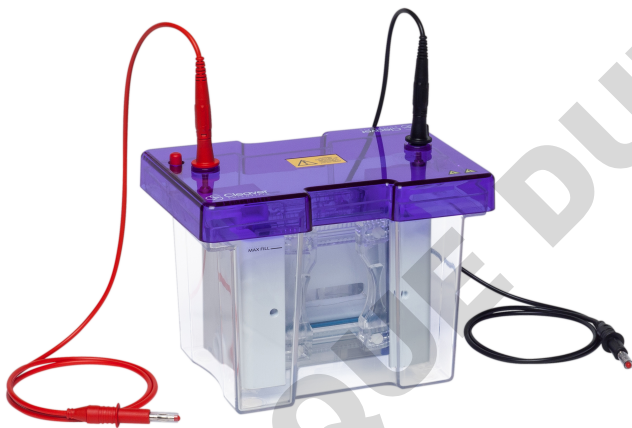


# omniPAGE Mini



DOMINIQUER DUTSCHER SAS

**DOMINIQUE DUTSCHER SAS**

# omniPAGE Mini Vertical Electrophoresis Units

## Instruction Manual

### Catalogue Numbers

CVS10D

CVS10TETRAD1 (0.75, 1.5 OR 2mm)

CVS10DSYS

CVS10TETRAD1CBS (0.75, 1.5 OR  
2mm)

CVS10PRE

CVS10DSYS-CU

Record the following for your records:

Model \_\_\_\_\_

Catalogue No. \_\_\_\_\_

Date of Delivery \_\_\_\_\_

Warranty Period \_\_\_\_\_

Serial No. \_\_\_\_\_

Invoice No. \_\_\_\_\_

Purchase Order No. \_\_\_\_\_

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# Safety Information



When used correctly, these units pose no health risk. However, these units can deliver dangerous levels of electricity and are to be operated only by qualified personnel following the guidelines laid out in this instruction manual. Anyone intending to use this equipment should read the complete manual thoroughly. The unit must never be used without the safety lid correctly in position. The unit should not be used if there is any sign of damage to the external tank or lid.

These units comply with the following European directives:

**2006/95/CE Low Voltage Directive and 2014/30/UE (official Title 2004/108/EC)  
EMC Electromagnetic Compatibility**

*By virtue of the following harmonised standards:*

**BS EN IEC 61010-1: 2010 Safety Testing of Lab Equipment**

**BS EN IEC 61326-1:2013 EMC Electro Magnetic Compatibility**

# Packing List

Each omniPAGE unit includes a tank, wired electrodes, lid and the following items:

SKU	Glass Plates	Combs	Caster	Cooling Pack	Cables	Screws
<b>CVS10D</b>	VS10NG – Notched, Pk/2 VS10PGS1 – Plain with bonded 1mm spacers, Pk/2 VS10-DP – Dummy Plate	2 of VS10-12-1 1mm thick, 12 sample		VS10ICB	CSL-CAB	VS10-SCREW x 4
<b>CVS10DSYS</b>	As Above	As Above	VS10DCAST	VS10ICB	CSL-CAB	VS10-SCREW x 4
<b>CVS10PRE</b>	VS10-DP – Dummy Plate	None		VS10ICB	CSL-CAB	VS10-SCREW x 4
<b>CVS10DYS-CU</b>	As in CVS10D	As in CVS10D	See CVS10DYSYS + CVS10EXCASTER	VS10ICB	CSL-CAB	VS10-SCREW x 4

omniPAGE Mini TETRAD Systems allow casting of 4 gels per casting unit and include everything included in the CVS10D Package, as well as:

SKU	Glass Plates	Combs	Caster
<b>CVS10TETRAD0.75</b>	VS10NG (Pack of 2) VS10PGS0.75 (Pack of 2) 2 x VS10NGS0.75 (Pack of 2)	2 x VS10-12-0.75 0.75 mm thick, 12 sample	VS10EXCASTER VS10DCAST
<b>CVS10TETRAD1</b>	VS10NG (Pack of 2) VS10PGS1 (Pack of 2) 2 x VS10NGS1 (Pack of 2)	2 x VS10-12-1 1 mm thick, 12 sample	VS10EXCASTER VS10DCAST
<b>CVS10TETRAD1.5</b>	VS10NG (Pack of 2) VS10PGS1.5 (Pack of 2) 2 x VS10NGS1.5 (Pack of 2)	2 x VS10-12-1.5 1.5 mm thick, 12 sample	VS10EXCASTER VS10DCAST

