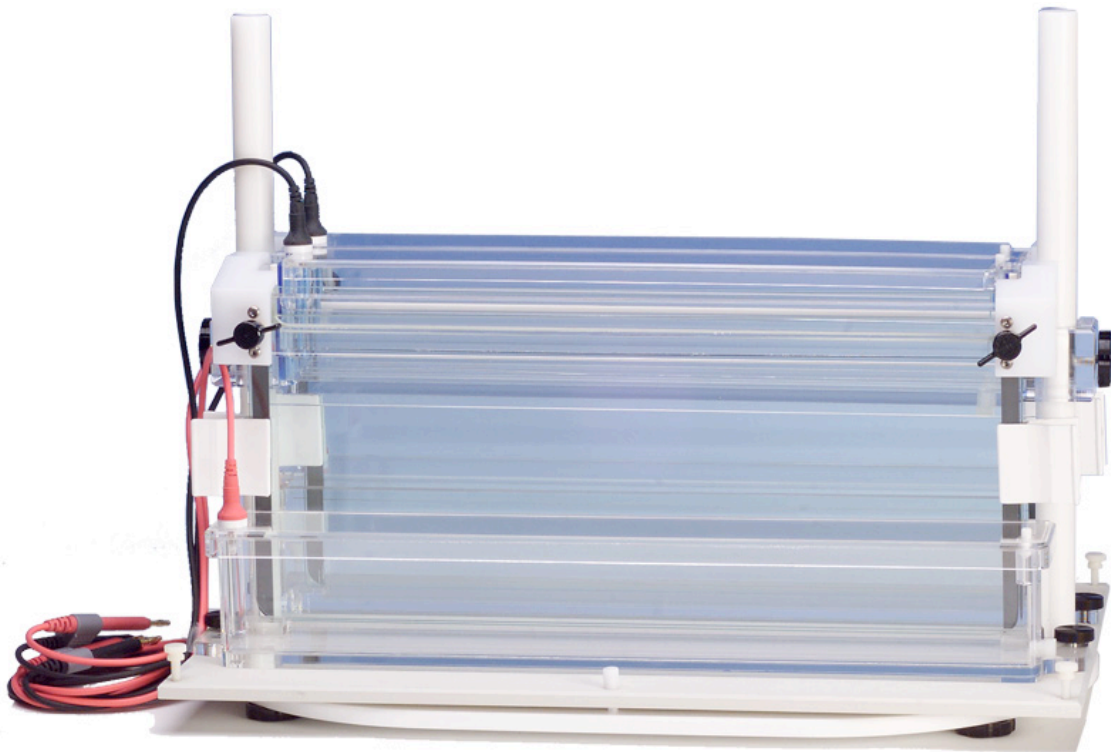


# INSTRUCTION MANUAL

**Mega-Gel**  
**High-Throughput Electrophoresis System**  
**C-DASG-400-50**



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## IMPORTANT USER INFORMATION

This Instruction Manual will explain how to use this product safely and effectively. Please read and carefully follow the instruction manual in its entirety.



The triangle/exclamation mark symbol alerts the user of the product to important operational, maintenance, and/or warranty requirements.



The triangle/lightning bolt symbol alerts the user of the product to potentially hazardous electrical exposure.

Failure to adhere to the instructions could result in personal and/or laboratory hazards, as well as invalidate any warranty. Always turn off the DC power source prior to disconnecting power cords from the product. Disconnect power cords from the power source first, and then from the product. For maximum safety, always operate this system in an isolated, low traffic area, not accessible to unauthorized personnel. Never operate damaged or leaking equipment.

## WARRANTY AND LIABILITY

This product was produced utilizing the highest practical standards of materials, workmanship, and design. C.B.S. Scientific warrants that the product has been tested and will meet or exceed published specifications. This warranty is valid only if the product has been operated and maintained according to the instructions provided.

C.B.S. Scientific warrants this product to be free from defects in materials and workmanship under normal service for one year from date of shipment. If the product proves defective during this period, C.B.S. Scientific will repair or replace it at our option, free of charge, if returned to us postage prepaid. This warranty does not cover: damage in transit, damage caused by carelessness, misuse or neglect, normal wear through frequent use, damage caused by solvent corrosion, damage caused by improper handling or user alteration, nor unsatisfactory performance as a result of conditions beyond our control. C.B.S. Scientific shall in no event be liable for incidental nor consequential damages, including without limitation, lost profits, loss of income, loss of business opportunities, loss of use and other related damages, however caused, nor any damage arising from the incorrect use of the product.

