

Unsurpassed versatility - designed to adapt to changing methodologies



SG-500-33 Adjustable Height Sequencer (shown with accessory aluminum plate and bar clamp)

DASG-500-33 Dual Adjustable Height Sequencer (shown with accessory aluminum plate and bar clamp)

#### APPLICATIONS

- DNA Sequencing
- Mutation Detection
- Genotyping
- Minisatellites
- Differential Display
- Large Format SDS PAGE
- RNase protection
- DNA footprinting
- DNA fingerprinting
- Microsatellites/SSTR

#### Adjustable Height Sequencers, Single

SG-400-20, SG-500-20, SG-600-20,  
SG-400-33, SG-500-33, SG-600-33

##### Complete System:

- Single vertical electrophoresis cell with safety covers and power leads
- Leak proof silicone gasket on upper reservoir to which the glass plates are clamped
- Platinum electrodes
- Leveling base with bubble level
- 1 comb
- 1 set glass plates
- 1 set of spacers
- 1 bottle of Gel Repel™
- 1 roll gel sealing tape
- 1 wedge plate separator
- White spring clamps
- Buffer drainage ports

C.B.S. Scientific's Adjustable Height Sequencers are available in two widths, 20cm or 33cm. Sequencing gel pathlength for either width can be adjusted from 22cm up to 62cm. The upper buffer reservoir rides on three 1" diameter delrin rods and is secured at the desired height by three stainless steel thumbscrews. These rods are arranged in a triangular configuration on a 1/2" thick acrylic base to add strength and stability to the whole system. Unit can be easily disassembled into components for compact storage. Additional accessory choices are available to accommodate Large Format Protein Gel applications.

#### Dual Adjustable Height Sequencers

DASG-400-20, DASG-500-20, DASG-600-20,  
DASG-400-33, DASG-500-33, DASG-600-33

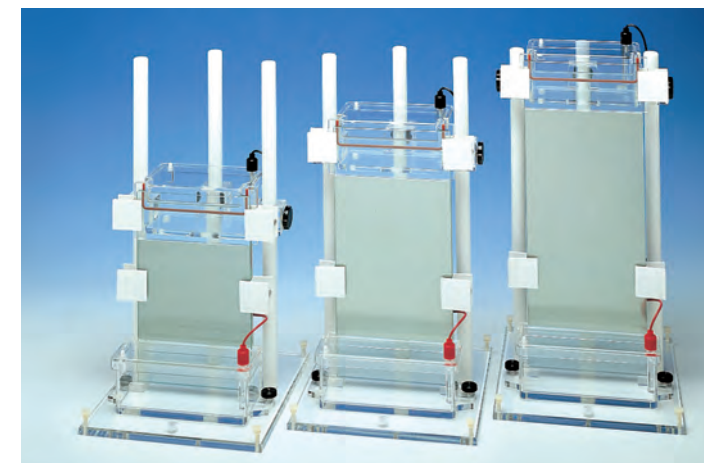
##### Complete System:

- Dual vertical electrophoresis cell with rotating leveling base with bubble level
- Safety covers with power leads
- Leak proof silicone gasket on upper reservoir to which the glass plates are clamped
- Platinum electrodes
- Divided upper reservoir
- 2 combs
- 2 sets glass plates
- 2 sets of spacers
- 1 bottle of Gel Repel™
- 1 roll gel sealing tape
- 2 wedge plate separators
- White spring clamps
- Buffer drainage ports

C.B.S. Scientific's Dual Adjustable Sequencers are available in two widths, 20cm or 33cm. Sequencing gel pathlength for either width can be adjusted from 22cm up to 62cm. The upper reservoir is divided in half, allowing the researcher to run identical or independent buffer conditions on either side. The rotating base allows the unit to rotate 180°, providing easy access to either side. Accessory aluminum cooling plates and accessory bar clamps (shown in photo) must be ordered separately. Additional accessory choices are available to accommodate Large Format Protein Gel applications.