Packing List Checked by: \_\_\_\_\_

Date: \_\_\_\_\_

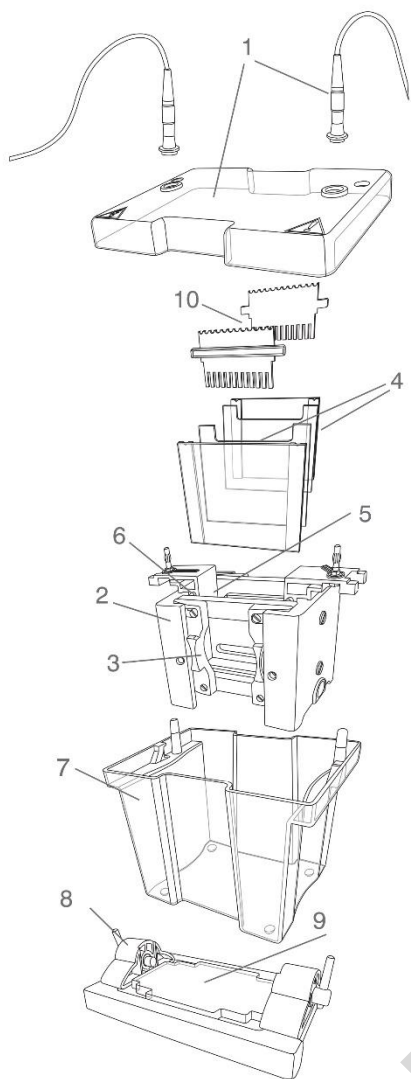
The packing lists should be referred to as soon as the units are received to ensure that all components have been included. The unit should be checked for damage when received.

Cleaver Scientific is liable for all missing or damaged parts / accessories within 7 days after customers have received this instrument package. Please contact Cleaver Scientific immediately regarding this issue. If no response within such period is received from the customer, Cleaver Scientific will no longer be liable for replacement/damaged parts.

Please contact your supplier if there are any problems or missing items.

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# Specifications



<b>1</b>	Power supply cables	1500V rated with retractable 4mm connectors
<b>2</b>	Inner Module	High impact moulded acrylic construction
<b>3</b>	Gel Clamps	Moulded Acrylic
<b>4</b>	Glass Plates	2mm Float Glass with bonded acrylic spacers
<b>5</b>	Inner Buffer Chamber	Includes Platinum electrode, separated from outer chamber by gel
<b>6</b>	Gasket	Natural rubber gasket seals inner buffer chamber
<b>7</b>	Outer Tank	Moulded High Impact acrylic
<b>8</b>	Casting base	Cam-pin simple operation
<b>9</b>	Casting Mat	Ultra-soft silicone for leak free casting
<b>10</b>	Combs	Moulded acrylic for reproducibility

<b>Plate Dimensions</b>	10 x 10 cm
<b>Gel Dimensions</b>	75 x 8 cm
<b>Unit Dimensions</b>	19x13x15cm (W x D x H)
<b>Max Sample Capacity</b>	80 Samples 20 Samples per Gel
<b>Buffer Volume</b>	Min 250ml, Max 1200ml
<b>Combs Available</b>	1, 5, 8MC, 9, 10, 12, 16, 20
<b>No. of Teeth Thickness</b>	0.75, 1, 1.5, 2mm

# Operating Instructions

Further information (including videos) regarding setting up and running the omniPAGE units can be found at [www.cleaverscientific.com](http://www.cleaverscientific.com)

## Usage Guidance and restrictions

- Maximum altitude 2,000m.
- Temperature range between 4°C and 65°C.
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Not for outdoor Use.