|  |   |
|--|---|
| <p><b>FRANÇAIS INFORMATION IMPORTANTE A L'USAGE DES UTILISATEURS</b></p> <p>Le présent manuel d'utilisation explique la manière de se servir efficacement du produit en conditions de sécurité. Il est recommandé de soigneusement lire la totalité du manuel, avec ses consignes et ses instructions.</p> <p> Le triangle avec point d'exclamation est un symbole destiné à avertir l'utilisateur du produit de l'importance de certaines exigences relatives au fonctionnement, à l'entretien et/ou à la garantie.</p> <p> Le triangle avec flèche en zigzag est un symbole destiné à avertir l'utilisateur du produit de la possibilité d'exposition à des décharges avec danger de secousses électriques.</p> <p> Tout manquement à l'observation des consignes et des instructions peut exposer les personnes et les biens à des dommages corporels et/ou matériels et peut annuler toute garantie. Il faut toujours interrompre l'alimentation de courant continu avant de déconnecter les cordons d'alimentation du produit. Déconnecter d'abord les cordons d'alimentation branchés sur la source de tension (alimentation de secteur) puis ceux branchés sur le produit. Pour une sécurité maximum, il faut toujours faire fonctionner ce système dans un lieu isolé, peu fréquenté, où le personnel non autorisé n'a pas accès. Ne jamais faire fonctionner un matériel endommagé ou affecté par des fuites.</p> <p><b>GARANTIE ET RESPONSABILITÉ</b><br/>Le produit a été fabriqué conformément aux normes applicables les plus exigeantes en matière de matériaux, de main d'œuvre, de conception et d'ingénierie. C.B.S. Scientific garantit que le produit a subi des essais et que ses performances rempliront les conditions des spécifications publiées ou leur seront même supérieures. La présente garantie n'est valide que si le produit a fonctionné et a été entretenu conformément aux consignes et instructions fournies.</p> <p>C.B.S. Scientific garantit que le produit sera dépourvu de vices de matériaux et de main d'œuvre, en conditions de service normales, pendant un an à compter de la date d'expédition. Au cas où le produit s'avérerait défectueux pendant cette période de garantie, C.B.S. Scientific réparera ou remplacera le produit, à sa discrétion et gratuitement, si le produit lui est retourné port payé d'avance. La garantie ne couvre pas les dommages de transport; les dommages causés par l'imprudence, le manque de soins, l'abus ou la négligence; l'usure normale résultant d'une utilisation fréquente; les dommages causés par la corrosion des solvants; et les dommages causés par la manipulation inadéquate ou des changements apportés par l'utilisateur. La garantie ne couvre pas non plus les performances non satisfaisantes résultant de conditions hors du contrôle de C.B.S. Scientific. C.B.S. Scientific ne pourra en aucun cas être tenue responsable de dommages indirects, y compris, de manière non limitative, la perte de bénéfices, le manque à gagner, la perte d'occasions d'affaires, l'impossibilité d'usage ou tous autres dommages associés, quelle qu'en soit la cause, ni de dommages résultant de l'usage incorrect du produit.</p> | <p><b>ESPAÑOL INFORMACIÓN IMPORTANTE PARA EL USUARIO</b></p> <p>El presente instructivo explica la manera de usar este producto en forma segura y efectiva. Sírvase leerlo en su totalidad y seguir detenidamente las indicaciones que contiene.</p> <p> El símbolo del triángulo con exclamación llama la atención del usuario a requisitos importantes para el uso y mantenimiento del producto, así como para la validez de la garantía.</p> <p> El símbolo del triángulo con rayo llama la atención del usuario a la posibilidad de riesgos eléctricos.</p> <p> El incumplimiento de las instrucciones aquí señaladas podría dar lugar a riesgos a la persona, al laboratorio o a ambos y podría anular toda garantía. Siempre apague la fuente de corriente continua antes de desenchufar los cables eléctricos del producto. Primero desconecte los cables de la fuente de energía y después del producto. Para mayor seguridad, siempre use este sistema en un área aislada, de poco movimiento de personas e inaccesible a personal no autorizado. Jamás use equipo que presenta algún daño o fuga.</p> <p><b>GARANTÍA Y RESPONSABILIDAD</b><br/>Este producto fue fabricado de acuerdo con las normas más estrictas que sean factibles en cuanto a materiales, mano de obra y diseño. C.B.S. Scientific garantiza que se sometió el producto a pruebas y que cumplirá o excederá las especificaciones publicadas. Esta garantía será válida únicamente si se usa y se da servicio de mantenimiento al producto de acuerdo con las instrucciones señaladas.</p> <p>C.B.S. Scientific garantiza que este producto se encontrará libre de defectos de materiales y mano de obra por un período de servicio normal de un año a partir de la fecha de embarque. Si el producto resulta defectuoso durante este período, C.B.S. Scientific lo reparará o lo repondrá, a criterio de C.B.S., libre de cargos, si se devuelve el producto a C.B.S. porte pagado. Esta garantía no cubre daños sufridos en tránsito, daños provocados por descuido, mal uso o negligencia, desgaste normal como consecuencia del uso excesivo, daños atribuibles a corrosión provocada por solventes, daños causados por el uso indebido o alteraciones realizadas por el usuario ni rendimiento insatisfactorio atribuible a circunstancias fuera del control de C.B.S. Scientific. C.B.S. Scientific en ningún caso asumirá responsabilidad por daños incidentales o subsiguientes, incluyendo, en forma no limitativa, la pérdida de utilidades, de ingresos, de oportunidades comerciales o del uso del producto y otros daños afines, fuere cual fuere su origen, ni por daños derivados del uso incorrecto del producto.</p> |
| <p><b>DEUTSCH WICHTIGE INFORMATION FÜR DEN BENUTZER</b></p> <p>Diese Bedienungsanleitung beschreibt wie man dieses Produkt sicher und wirksam benutzt. Bitte lesen und befolgen Sie alle Anweisungen in dieser Anleitung.</p> <p> Das Dreieck mit Ausrufezeichen weist den Benutzer des Produktes darauf hin, daß wichtige Bedienungs-, Wartungs- und/oder Garantievorschriften zu beachten sind.</p> <p> Das Dreieck mit Zickzackblitz warnt den Benutzer des Produktes vor möglichen Gefahren durch elektrische Spannungen.</p> <p> Nichtbeachtung dieser Anweisungen kann zu persönlichen und/oder labortechnischen Schäden führen und gleichzeitig alle Garantien als nichtig erklären. Die DC Stromzufuhr muß immer, vor dem Entfernen der Stromkabel vom Produkt, abgeschaltet werden. Die Stromzufuhrkabel müssen zuerst von der Steckdose und erst dann vom Produkt entfernt werden. Um höchste Sicherheit zu gewährleisten sollte dieses System in einem abgesonderten und besonders ruhigen Bereich eingesetzt werden und vor Unbefugten sicher sein.</p> <p><b>GARANTIE UND HAFTUNG</b><br/>Dieses Produkt wurde unter Anwendung von Produkten mit höchster Qualität und aus Materialien mit bester Verarbeitung und modernstem Design hergestellt. C.B.S. Scientific garantiert, daß das Produkt getestet wurde und alle publizierten Spezifikationen übertrifft. Diese Garantie ist jedoch nur gültig, wenn das Produkt nach der beigefügten Bedienungsanleitung bedient und gewartet wurde.</p> <p>C.B.S. Scientific garantiert, daß dieses Produkt bei normaler Bedienung aus fehlerfreiem Material besteht und fehlerfrei in der Ausführung ist. Diese Garantie gilt für ein Jahr ab Lieferdatum. Sollte das Produkt in diesem Zeitraum fehlerhaft werden, bietet C.B.S. Scientific eine kostenlose Reparatur bzw. kostenlosen Ersatz, einschließlich freiem Rückporto. Diese Garantie schließt folgendes aus: Transportschaden, Schaden durch Nachlässigkeit, Mißbrauch oder Vernachlässigung, normale Abnutzung durch regelmäßigen Gebrauch, Schaden durch Säureangriff, Schaden durch falsche Handhabung, Veränderung des Produktes durch den Benutzer, oder unzureichende Leistungen die sich nicht im Verantwortungsbereich von C.B.S. Scientific befinden. C.B.S. Scientific kommt unter keinen Umständen für folgende Schäden auf: Sachschadensverlust, Einkommensverlust, Verlust von Geschäftsmöglichkeiten, Verlust der Anwendung und andere damit verbundene Schäden die auf irgend eine Art und Weise entstanden sind, oder Schäden die aus falscher Anwendung des Produktes entstanden sind.</p>  | <p><b>ITALIANO INFORMAZIONI IMPORTANTI PER L'UTENTE</b></p> <p>Questo manuale spiega come utilizzare questo prodotto in maniera sicura ed efficiente. Si preghi di leggere e seguire con cautela le istruzioni di ogni parte di questo manuale.</p> <p> Il triangolo contenete il simbolo di un punto esclamativo avverte l'utente di importanti requisiti relativi al funzionamento, manutenzione e/o garanzia del prodotto.</p> <p> Il triangolo contenete il simbolo di un lampo avverte l'utente del prodotto della possibilità di pericoli dovuti a corrente elettrica.</p> <p> La mancata osservanza delle istruzioni può essere causa di pericolo alla propria persona ed al laboratorio, oltre a poter annullare la garanzia. Prima di distaccare il cordone d'alimentazione dal prodotto, spegnere sempre la sorgente di corrente continua. Distaccare i cordoni d'alimentazione prima dal lato della sorgente di tensione e poi dal lato del prodotto. Per maggior sicurezza, mettere sempre in funzione il prodotto in un'area isolata con poco traffico che non sia accessibile al personale non autorizzato. Non mettere mai in funzione un'apparecchiatura che sia danneggiata o abbia perdite.</p> <p><b>GARANZIA E RESPONSABILITÀ</b><br/>Questo prodotto è stato fabbricato seguendo gli standard più elevati per i materiali, la manodopera e la progettazione. La C.B.S. Scientific garantisce il prodotto è stato sottoposto a prova e raggiunge o supera i valori pubblicati per i dati tecnici. Questa garanzia è valida solo se il prodotto è messo in esercizio e soggetto a manutenzione secondo le istruzioni fornite.</p> <p>La C.B.S. Scientific garantisce che questo prodotto è libero di difetti di materiali e manodopera, in normali condizioni d'esercizio, per la durata di un anno dalla data di spedizione. Se, in questo periodo, il prodotto si dimostrerà difettoso, la C.B.S. Scientific, a suo giudizio, lo riparerà o sostituirà. 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## SECTION 1 General Information