#### FEATURES

- Can run short gels for oligonucleotide, protein or preparative DNA separations as well as long gels for analytical sequencing on same unit by ordering appropriate accessories. Both Single and Dual Adjustable systems are offered in two widths, (20cm and 33cm) and provide flexibility to run gel lengths of 22cm, 32cm, 42cm, 52cm, or 62cm.
- A wide selection of precision-machined combs and spacers is available, including specially configured sharktooth combs for multi-channel pipettor loading.
- Compressible, long-lasting silicone gasket on face of unit provides leak-proof seal when glass plates are clamped in place.
- The rotating base of the Dual Adjustable Systems allow easy access to either side of unit. A removable peg locks the base of the unit into place, providing stability for either 180° rotation. Simply load one side, remove peg, rotate, replace peg and continue loading alternate side.
- Both upper and lower reservoirs have drains with tubing adapters for easy disposal of buffer. Bottom buffer reservoir conveniently detaches from base of unit for ease in cleaning and disposal of buffer.
- Accessory anodized aluminum cooling plates can be ordered to clamp onto glass plates to evenly distribute the heat generated during electrophoresis
- Optional acrylic bar clamp provides equal pressure along entire width of glass plate/comb sandwich eliminating capillary leakage of sample while loading sharktooth combs.
- Thicker accessory choices are available to accommodate Large Format Protein Gel applications.



Adjustable height sequencers at heights of 42cm, 52cm and 62cm



Acrylic Bar Clamp

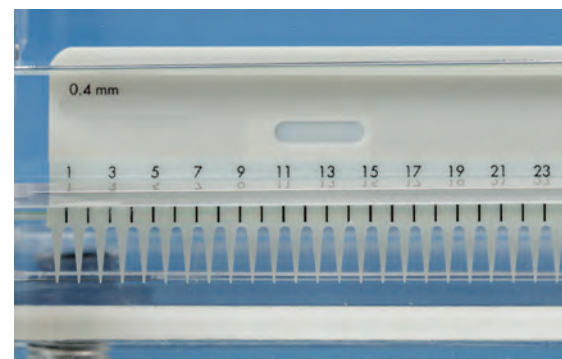
#### ORDERING INFORMATION \*

CAT. #	DESCRIPTION
<b>Adjustable Height Sequencers</b>	
SG-400-20	<b>Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 42cm(h) capability
SG-500-20	<b>Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 52cm(h) capability
SG-600-20	<b>Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 62cm(h) capability
SG-400-33	<b>Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 42cm(h) capability
SG-500-33	<b>Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 52cm(h) capability
SG-600-33	<b>Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 62cm(h) capability
DASG-400-20	<b>Dual Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 42cm(h) capability
DASG-500-20	<b>Dual Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 52cm(h) capability
DASG-600-20	<b>Dual Adjustable Height Sequencer</b> , Complete System, 20cm(w) x 22cm - 62cm(h) capability
DASG-400-33	<b>Dual Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 42cm(h) capability
DASG-500-33	<b>Dual Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 52cm(h) capability
DASG-600-33	<b>Dual Adjustable Height Sequencer</b> , Complete System, 33cm(w) x 22cm - 62cm(h) capability
EPS-3000P-II	<b>High Voltage Power Supply, CE</b> , 20-3000V, 1-400mA

\*See Sequencing Accessories (on pages 74-77), Product List or website for complete listing of catalog numbers and ordering options

## Printed Sharktooth Combs

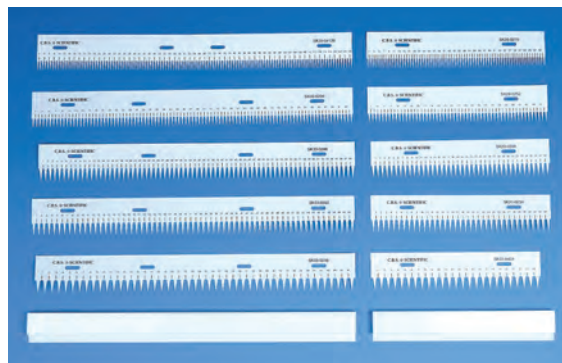
The C.B.S. Scientific sharktooth combs are printed with well numbers, vertical loading indicator lines, catalog number for easy identification and horizontal lines to indicate the optimal casting well depth. The numbered wells allow a convenient method to keep track of which sample goes into which well. Each comb also features oval finger slots for easy removal. These combs are standard equipment with all CBS Scientific sequencing kits. All sharktooth combs are multi-channel pipettor compatible.



Sharktooth combs provide for "side by side" sample application, making sequencing analysis easier by eliminating the space between sample wells. This method requires the formation of a single well, into which the points of the sharktooth combs are inserted. A single well can be formed by either using a 1-well casting comb or the back straight edge of the sharktooth combs. See charts at top of page 75.

## Rectangular Well Combs for Sequencing

Rectangular combs are precision-machined polycarbonate and are available in a wide variety of sizes for both 20cm and 33cm wide units. See charts on bottom of page 75.