This apparatus is rated POLLUTION DEGREE 2 in accordance with IEC 664.

POLLUTION DEGREE 2, states that: "Normally only non-conductive pollution occurs.

Occasionally, however, a temporary conductivity caused by condensation must be expected".

## Setting up the omniPAGE Gel Tanks

**Note: Before setting up the Gel Tank please ensure that it has been properly cleaned and dried.**

1. Note the position of the lid on the unit. This shows the correct polarity and the correct orientation of the cables, black is negative and red positive.
2. Remove the lid from the unit.

**Note: If the lid is not removed, fitting the cables may result in un-tightening of the gold plug and damage the electrode.**

3. Screw the cables into the tapped holes as fully as possible so that there is no gap between the lid and the leading edge of the cable fitting.
4. Refit the lid and the unit is now ready to be used.

*The unit is now ready to be used.*

## Casting Unit Preparation

### *Cleaning the Glass Plates*

Clean a set of glass plates for each gel first with distilled water and then with 70 % ethanol. One set of glass plates constitutes one notched glass plate and one plain glass plate with bonded spacers.

When using a triple glass plate sandwich, two notched glass plates are required, one set of free spacers and a set of plain glass plates with bonded spacers. The plain glass plate is positioned outermost, then a notched glass plate, free spacers and second notched glass plate. Alternatively, accessory notch glass plates with bonded spacers are available.

**Note: All glass plates, gel casting modules, casting base and accessories must be completely dry before the set – up. Wet components are more likely to miss-align and cause leaks.**

### *Gel Cassette Assembly*

Assemble the glass plates so that the bottom of the glass plates and the spacers are perfectly aligned.

A triple plate sandwich can be used by combining the standard Notched plate and spacer plate, with an additional notched plate with spacers. For triple plate sandwiches, the free spacers need to be perfectly aligned which is best performed using a small spacer or comb to push the spacers apart. Notched glass plates with bonded spacers do not need manual alignment.

**NOTE: The glass plates with bonded spacers have an arrow in the top of the spacers which are slightly longer than the glass plate to indicate the top.**

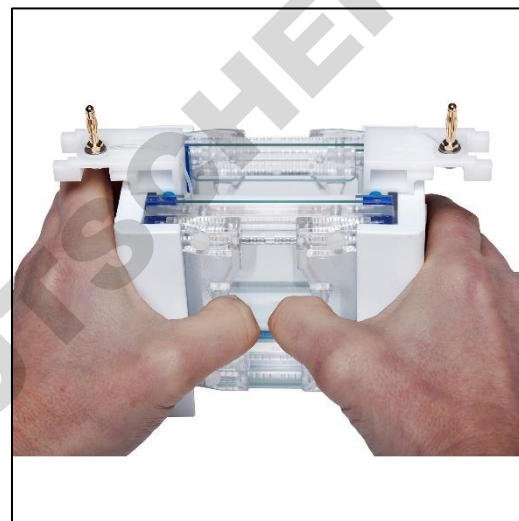
### *Casting Stand Assembly*

1. Position the Slab Gel Insert on a flat surface. Insert the glass plates into the Slab Gel Insert between the pressure bar and the blue gasket. The Slab Gel Insert contains pressure bars which impart even pressure onto the glass plates and allow even screw pressure transfer onto the sealing edge of the glass plate, ensuring complete sealing.
2. Ensure that the pressure bars are adequately open for the thickness of spacer used. The bar can be opened by loosening the screws or by sliding the clamps. When using a triple glass plate sandwich, the pressure bars will need to be in the completely open position.
3. Fully tighten the screws, making sure not to wobble the unit. When using the Slide Clamp Mini version, simply slide both gates outwards until fully

tightened. When only one gel is being run, the dummy plate must be used in the second position and fully tightened.

**NOTE: At this stage, check that the bottom edges of the spacers and glass plates are perfectly aligned.**

4. Position the Slab Gel Insert in the casting base such that the Cam pins have handles pointing downwards and are located in the insert holes. The top of the module may need to be pushed down very slightly to locate the cam pins.
5. With the cam pin handles facing directly downwards, turn the cam pins fully through 135° or until the insert has tightened onto the silicone mat.