### 1.1 Introduction

This Dual Adjustable Mega-Gel is designed for high-throughput microsatellite mapping (1) with a capacity of up to 200 samples per run. The glass plate sets include a low fluorescence back plate, making it ideal for fluorescence-based assays. This feature allows the bands to be visualized without the time-consuming process of removing the gel from the glass plate sandwich and staining. Alternatively, ethidium bromide is added to the lower reservoir prior to electrophoresis and the low fluorescence glass allows direct UV visualization and photography of the results without gel removal. To maximize throughput, multiple amplification products can be loaded simultaneously or successively in the same well (see ref. 1, Wang Paper, pg. 1830). To further enhance screening productivity, the system includes two 100 well combs that feature microtitre spacing for multi-channel pipettor loading. This adjustable System offers glass plate sizes of 22cm and 32cm(h).

### 1.2 Specifications

#### Constructions:

|                                  |   |
|----------------------------------|---|
| <b>Upper buffer chamber</b>      | Acrylic   |
| <b>Lower buffer chamber/base</b> | Acrylic   |
| <b>Safety covers</b>             | Acrylic   |
| <b>Electrodes</b>                | Pure platinum wire .010" diameter                           |
| <b>DC Power leads</b>            | Silicone 7500VDC, 200mA, 65°C 200mA, 65°C                   |
| <b>Glass plates</b>              | Soda-lime float glass or Low fluorescent borosilicate glass |
| <b>Combs</b>                     | Polycarbonate or Mylar                                      |
| <b>Spacers</b>                   | Polycarbonate, Mylar or PVC                                 |
| <b>White spring clamps</b>       | Polypropylene, stainless steel                              |

**Table 1: Features of Dual Mega-Gel System C-DASG-400-50**

| Model #       | Single or Dual | Plate Dimensions                       |
|---------------|----------------|--|
| C-DASG-400-50 | Dual           | 50cm(w) x 22cm(l)<br>50cm(w) x 32cm(l) |