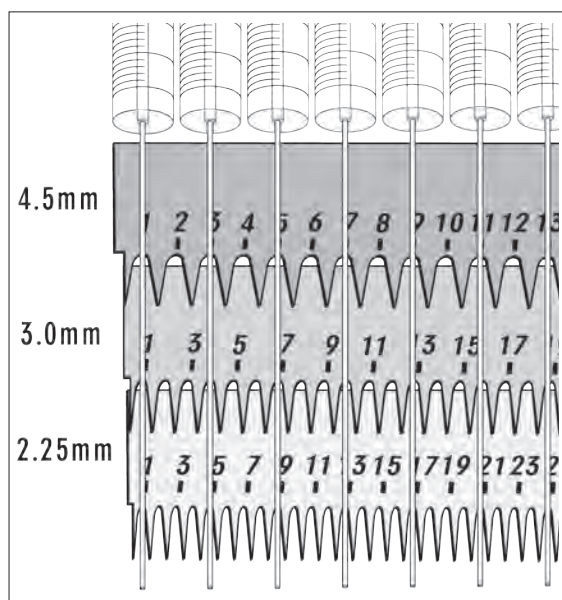


## Large Format Combs for Protein Applications

PTFE precision-machined combs are available in 20cm and 33cm widths for preparative or protein gels. See charts on page 76.

## Combs for Multi-Channel Pipettor Loading

C.B.S. Scientific has designed polycarbonate rectangular tooth and sharktooth combs with microtitre plate spacing for multi-channel pipettor loading. Rectangular combs with this feature are the 17 and 35 well combs for the 20cm wide units and 31 and 63 well combs for the 33cm wide units. The sharktooth combs that can be loaded with a multi-channel pipettor are the 2.25mm, 3.0mm and 4.5mm point to point combs. The 2.25mm point to point combs correspond to our 126 well comb for the 33cm wide sequencers or 70 well for the 20cm wide sequencer, and a multi-channel pipettor would load every 4th well. The 3.0mm point to point combs correspond to 94 well for 33cm wide sequencers or 52 well for the 20cm wide, and a multi-channel pipettor would load every 3rd well. The 4.5mm point to point combs correspond to our 62 well comb for the 33cm wide sequencers or our 34 well comb for the 20cm wide units and a multi-channel pipettor would load every 2nd well. See diagram a right.



## Sharktooth Combs

SHARKTOOTH COMB OPTIONS for 20cm wide Sequencing units overall length = 16cm, depth of rectangular tooth = 10mm					
Cat. #	Comb Type	# of Teeth	Thickness of Teeth (mm)	Point to Point (mm)	Maximum Well Volume (µl)
SK20-0201	casting comb	1	0.2	-	317
SK20-0234*	sharktooth	34	0.2	4.5	3.3
SK20-0252*	sharktooth	52	0.2	3.0	2.0
SK20-0270*	sharktooth	70	0.2	2.25	1.4
SK20-0401*	casting comb	1	0.4	-	634
SK20-0434*	sharktooth	34	0.4	4.5	6.6
SK20-0452*	sharktooth	52	0.4	3.0	4.0
SK20-0470*	sharktooth	70	0.4	2.25	2.8

\* multi-channel pipettor compatible  
\*Maximum loading volume is calculated by taking 75% of the total tooth volume.

SHARKTOOTH COMB OPTIONS for 33cm wide Sequencing units overall length = 30cm, depth of rectangular tooth = 10mm					
Cat. #	Comb Type	# of Teeth	Thickness of Teeth (mm)	Point to Point (mm)	Maximum Well Volume (µl)
SK33-0201	casting comb	1	0.2	-	539.6
SK33-0262*	sharktooth	62	0.2	4.5	3.3
SK33-0294*	sharktooth	94	0.2	3.0	2.0
SK33-02126*	sharktooth	126	0.2	2.25	1.71
SK33-0401	casting comb	1	0.4	-	1079.2
SK33-0462*	sharktooth	52	0.4	4.5	6.6
SK33-0494*	sharktooth	94	0.4	3.0	4.0
SK33-04126*	sharktooth	126	0.4	2.25	3.4

