4
099A VC20150	Test tubes, 18-20 mm diameter	19	.4
099A VC25300	Test tubes, 25 mm diameter	12	.4
099A VC29135	Test tubes, 28-29 mm diameter	10	.4
099A VC1000	Blank Cartridge, 7mm chemical resistance foam	-	.4
099A VC9601	96 well plate	1	.4
099A VC9602	96 well plate	2	.4
099A VC12502	125 ml Erlenmeyer flask	2	.4
099A VC25002	250 ml Erlenmeyer flask	2	.4
099A VC1084	10 mm Eppendorf tube	84	.5
099A VC10841	10mm Eppendorf tube, 25.4mm thick	84	.6
099A VC1236	12 mm Cryo tube	36	.4

The versatility of Glas-Col's Large Capacity Mixer makes it a perfect choice for any laboratory. The unique design of this system allows for a variety of mixing applications to be handled with one unit. Whether you need gentle, orbital-type shaking or more vigorous vortexing of a sample, the Large Capacity Mixer can fill both needs. The unit is also designed to handle a wide variety of vessels such as Erlenmeyer flasks. The interchangeable cartridge system allows the user to quickly switch from one type of vessel to another, or to mix more than one type of vessel at a time. Custom cartridges are made of chemical resistant foam and ABS plastic.

- at the low end of the 100 – 2,000 rpm speed range, the sample is mixed with a gentle, orbital motion. The high end of the range will mix the sample with a vigorous vortexing action.
- pulsing feature can be used to interrupt the mixing process, to join upper and lower strata, for more thorough mixing.
- DC motor, with filtered control, allows the Large Capacity Mixer to run smoothly and quietly, and prolongs the operating life of the unit.



### Specifications

Size: 46.4cm w x 30.5cm d x 43.8cm h.

Rating: 1.5A, 50/60Hz., 240V

Electrical: On/Off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Maximum load weight capacity: 2.5kgs

Catalog Number	Description	RPM	Product Weight (kgs)
099A LC1024CE	Large Capacity Mixer Base	100-2000	35.0

### Cartridges for Large Capacity Mixer



Catalog Number	Vessels Size and Type	Cartridge Capacity	Product Weight (kgs)
099A LC1000	Blank cartridge, 7 mm chemical resistant foam	-	.6
099A VC12502	125 ml Erlenmeyer flask	2	.4
099A VC25002	250 ml Erlenmeyer flask	2	.4
099A LC12512	125 ml Erlenmeyer flask	12	.6
099A LC25006	250 ml Erlenmeyer flask	6	.6
099A VC4014	40 ml EPA Vials	14	1.0
099A VC6014	60 ml EPA Vials	14	1.0

For custom size cartridges contact factory.



- Used for preparing dilutions and standard solutions
- Aggressive mixing action allows for less mixing time
- Pulsing feature interrupts action for more thorough mixing

### Specifications

Size: 46.4cm w x 30.5cm d x 43.8cm h

Maximum load weight capacity: 2.5 kgs

Rating: 1.5A, 50/60Hz., 240V

Electrical: On/Off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE7/7 plug.



Catalog Number	Description	Number of Flask	RPM	Product Weight (kgs)
099A LC1024050CE	50ml flask mixer	24	100-1500	36.3
099A LC1024100CE	100ml flask mixer	12	100-1500	36.3
099A LC1024250CE	250ml flask mixer	8	100-1500	36.3

### DIGITAL PULSE MIXER

Glas-Col's Digital Pulse Mixer is capable of performing high or low speed pulse vortexing/mixing for most applications. This unit is able to accommodate a wide variety of glassware, racks, well plates or reactor blocks for accurate, repeatable results. The microprocessor based control technology allows for display of speed, multi-function timer, and pulse profiling. Using the USB communications port and available LabNetix® software package, several units can be controlled through your personal computer.

- Membrane switch user interface (4-button)
- Pulse mode with selectable settings
- Heated top units heat up to 140°C
- Timer (Sec 1-60, Min 1-60, Hours 1-24)
- Orbital offset .018cm
- Chemical resistant foam on top and drive plate



### Specifications

Size: 40.6cm x 45.7cm d x 43.2cm h

Platform: 29cm x 36.2cm

Maximum load weight capacity: 5.0 kgs

Electrical: On/Off switch separate from speed control, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Rating: 3.0A, 50/60 Hz., 240 V

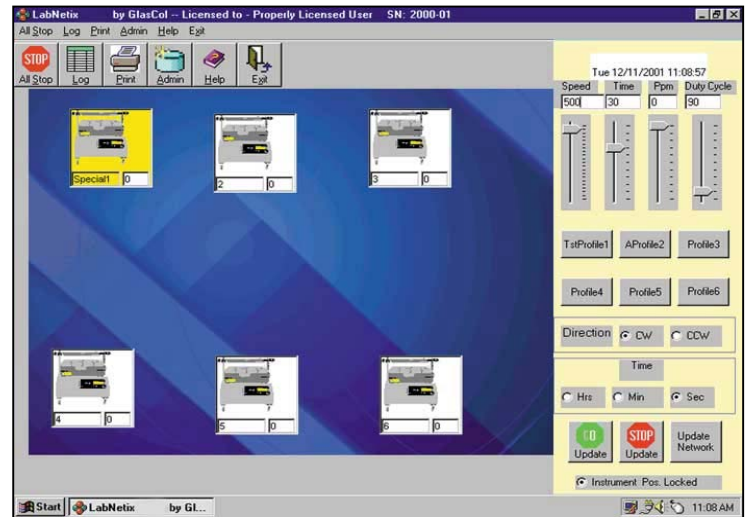
Catalog Number	Description	RPM	Product Weight (kgs)
099A DPM24CE	Mixer base	100-1500	36.3
099A DPMH24CE	Mixer base heated	100-1500	36.3

## LABNETIX®

Labnetix® software gives you the flexibility to monitor and control a variety of Glas-Col mixing products. Operation is simple and intuitive, requiring no specialized training. If you're looking for a faster, easier way to automate your lab, Glas-Col products and Labnetix® software provide the answer.