**Table 2: Specifications**

|                                |   |
|--------------------------------|---|
| Model #                        | C-DASG-400-50                           |
| Shipping Weight                | 2 boxes: 38 lbs and 15 lbs              |
| Overall Size                   | 34cm(d) x 60cm(w) x 44cm(h)             |
| Recommended buffer volume      | 2 liters total                          |
| Cathode reservoir              | 500mls each side                        |
| Anode reservoir                | 500mls each side                        |
| Distance between electrodes    | 36cm                                    |
| Recommended Running Conditions | 350 VDC / 105mA / gel / 1.5mm thickness |

### 1.3 Safety

Power to the Mega-Gel unit is to be supplied by an external DC voltage power supply that must be ground isolated so that the DC voltage output floats with respect to ground.



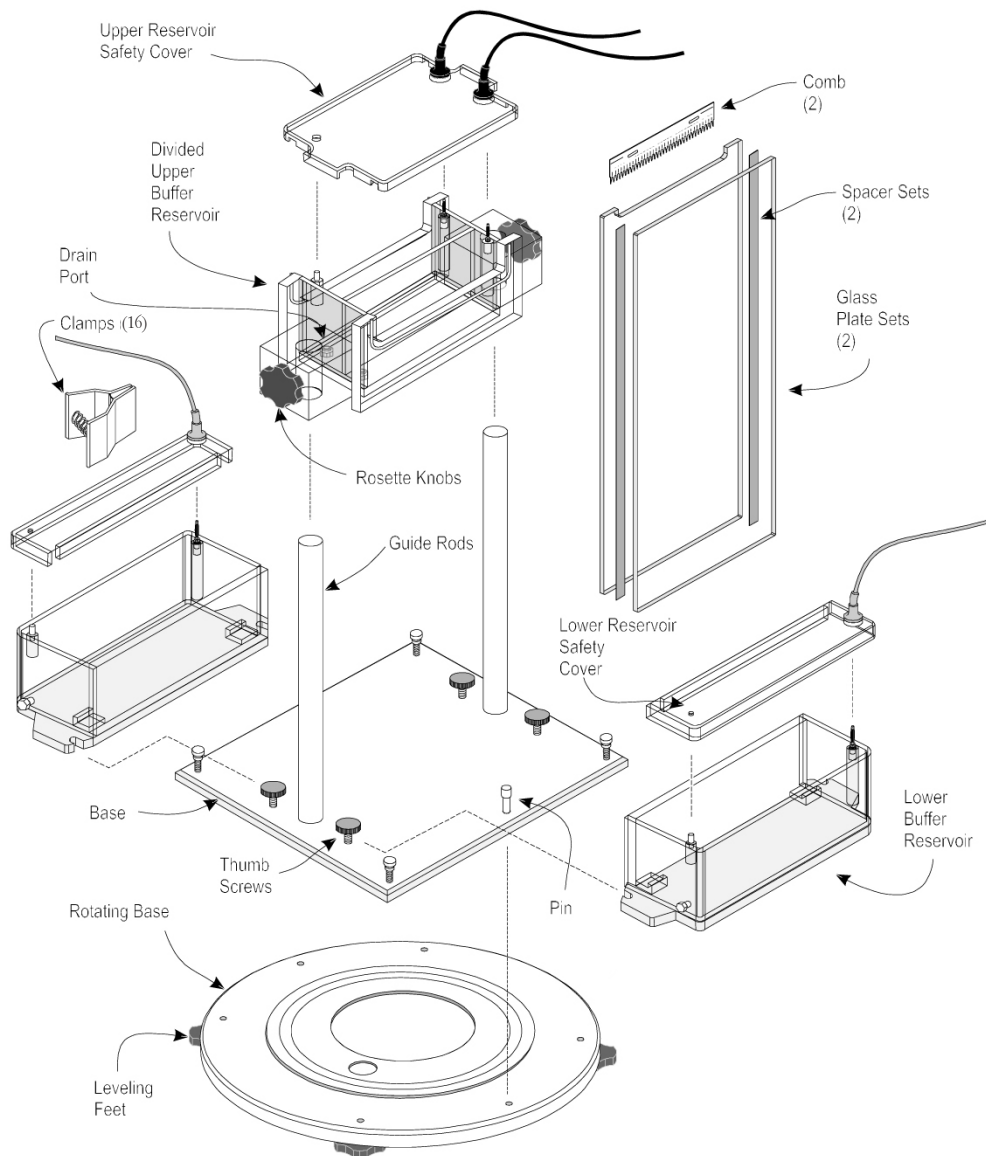
Current to the unit, provided from the external power supply, must enter the unit through the lid assembly, providing a safety interlock to the user. Current to the unit is broken when the lid is removed. **Do not attempt to use the unit without the safety lid, and always turn the power supply off before removing the lid, or when working with the unit in any way. Follow safety precautions specified by the power supply manufacturer.**

## Section 2 Description of Parts

### 2.1 Unpacking- Mega Gel

Please verify that your Mega Gel comes complete with the following components:

- Buffer reservoirs, upper & divided lower with safety covers/power leads
- 2 bar clamps
- Rotating base with leveling feet and securing pin
- 4 white nylon tubing adapters for buffer recycling
- 4 knurled black thumb screws for securing lower reservoir to base
- 16 white spring clamps (Cat.# GPC-0002)
- 2 ea 100 well combs
- 2 sets Gel Wrap™ spacers
- 2 sets Gel Wrap™ glass plates
- 2 wedge plate separators
- 2 temperature strip, Cat.# EGT-100
- 2 Gel Wrap™ Gaskets
- Rosette knobs (2)