**NOTE:** It is best to turn the cams in opposite directions to each other. Do not overturn as this will cause the glass plates to push upwards and the assembly will be more likely to leak. The unit is now ready for gel preparation and pouring.

Always reverse the silicone mat after casting to avoid indentations from persisting. Never leave the casting up-stand with glass plates tightened into the casting base for long periods of time as this will also cause indentations in the silicone mat.

The slide clamp version omniPAGE Mini also includes screws. This system can be used either with the slide clamps or screws as preferred by the user. For those that prefer to use the screws rather than clamps, the screws can be simply inserted into the screw holes. The clamps can be removed by placing each clamp in the fully open position and gently bending the clamp upwards from the slanted end. The holding pin will then slowly release, and the clamp can be removed. Screw based casting is required when using the triple sandwich plate method.

## Gel Preparation

Care should be taken when selecting the pore size of the gel to be used. The pore size or % of gel determines the resolving ability given different sizes of protein.

Gel percentage for various protein sizes are shown below:

Acrylamide Percentage	Separating Resolution
5 %	60 - 220 KD
7.5 %	30 - 120 KD
10 %	20 - 75 KD
12%	17 – 65 KD
15 %	15 -45 KD
17.5%	12 – 30 KD

Gel Volumes for the omniPAGE Mini Unit are shown below:

Number of gels	Gel Thickness (mm)	Volume (ml)
Single – one gel, one dummy plate	0.5	3.8
	1.0	7.5
	1.5	11.3

	2.0	15.0
<b>Double – two gels</b>	0.5	7.5
	1.0	15.0
	1.5	22.5
	2.0	30.0
<b>Using a Triple Plate sandwich – four gels</b>	0.5	10.0
	1.0	30.0
	1.5	45.0
	2.0	60.0

Prepare gel solutions as per tables below. These give the volumes of solutions from the standard stock solutions. These should be gently mixed avoiding generation of bubbles which will inhibit polymerization by removing free radicals.

Resolving Gel, for 2 x 1 mm thick gels:

<b>Solution</b>	<b>5 %</b>	<b>7.5%</b>	<b>10 %</b>	<b>12%</b>	<b>15 %</b>	<b>17.5%</b>
<b>Distilled Water</b>	8.7ml	7.5ml	6.3ml	5.25ml	3.75ml	2.5ml
<b>30 % Stock Acrylamide Solution</b>	2.5ml	3.75ml	5ml	6ml	7.5ml	8.75ml
<b>4 X Resolving Tris Solution</b>	3.75ml	3.75ml	3.75ml	3.75ml	3.75ml	3.75ml

Add 15 µl of TEMED and 150µl 10 % Ammonium Persulphate to the resolving gel solution before pouring to initiate polymerisation

Stacking Gel:

<b>Solution</b>	<b>Volume</b>
<b>Distilled Water</b>	4.2ml
<b>30 % Stock Acrylamide Solution</b>	0.65ml
<b>4 X Stacking Gel Tris Solution</b>	1.6ml

Add 67µl of 10 % Ammonium Persulphate and 6.7µl TEMED before pouring.

## Preparation of denatured protein samples for loading

The instructions given below are for denatured samples. For Native samples, please consult a laboratory handbook.

1. Prepare the protein samples for loading. The volume of sample depends on the capacity of the wells (See Comb specifications section 6.2).
2. Using a 0.5 ml micro-centrifuge tube or other convenient receptacle, combine the protein sample and 4 X sample buffer. It is always advisable to use protein markers in one of the end lanes to indicate sizes of bands. These should be prepared according to the manufacturer's instructions.
3. Heat the samples in a water bath or heating block for 2 minutes to denature the samples.
4. Centrifuge the samples in a micro-centrifuge for 20 seconds at 12,000 rpm. The protein samples are now ready to load.