## Rectangular Combs for Sequencing

RECTANGULAR POLYCARBONATE COMB OPTIONS - 20cm wide overall length = 15.87cm					
Cat. #	Tooth Depth (mm)	# of Teeth	Thickness of Teeth (mm)	Width of Teeth (mm)	Recommended Max. Sample Vol./Well (µl)*
SG20-0208	9.5	8	0.2	17.7	25.2
SG20-0212	9.5	12	0.2	11	15.6
SG20-0214	9.5	14	0.2	9.00	12.7
SG20-0216	9.5	16	0.2	7.6	10.8
SG20-0217*	9.5	17	0.2	6.63	9.4
SG20-0220	9.5	20	0.2	5.66	7.9
SG20-0228	9.5	28	0.2	4	5.7
SG20-0232	9.5	32	0.2	3.4	4.8
SG20-0235*	9.5	35	0.2	2.9	3.7
SG20-0408	9.5	8	0.4	17.7	50
SG20-0412	9.5	12	0.4	11	31.2
SG20-0414	9.5	14	0.4	9.0	25.5
SG20-0416	9.5	16	0.4	7.6	21
SG20-0417*	9.5	17	0.4	6.63	18.7
SG20-0420	9.5	20	0.4	5.66	15.9
SG20-0428	9.5	28	0.4	4	11.4
SG20-0432	9.5	32	0.4	3.4	9.6
SG20-0435*	9.5	35	0.4	2.9	7.5

\* multi-channel pipettor compatible  
\*Maximum loading volume is calculated by taking 75% of the total tooth volume.

RECTANGULAR POLYCARBONATE COMB OPTIONS - 33cm wide overall length = 30cm					
Cat. #	Tooth Depth (mm)	# of Teeth	Thickness of Teeth (mm)	Width of Teeth (mm)	Recommended Max. Sample Vol./Well (µl)*
SG33-0208	9.5	8	0.2	33.4	47.6
SG33-0216	9.5	16	0.2	15.5	22
SG33-0224	9.5	24	0.2	9.5	13.5
SG33-0231*	9.5	31	0.2	5.8	8.3
SG33-0234	9.5	34	0.2	6.0	8.5
SG33-0250	9.5	50	0.2	4.1	5.8
SG33-0260	9.5	60	0.2	3.1	4.3
SG33-0263*	9.5	63	0.2	2.9	4.1
SG33-0408	9.5	8	0.4	33.4	95.2
SG33-0416	9.5	16	0.4	15.5	44.3
SG33-0424	9.5	24	0.4	9.5	27
SG33-0431*	9.5	31	0.4	15.8	15
SG33-0434	9.5	34	0.4	6.0	16.5
SG33-0450	9.5	50	0.4	4.1	11.6
SG33-0460	9.5	60	0.4	3.1	8.7
SG33-0463*	9.5	63	0.4	2.9	8.2

## Large Format Combs For Protein Applications

LARGE FORMAT COMB OPTIONS - 20cm wide overall length = 15.87cm					
Cat. #	Tooth Depth (mm)	# of Teeth	Thickness of Teeth (mm)	Width of Teeth (mm)	Recommended Max. Sample Vol./Well (µl)*
SG20-0708	9.5	8	0.75	17.7	126
SG20-0712	9.5	12	0.75	11	78
SG20-0717*	9.5	17	0.75	6.63	47
SG20-0720	9.5	20	0.75	5.66	40
SG20-0728	9.5	28	0.75	4	29
SG20-0732	9.5	32	0.75	3.4	24
SG20-0735*	9.5	35	0.75	2.9	19
SG20-1008	9.5	8	1.0	17.7	168
SG20-1012	9.5	12	1.0	11	104
SG20-1017*	9.5	17	1.0	6.63	67
SG20-1020	9.5	20	1.0	5.66	53
SG20-1028	9.5	28	1.0	4	38
SG20-1032	9.5	32	1.0	3.4	32
SG20-1035*	9.5	35	1.0	2.9	25
SG20-1508	9.5	8	1.5	17.7	252
SG20-1512	9.5	12	1.5	11	156
SG20-1517*	9.5	17	1.5	6.63	94
SG20-1520	9.5	20	1.5	5.66	80
SG20-1528	9.5	28	1.5	4	57
SG20-1532	9.5	32	1.5	3.4	48
SG20-1535*	9.5	35	1.5	2.9	38
SG20-2008	9.5	8	2.0	17.7	336
SG20-2012	9.5	12	2.0	11	208
SG20-2017*	9.5	17	2.0	6.63	125
SG20-2020	9.5	20	2.0	5.66	106
SG20-2028	9.5	28	2.0	4	76
SG20-2032	9.5	32	2.0	3.4	64
SG20-2035*	9.5	35	2.0	2.9	50
SG20-3008	9.5	8	3.0	17.7	504
SG20-3012	9.5	12	3.0	11	312
SG20-3017*	9.5	17	3.0	6.63	187
SG20-3020	9.5	20	3.0	5.66	159
SG20-3028	9.5	28	3.0	4	114
SG20-3032	9.5	32	3.0	3.4	96
SG20-3035*	9.5	35	3.0	2.9	75

**Note:** 3.0mm combs and spacers are also available for the 33 cm wide Sequencers. Please consult website for catalog numbers.