## Section 3 Assembly

### 3.1 Unit Assembly for Mega-Gel

1. Place the Mega-Gel on a level work surface in an authorized work area. Attach two guide rods to base. Tilt base on its side, place stainless steel screw through countersunk hole and screw the guide rods onto the base.
2. Secure lower reservoirs to base by tightening the four black knurled thumb screws.
3. Once guide rods are secure and apparatus is flat on laboratory bench, slide the divided upper reservoir over the two guide rods. To adjust upper reservoir to desired height, align notch in glass plate with upper reservoir fascia. Tighten the two rosette knobs on the upper reservoir until secure. Level apparatus using leveling feet in base.
4. Upper and lower reservoirs are shipped with drain plugs installed. Verify that the drain plugs are secure. If you plan to use accessory Quick-Disconnect fittings (Cat.# QDC-B and QDC-I), remove the drain plugs. Wrap the end of the Quick Disconnect Insert with Teflon tape and thread into the drain hole. Be sure the Quick Disconnect Body is secure and the Quick Disconnect Insert snaps into place.
5. Dual units include a rotating base. Align cut-out in bottom of base with rotating base. Use stationary pin to keep unit from rotating.
6. Level the assembled sequencer using the four leveling feet supplied. Each sequencer is shipped with an attached bubble level.

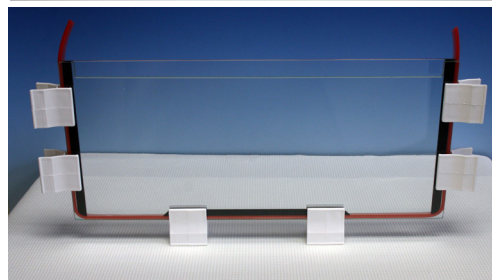
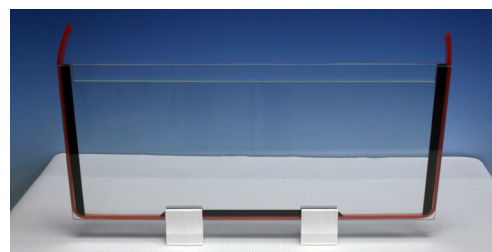
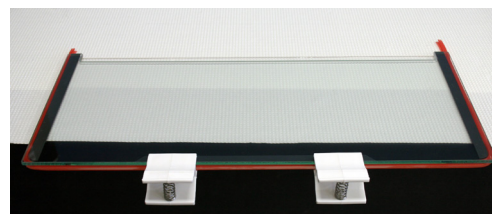
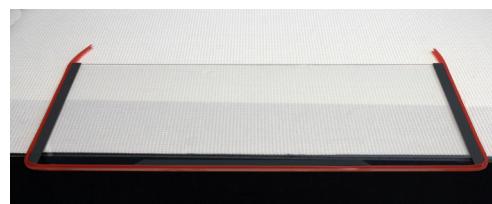
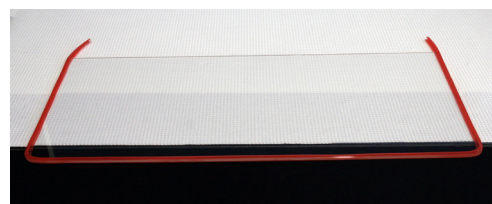
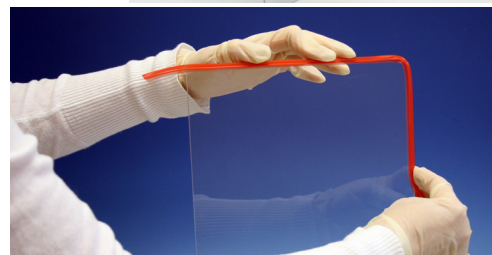
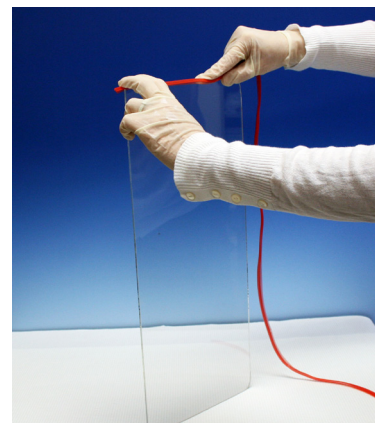
### 3.2 Glass Plate Preparation

1. Select a pair of glass plates (if using a notched set, one notched and one unnotched back plate). Be sure the edges of the plates are nick or chip free. **Using a diamond pencil, mark one side of the notched plate. Use this marker to remember the side of the notched plate that will always be clamped to the upper reservoir gasket. This is done because the side of the glass that is clamped to the gasket has a “silicone smudge” that has a adverse effect on the pouring of acrylamide gels even after washing.**
2. It is vital that these plates are absolutely **CLEAN** ! Wearing gloves (and rinsing off any residual powder), clean the glass plates thoroughly with a non abrasive detergent and a plastic scouring pad. The cleaning solution should not leave a soap residue when rinsed thoroughly.
3. Rinse the glass plates thoroughly with de ionized water and wipe dry.
4. Immediately before assembling the glass plate ‘sandwich’, rinse the inside surfaces with 95% ethanol and wipe dry with a lint-free paper towel. Avoid touching the inside surfaces with your fingers. **The wearing of gloves is highly recommended.** Impeccably clean, dust free plates are essential for pouring gels without bubbles.
5. Assemble the glass plate sandwich using gel wrap gasket as described in section 3.3.