## Gel Pouring

### *Casting a gel with stacking layer*

1. Place a comb into the gel cassette assembly with any gel and mark the glass plate below the comb teeth. This is the reference level to which the resolving gel should be poured.
2. Prepare the resolving gel solution. Mix well and avoid generating air bubbles.
3. Fill the glass plates smoothly till the mark avoiding generating any air bubbles. Filling must be performed quickly before the TEMED causes the gel to become too viscous.
4. Overlay the gel extremely carefully with 1 ml of Isobutanol, Isopropanol or distilled water. When using distilled water extra care must be taken to ensure there is no mixing with the gel solution.
5. Let the resolving gel polymerize. Usually this takes around 15 to 30 minutes, but this can vary due to the freshness of the reagents used. If polymerization is taken a lot longer than this, use fresher stock solutions or add more APS and TEMED.

6. Let the resolving gel polymerize. Usually this takes around 15 to 30 minutes, but this can vary due to the freshness of the reagents used. If polymerization is taken a lot longer than this, use fresher stock solutions or add more APS and TEMED.
7. Prepare the stacking gel solution.
8. Before casting the stacking gel, insert a piece of filter paper to dry the area in between the glass plates above the resolving gel. Take care not to touch the surface of the gel.
9. Carefully pour the stacking gel solution, avoiding generating air bubbles.
10. Carefully insert the comb making sure that no air bubbles get trapped under the ends of the comb teeth as these will inhibit sample progression.
11. Allow the stacking gel to polymerize.
12. Once the gel is polymerized it is ready for the electrophoresis run.

#### *Casting a gel without stacking layer*

- Prepare the resolving gel solution. Mix well and avoid generating air bubbles.
- Pour the solution smoothly into the glass plates avoiding any air bubbles until the top of the notched glass plate is reached.
- Carefully insert the comb making sure that no air bubbles get trapped under the ends of the comb teeth as these will inhibit sample progression.
- Let the gel polymerize. Usually this takes from 15 to 30 minutes, but this can vary due to the freshness of the reagents used. If polymerization is taken a lot longer than this, use fresher stock solutions or add more APS and TEMED.
- Once the gel is polymerized it is ready for the electrophoresis run.

#### *Using Precast Gels*

1. omniPAGE mini is compatible with all the precast gels available in the market.
2. Simply remove the precast gel from the storage pouch.

3. Gently remove the comb.
4. Keep the Inner module upstand on a flat surface and place the precast gel between the pressure bar and the blue gasket.

## **omniPAGE tank assembly and Sample loading**

1. If desired, fit the cooling pack(s) into the end of the tank. These should be pre-frozen and fitted with the longest side positioned sideways with the end(s) of the tank and pressed into the recess. Or these can be fitted down the front of the tank.

**Note: NEVER FIT THESE UNDERNEATH THE MODULE IN THE BOTTOM OF THE TANK AS THIS WILL PREVENT THE FLOW OF CURRENT THROUGH THE GEL AND CAUSE SLOW RUNS AND OVER-HEATING.**

**Note one pack is supplied as standard. Additional packs can be purchased.**

2. Transfer the Inner gel module containing cast gels into the main tank in the correct orientation as indicated - +ve on the module aligned with +ve on the tank, -ve on the module aligned with -ve on the tank.
3. Fill the outer tank with 1X reservoir buffer. See "Solutions" for recommended running buffer solution.
4. Load the samples into the wells using a pipette tip taking care not to damage the wells or induce any air bubbles.
5. Fill any unused wells with 1 X sample buffer.
6. It is a good idea to note the orientation and order the samples were loaded in. This can be done by noting which samples were loaded adjacent to each electrode.

## **Gel Running**

1. Fit the lid and connect to a power supply.
2. Gels should be run at constant voltage, with voltage dependent on the size of the proteins undergoing separation. An initial setting of 100V with constant observation of migration and heat production is recommended. An exploratory study may be required to determine the optimal settings for individual proteins.