With Labnetix®, instruments may be operated remotely from Labnetix or locally from the front panel. You can quickly set speed of operation, run time, pulse rate, duty cycle and direction for all the instruments in you lab. As the units change speed and function, the icons representing them change color. You can oversee the entire lab operation at a glance.

Six separate profiles (recipes) can easily be setup with each profile having six lines of instructions. For either Local or Remote operation, each step of operation of any instrument is recorded in a master log for documentation. You have a permanent record of every operation of every instrument.



When started, Labnetix® auto-detects the type of instruments connected and displays the appropriate icon (i.e. mixer, stirrer, shaker). Up to 10 different instruments can be connected and controlled at one time. No complicated wiring, configuring the network or setting of address options is required.

Inexpensive cables daisy chain the instruments to an existing PC port, there are no expensive hubs to buy or connect.

Catalog Number	Description	Format	Product Weight (kgs)
099A LABNETIX	One User License	PC	0.5

## EVAPORATORS

### EVAPORATOR

- Low cost solution for the concentration of 96 well extractions and reactions
- Each SS needle delivers an equal flow of nitrogen or other gas
- Gently speeds evaporation of excess liquid

Fine needle valve controls the total flow to the equalizer manifold that gives equal gas flow to each well. Each well has consistent evaporation. Needle height is easily adjustable to enable most sizes and capacities of microplates.



### Specifications

Gas flow: 1 to 100 mL/needle

Size: 17.8cm w x 14.0cm d x 19.1cm h

Body: Constructed of Polypropylene and can be sterilized by autoclaving.

Catalog Number	Description	Maximum PSI	Product Weight (kgs)
099A EV96	96 well concentrator/evaporator	20	2.27
099A EV384	384 well concentrator/evaporator	20	2.27

## EVAPORATOR SYSTEM

- Low cost solution for the concentration of micro plate extractions and reactions with heat block
- Each SS needle delivers an equal flow of nitrogen or other gas
- Gently speeds evaporation of excess liquid
- Heats to 100°C for even faster drying times
- Digital temperature control with user friendly interface



*\*Evaporator system shown with optional heated manifold.*

A fine needle valve controls the total flow to the equalizer manifold providing equal gas flow to each well. Each well has consistent evaporation. Needle height is easily adjustable to enable most sizes and capacities of microplates.

### Specifications

Electrical: On/off switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug.

Rating: 2.0A, 50/60Hz, 240V

Body: Constructed of polypropylene and can be sterilized by autoclaving.

Gas flow: 1 to 100mL/needle

Size: Evaporator – 17.8cm w x 14.0cm d x 19.1cm h

Control: 14.0cm w x 19.1cm d x 5.7cm h

Control type: PID parameter with auto tune

Display: 4-Digit LED

Accuracy:  $\pm 0.25\%$  of Span

Catalog Number	Description	Maximum PSI	Product Weight (kgs)
099A EV824SCE	8 well concentrator/evaporator system	20	4.0
099A EV824STCE	8 well concentrator/evaporator system w/heated manifold	20	5.0
099A EV2024SCE	20 well concentrator/evaporator system	20	4.0
099A EV2024STCE	20 well concentrator/evaporator system w/heated manifold	20	5.0
099A EV9624SCE	96 well concentrator/evaporator system	20	4.0
099A EV9624STCE	96 well concentrator/evaporator system w/heated manifold	20	5.0
099A EV38424SCE	384 well concentrator/evaporator system	20	4.0
099A EV38424STCE	384 well concentrator/evaporator system w/heated manifold	20	5.0

## DIGITAL PULSE MIXER WITH EVAPORATOR/CONCENTRATOR

This system is designed to rapidly evaporate/concentrate solvents by both heating the sample bottom and the incoming nitrogen. Each position is furnished with an individual orifice for the best possible delivery of gas. The pulsing feature allows a film of gas. The pulsing feature allows a film solvent to be thrown on the sidewall; then the vortex collapses. Next the vortex again is created and the process continues until the concentration level is achieved providing the quickest method of evaporation.

### Features

- Pulse mode with selectable settings
- Timer (Sec 1-60, Min 1-60, Hours 1-24)
- Optional PC control software
- Orbital offset .018cm
- Speed Display Resolution: 1 RPM, Speed Setting Increment: 10 RPM
- Set point temperature for Manifold (80°C) and Bottom Blocks (105°C maximum)

### Specifications

Size: 48.9cm w x 50.8cm d x 22.9cm h to drive plate

Platform size: 25.4cm x 30.5cm

Rating: 10.0A, 50/60Hz, 240V

Mixer mounts: Vibration absorbing form minimum transfer to lab bench.

Electrical: On/Off switch, circuit breaker, 2.5 meter cord and CEE 7/7 plug

Load: Up to 4.54 kgs



### UL- Approved

Catalog Number	Description	RPM	Product Weight (kgs)
099A DPM24E6CE	6-Place Evaporator for 250ml bottle	100 to 800	36.5
099A DPM24E24CE	24-Place Evaporator EPA Vials	100 to 800	36.5
099A SRC	Solvent Recovery Cabinet	-	5.0

*For information on solvent recovery systems contact factory.*

Repeatable. Reliable. Results.

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www.glascol.com



**Repeatable.**

**Controls**



**Homogenizing**

**Results.**

**Rotating**



**Evaporating**