### 3.3 Casting the Gel

#### Gel Casting Using Gel WrapGasket Casting method

1. Hold the rectangular back plate (with the rounded bottom corners) and start applying the gasket around one side of the glass plate. Note: one side of the “U” shaped gasket is flat, and the other side has tubing that will act as a seal around the spacers.
2. When applying the gasket over the rounded corners of the back glass plate, make sure the notches on the gasket align with the rounded corners of the glass plate. Once the gasket is pushed over the bottom edge and corners, work it down the remaining side.
3. Place the gasketed plate on the lab bench with the tubing side up, and extend the bottom of the plate over the edge of the bench, approximately  $\frac{3}{4}$  of an inch.
4. Place the spacers along side the inside edges of the gasket. Be sure the rounded corner end of each side spacer is facing the outside bottom of the plate, following the radius of the glass. Place bottom spacer in middle of bottom edge with angled sides pointing down.
5. Place the notched plate on top of the bottom assembly, starting from the bottom edge and gently easing the plate down. Make sure the diamond pencil marked side of the notched plate is the side that will clamp to the unit. (see 3.2.1) Verify the gasket is smooth around the edges and then clamp along the bottom so that the clamps hold the sandwich together over the bottom spacer.
6. Lift the assembly and stand it on the base of the clamps. For leveling, push glass plate assembly down until it stops against clamp body. Clamp the sides of the assembly with additional casting clamps on either side. As each clamp is attached, be sure the gasket is aligned between the plates forming a seal. Tilt the assembly to overhead light to confirm “crush” of the gel wrap gasket against the glass.

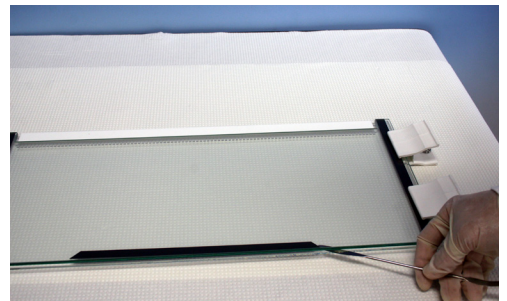
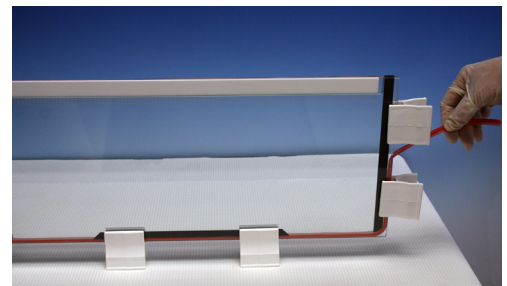
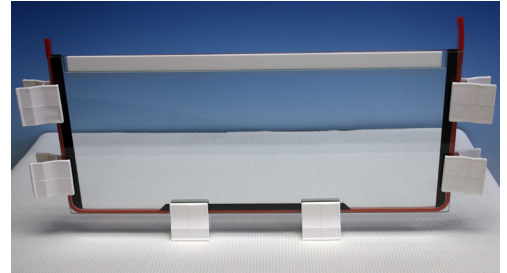
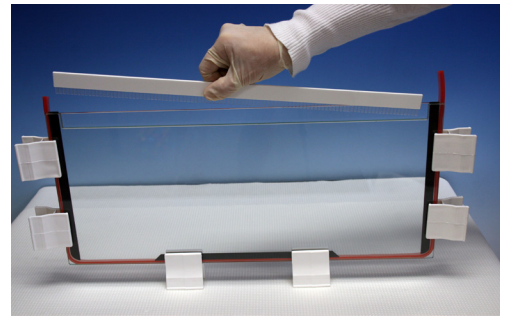


7. Apply gel solution to gel plate sandwich using a syringe or pipette. If using a stacking gel, pour desired height of running gel, then overlay a small amount of  $\text{dH}_2\text{O}$  or 0.1% SDS solution to top of gel. After polymerization, rinse with buffer, add stacking gel solution and insert comb. For regular, single percentage gels, add polyacrylamide solution to correct height, and insert comb. Allow gel to polymerize, usually 20-30 minutes. Extra gel solution in pipette or syringe can be monitored to test polymerization of gel mix.

**Leave the comb in the plate sandwich until just before sample loading**

8. Disassembly. Hold the clamped plate assembly with one hand. Remove the gasket by starting at one of the top ends and pulling “up and out” on the gasket until it releases from the plate, up to the bottom of each of the white clamps. When each clamp is reached DO NOT remove it, instead feed the gasket down through the clamp body and repeat pulling up and out. Continue feeding until the gasket is fully detached.

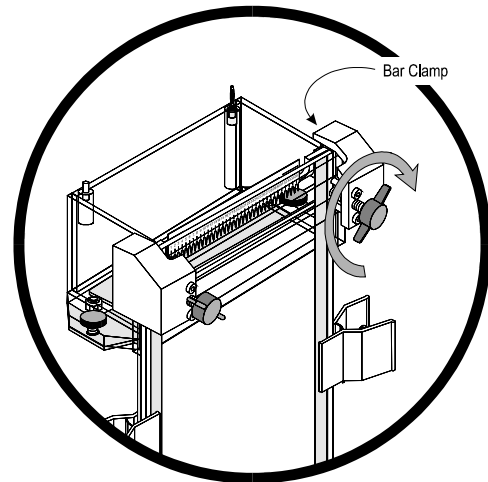
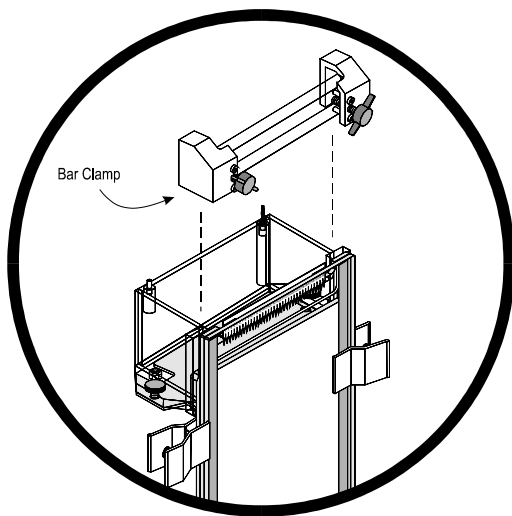
9. Bottom spacer must be removed before electrophoresis. Using a spatula, needle or extra spacer gently push down on angled part of bottom spacer and remove. If gel is not to be used immediately, wrap entire plate sandwich with plastic wrap tightly to seal and store at  $4^\circ\text{C}$  for up to a week.