LARGE FORMAT COMB OPTIONS - 33cm wide overall length = 28.41cm					
Cat. #	Tooth Depth (mm)	# of Teeth	Thickness of Teeth (mm)	Width of Teeth (mm)	Recommended Max. Sample Vol./Well (µl)*
SG33-0703	19.05	3	0.75	93.1	1330.4
SG33-0705	19.05	5	0.75	54.3	775.5
SG33-0706	19.05	6	0.75	45.4	648
SG33-0708	19.05	8	0.75	33.4	477.5
SG33-0712	19.05	12	0.75	21.5	307.1
SG33-0716	19.05	16	0.75	15.5	221.7
SG33-0724	19.05	24	0.75	9.55	136.4
SG33-0731*	17.45	31	0.75	7.82	76.2
SG33-0734	17.45	34	0.75	6.05	79.2
SG33-0750	17.45	50	0.75	4.14	54.3
SG33-0760	17.45	60	0.75	3.18	41.7
SG33-0763*	17.45	63	0.75	2.92	38.2
SG33-1003	19.05	3	1.0	93.1	1330.4
SG33-1005	19.05	5	1.0	54.3	775.5
SG33-1006	19.05	6	1.0	45.4	648.1
SG33-1008	19.05	8	1.0	33.4	477.6
SG33-1012	19.05	12	1.0	21.5	307.1
SG33-1016	19.05	16	1.0	15.5	221.7
SG33-1024	19.05	24	1.0	9.55	136.4
SG33-1031*	17.45	31	1.0	7.82	76.2
SG33-1034	17.45	34	1.0	6.05	79.2
SG33-1050	17.45	50	1.0	4.14	54.3
SG33-1060	17.45	60	1.0	3.18	41.7
SG33-1063*	17.45	63	1.0	2.92	28.6
SG33-1503	19.05	3	1.5	93.1	1995
SG33-1505	19.05	5	1.5	54.3	1163
SG33-1506	19.05	6	1.5	45.4	972.1
SG33-1508	19.05	8	1.5	33.4	671.4
SG33-1512	19.05	12	1.5	21.5	460.5
SG33-1516	19.05	16	1.5	15.5	332.5
SG33-1524	19.05	24	1.5	9.55	204.6
SG33-1531*	17.45	31	1.5	7.82	114.3
SG33-1534	17.45	34	1.5	6.05	118.8
SG33-1550	17.45	50	1.5	4.14	81.4
SG33-1560	17.45	60	1.5	3.18	62.5
SG33-1563*	17.45	63	1.5	2.92	42.9
SG33-2003	19.05	3	2.0	93.1	2660
SG33-2005	19.05	5	2.0	54.3	1551
SG33-2006	19.05	6	2.0	45.4	1296
SG33-2008	19.05	8	2.0	33.4	955.2
SG33-2012	19.05	12	2.0	21.5	614.2
SG33-2016	19.05	16	2.0	15.5	442
SG33-2024	17.45	24	2.0	9.55	272.8
SG33-2031*	17.45	31	2.0	7.82	152.4
SG33-2034	17.45	34	2.0	6.05	158.4
SG33-2050	17.45	50	2.0	4.14	108.6
SG33-2060	17.45	60	2.0	3.18	83.4
SG33-2063*	17.45	63	2.0	2.92	57.2

\* Multi-channel pipettor compatible

\*Maximum loading volume is calculated by taking 75% of the total tooth volume.

## Spacer Sets

Sequencing spacer sets for all sequencer widths are made from polycarbonate. Polycarbonate spacers are compatible with polycarbonate or Valox combs and are available in thicknesses of 0.2mm and 0.4mm. Spacers are offered in 22cm, 32cm, 42cm, 52cm, 62cm, 82cm and 102cm. PVC spacer sets and PTFE combs for preparative or SDS Page protein gels can be ordered with thicknesses of 0.75mm, 1.0mm, 1.5mm, 2.0mm, or 3.0mm. All spacer sets are manufactured to close tolerances.