## Section 4 Electrophoresis


### 4.1 Pre-electrophoresis

1. Fill lower buffer reservoir with buffer.
2. After removing the Gel Wrap Gasket from the gel sandwich, but with the white clamps still in place, rinse the sandwich in D.I. water and dry. **Remove comb**, then remove the white plastic clamps and place sandwich (notched plate inward) into the "buffer-filled" lower reservoir at a slight angle to prevent capturing bubbles. Reclamp sandwich to unit using bar clamp as quickly as possible as described below.
3. Pre-loosen black wing nuts on bar clamp so clamp assembly slides over glass plates and upper reservoir. Tighten wing nuts only enough to compress gasket. Do NOT over tighten. See figures below.
4. Lift out base securing pin and rotate base 180° for easy access to opposite side. Repeat steps 1-3 with second set of glass plates.




-  5. Fill each upper reservoir with approximately 500ml of running buffer. Make sure no buffer is leaking from the upper buffer reservoir. Fill each lower reservoir with approximately 500ml of electrophoresis buffer. Be sure no bubbles obstruct buffer contact with the lower edge of the gel. Note: Do **NOT** overfill buffer reservoirs or allow buffer to make contact with the banana jacks.

 **WARNING:** No buffer should leak through or around the silicone gasket or down the side of the gel assembly. Leakage may allow the upper reservoir to drain dry or cause arcing and damage to the apparatus.

-  6. Attach the reservoir safety covers to the upper and lower reservoirs. Connect the female end of the black power cord into the safety cover of the upper reservoir. Connect the female end of the red power cord into the safety cover of the lower reservoir.

7. Connect an external chiller to the tubing adapters on the side of the apparatus making sure to use the bottom tubing adapter as the inlet and the top as the outlet.

-  8. Be sure to attach Temperature Strip (Cat. # EGT-100) to upper or middle of glass plate, to monitor the temperature of the gel.



9. Connect the DC power leads to the power supply with the proper polarity. Make sure the black leads are connected to the black cathode (-) and the red leads are connected to the red anode (+).

10. Rinse sample wells with upper reservoir buffer. Before loading samples, pre-electrophorese the gel for 20 minutes.



**WARNING:** Excessive power will cause the gel to overheat and crack the glass plates.

## 4.2 Loading Samples



1. At the end of the pre-electrophoresis period. **TURN OFF THE POWER SUPPLY AND DISCONNECT BOTH DC POWER CORDS FROM THE POWER SUPPLY.** Open upper reservoir safety cover.

2. Immediately prior to loading the samples, rinse the wells of the gel thoroughly with electrophoresis buffer. Use a loading tip or a syringe with a bent needle to wash away urea that has diffused into the wells.

## 4.3 Comb Volume/Maximum well volume

Note: To calculate sample well volume expressed in millimeters (mm) divide maximum volume by tooth depth.

**-Maximum** Volume per tooth (microliters- $\mu$ l)

| # of wells | Tooth width | 0.75mm thickness | 1.0mm thickness | 1.5mm thickness |
|------------|-------------|------------------|-----------------|-----------------|
| 100        | 3mm         | 22.5 $\mu$ l     | 30 $\mu$ l      | 45 $\mu$ l      |

Overall length of comb: 44.8cm

Tooth depth: 10mm

Spacing between teeth: 1.5mm

## 4.4 Electrophoresis



1. After loading the samples, attach the reservoir safety cover. Connect the DC power leads to the unit then to the power supply with the proper polarity. Make sure the black leads are connected to the black cathodes (-) and the red leads are connected to the red anode (+).



2. Turn on the power supply and set the voltage or wattage to the proper setting for the gel. **350V at 105mA/ gel at 0.5X TBE buffer for 1.5mm thick gel.**

3. Monitor the progress of electrophoresis by following migration of a marker dye front or by any other preferred method.



4. When electrophoresis is complete, **TURN POWER SUPPLY OFF.** Disconnect **all** DC power cords, first from the power supply.

## 4.5 References and Suggested Reference Literature

1. Wang, Shi, Carlson, Cregan, Ward, Diers. **A Low-Cost, High-Throughput Polyacrylamide Gel Electrophoresis System for Genotyping with Microsatellite DNA Markers.** *Crop Science* (43:1828-1832)
2. **MOLECULAR CLONING** A Laboratory Manual, 2nd edition, ed. by J. Sambrook, E.F. Fritsch and T. Maniatis, Cold Spring Harbor Laboratory Press, 1989.
3. **CURRENT PROTOCOLS IN MOLECULAR BIOLOGY** ed. by F.M. Ausubel, R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith and K. Struhl, Greene Publishing Associates and Wiley-Interscience, New York, 1989.

## Section Section 5 Maintenance of Equipment

### 5.1 Care and Handling

The components of the Mega-Gel are fabricated from acrylic, Delrin®, Polycarbonate, glass and anodized aluminum. As with any laboratory instrument, adequate care ensures consistent and reliable performance.