## Glass Plates

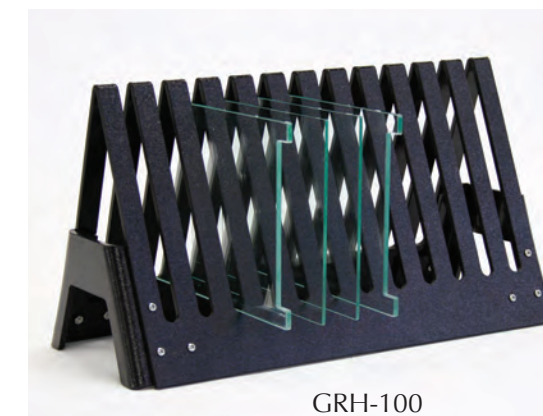
Glass plate sets can be ordered in lengths in 22cm, 32cm, 42cm 52cm, 62cm, 82cm or 102cm. Standard notched plate sets provided with the kits are made from sodalime glass. All glass plate edges are ground and polished for safety and durability. Unnotched plate sets with detached rubber ears can also be ordered. Custom sizes can be ordered using the custom order form. CBS Scientific offer two options for glass material; standard sodalime glass plate sets or Borosilicate glass plate sets. Borosilicate glass plates: Automated Sequencer grade, highest quality, very flat, very low fluorescence background. Fluorescent image can be captured directly through the glass using a fluorimeter.

## Low Fluorescence Glass Plates

Borosilicate or low-fluorescence glass plates sets are 5mm in thickness. Unnotched plate sets with detached rubber ears can also be ordered. All glass plate edges are ground and polished for safety and durability.

## Glass Plate Racks

This convenient 12 place glass plate drying and/or storage rack is constructed of high strength structural ABS with hand supports for ease in carrying from bench to sink. Shown at right, Cat. # GRH-100.

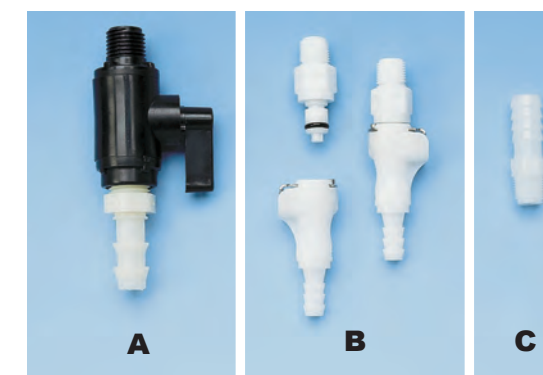


GRH-100

## Buffer Drainage

There are three different options for buffer drainage:

- Ball Valve with simple on-off lever that can be attached to tubing and greatly simplifies buffer disposal, Cat. BVD-100. The Ball Valve can be ordered to replace the standard tubing adapters (C) supplied with all CBS Scientific Sequencing Systems.
- Quick disconnect tubing coupling, cat. # QDC-P (body and insert set). This coupling features an automatic shut-off valve and is another alternative to the standard tubing adapters. The quick-disconnect coupling inset with shut-off valve threads into the buffer reservoirs, while the coupling body attaches to the drainage tubing. To drain reservoir, simply snap coupling body onto coupling insert and the valve will open. When the coupling is disconnected the valve automatically closes.
- Standard tubing adapter supplied with all CBS Sequencing Systems. Can be replaced with option A or B.



## Gel Slider™ - Adjustable Width Sequencing Gel Caster

The Gel Slider greatly simplifies the pouring of problem-free sequencing gels as thin as 0.05mm and can be adjusted to cast gels of many dimensions. This sliding plate technique can be accomplished in a matter of minutes and eliminates the time consuming and often unreliable use of yellow tape, clamps or plasticine. Pouring a gel from the top of the gel plate sandwich can often result in trapped air bubbles or acrylamide leakage. The sliding plate technique solves these problems by utilizing capillary action to advance the gel boundary resulting in bubble-free gels. Both preparation and clean-up are greatly reduced.

## ORDERING INFORMATION

CAT. #	DESCRIPTION
<b>GEL SLIDER</b>	
GSL-1001	<b>Gel Slider Gel Caster</b> , cast plates 20cm-38cm(w) x 22-42cm(l)
GSL-2001	<b>Gel Slider Gel Caster</b> , cast plates 20cm-38cm(w) x 22-62cm(l)