After each use, rinse buffer reservoirs, combs, spacers, clamps and glass plates with deionized water. Wipe dry with a soft cloth or paper towel, or allow to air dry. Whenever necessary, all components may be washed gently with water and a non abrasive detergent, and rinsed and dried as above. *Never* use abrasive cleaners, window sprays or scouring pads to clean the components, as these cause damage to the plastic surfaces.

- Do not autoclave or dry-heat sterilize the apparatus or components.
- Do not expose the apparatus or components to phenol, acetone, benzene, halogenated hydrocarbon solvents or alcohols.
- Avoid prolonged exposure of the apparatus or components to UV light.

### 5.2 Maintenance

The following simple, routine inspection and maintenance procedures will help ensure both the safety and the performance of the Mega-Gel. For ordering information of replacement parts call 1-858-755-4959.

- Inspect electrical connections and power cords regularly. If the banana plug connectors to either the unit or the power supply do not exhibit reasonable friction or can be rocked easily, replace the plugs or power cords.
- If power cords show any signs of wear or damage (e.g. cracks, nicks, abrasions, or melted insulation), replace them immediately.
- Examine the banana jacks to ensure that they are tight and free of corrosion. If banana jacks are corroded, they should be replaced.

## Section 6 Equipment and Accessories

### MEGA-GEL HIGH THROUGHPUT SYSTEM

| Cat.#        | Item  |
|--------------|---|
| CDASG-400-50 | Mega -Gel Vertical Kit, 50cm(w) x 22-42cm(l) Capability<br>Kit Includes: 2ea 1.5mm x 100 well combs, 2sets 1.5mm x 22cm(l) spacers, 2sets 22cm(l) glass plates, 2ea Gel Wrap Gaskets, guide rods, 2ea Bar clamps, white spring clamps, instructions |

### COMBS

| Cat.#      | Item                    |
|------------|-------------------------|
| SG50-10100 | Comb, 1.0mm x 100 wells |
| SG50-15100 | Comb, 1.5mm x 100 wells |

### PLATE SET

| Cat.#         | Item  |
|---------------|---|
| SGP50-020R-DN | 22cm(l) plate set, back plate: borosilicate |
| SGP50-030R-DN | 32cm(l) plate set, back plate: borosilicate |

### SPACER SETS

| Cat.#        | Item                               |
|--------------|------------------------------------|
| SGS-10-1020R | Gel Wrap Spacer Set, 1.0mm x 22cm  |
| SGS-50-1520R | Gel Wrap Spacer Set, 1.5mm x 22cm  |
| SGS-50-7530R | Gel Wrap Spacer Set, 0.75mm x 32cm |
| SGS-10-1030R | Gel Wrap Spacer Set, 1.0mm x 32cm  |
| SGS-10-1530R | Gel Wrap Spacer Set, 1.5mm x 32cm  |

### GEL WRAP GASKET

| Cat.#      | Item                          |
|------------|-------------------------------|
| SGE50-1020 | Gel Wrap Gasket, 1.0mm x 22cm |
| SGE50-1520 | Gel Wrap Gasket, 1.5mm x 22cm |
| SGE50-1030 | Gel Wrap Gasket, 1.0mm x 32cm |
| SGE50-1530 | Gel Wrap Gasket, 1.5mm x 32cm |

### SILICONE CORD REPAIR KIT

| Cat.#   | Item                                      |
|---------|---|
| SCK-500 | Kit for Sequencing repairs for 3/16" cord |
| SSC-005 | White 3/16" Silicone Cord                 |
| SCK-400 | Kit for Sequencing repairs for 5/32" cord |
| SSC-004 | Beige 5/32" Silicone Cord                 |

### QUICK DISCONNECT COUPLINGS

| Cat.#  | Item                                       |
|--------|--|
| QDC-B  | Quick Disconnect Coupling, body            |
| QDC-I  | Quick Disconnect Coupling, insert          |
| QDC-P  | Quick Disconnect Coupling, body and insert |
| BVD100 | Ball Valve                                 |

### WHITE SPRING CLAMPS

| Cat.#    | Item                             |
|----------|----------------------------------|
| GPC-0001 | Large white clamp, jaws open     |
| GPC-0002 | Large white clamp, jaws closed   |
| GPC-0004 | Multi-purpose clamp, jaws closed |

### ELECTROPHORESIS GEL THERMOMETER

| Cat.#      | Item                                    |
|------------|---|
| EGT-100    | Adhesive Temperature strip              |
| EGT-100-10 | Adhesive Temperature strip, pkg. 10each |

### GLASS PLATE SEPARATORS

| Cat.#   | Item                        |
|---------|-----------------------------|
| WPS-100 | Wedge Plate Separator, pair |

### BAR CLAMPS

| Cat.#    | Item                    |
|----------|-------------------------|
| GPC-5000 | Bar clamp for 50cm unit |

### GLASS RACKS

| Cat.#     | Item              |
|-----------|-------------------|
| GRH-100B  | Glass rack, black |
| GRH-100BL | Glass rack, blue  |
| GRH-100G  | Glass rack, grey  |
| GRH-100GR | Glass rack, green |
| GRH-100R  | Glass rack, red   |

### POWER SUPPLIES

| Cat.#        | Item  |
|--------------|---|
| EPS-600      | Constant Power Supply, 5-600 Volt, 96 - 240 VAC, 50-60 Hz |
| EPS-3000-III | Constant Power Supply, 0-3000 Volt, 110V/60Hz, Series II  |
| EPS-3000-IV  | Constant Power Supply, 0-3000 Volt, 220V/50Hz, Series II  |





# CONTACT INFORMATION



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858-755-4959  
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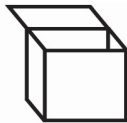
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