## Gel Removal

1. Turn the power supply off when the loading dye reaches the bottom of the gel, sooner if your proteins are below 4 kDa in size.
2. Remove the gel running module, first emptying the inner buffer into the main tank. Buffer can be re-used but this may affect run quality if continued.
3. Unscrew the glass plates with the Screw version. To open the sliding door version, insert the CSLKEY into the recess arch of the clamping door. Twist key applying pressure to both the clamping door and the CVS10D side cheek. The door will now click open. Repeat this process until you have opened both the doors.
4. Remove the glass plates. Then using CSLKEY separate notched and the plain glass plates. Place the wedged end of the key between the two plates and gently twist until the plates pull apart. The gel will usually stick to one of the plates and can be removed by first soaking in buffer and then gently lifting with a spatula.
5. The gel is now ready to be stained with Coomassie or silver stain or the proteins in the gel can be transferred to a membrane by electroblotting for specific band identification and further analysis.

## Solutions (For SDS-PAGE)

### Stock 30% Acrylamide Gel Solution:

30.0 g acrylamide

0.8 g methylene bisacrylamide

Distilled Water to 100ml

### Stock 4 X Resolving Gel Tris (1.5 M Tris·HCl pH8.8, 0.4 % SDS)

To 110ml Distilled Water add 36.4 g of Tris base

Add 8ml of 10 % SDS

Adjust pH to 8.8 with 1N HCl

Adjust the final volume to 200ml with Distilled Water.

### Stock 4 X Stacking Tris (0.5 M Tris·HCL pH6.8, 0.4 % SDS)

To 110ml Distilled Water add 12.12 g of Tris base

Add 8ml of 10 % SDS

Adjust pH to 6.8 with 1N HCl

Add Distilled Water to a final volume of 200ml

#### **Stock 4 X Tris-glycine tank buffer - SDS**

36 g Tris base

172.8 g glycine

Distilled Water to 3 L

#### **1 x Tris-glycine tank buffer - SDS**

750ml of 4 X Tris-glycine reservoir buffer - SDS

30ml of 10 % SDS

Distilled Water to 3L

#### **10 % AP (ammonium persulphate solution)**

0.1 g ammonium persulphate

1ml Distilled Water

#### **TEMED**

#### **Stock 4 X Sample Buffer**

4ml glycerol

2ml 2-mercaptoethanol

1.2 g SDS

5ml 4 X Stacking Tris

0.03 g Bromophenol blue

Aliquot into 1.5ml micro centrifuge tubes. Store at -20°C.

# Troubleshooting

<b>Problem: Sample Preparation</b>	<b>Cause</b>	<b>Solution</b>
<b>Laemmli sample buffer turns yellow</b>	Sample buffer too acidic	Add Tris base until buffer turns blue again.
<b>Sample very viscous</b>	High DNA or carbohydrate content	Fragment DNA with ultrasonic waves during cell lysis and protein solubilization. Add endonucleases Precipitate protein with TCA/acetone to diminish carbohydrate content.
<b>Problem: Gel casting and sample loading</b>	<b>Cause</b>	<b>Solution</b>
<b>Poor well formation</b>	Incorrect catalyst used  Monomer solution not degassed (oxygen inhibits polymerization)	Prepare Fresh catalyst solution. Increase catalyst concentration of stacking gel to 0.06% APS and 0.12% TEMED. Degas monomer solution immediately prior to casting stacking gel.
<b>Webbing; excess acrylamide behind the comb</b>	Incorrect catalyst concentration	Prepare fresh catalyst solution. Increase catalyst concentration of stacking gel to 0.06% APS and 0.12% TEMED.
<b>Gel does not polymerize</b>	Too little or too much APS or TEMED Failure to degas Temperature too low  Poor quality acrylamide or bis Old APS	Use 0.05% APS and 0.05% TEMED. Degas monomer solutions 10-15min. Cast at room temperature, warming glass plates if necessary. Use electrophoresis-grade reagents Prepare fresh APS.
<b>Swirls in the gel</b>	Excess catalysts; polymerization time < 10min Gel inhibition; polymerization time >2hr	Reduce APS and TEMED by 25% each. Increase APS and TEMED by 50%; degas.
<b>Gel feels soft</b>	Low %T Poor quality acrylamide or bis Too little cross-linker	Use different %T. Use electrophoresis- grade reagents. Use correct %C.
<b>Gel turns white</b>	Bis concentration too high	Check solutions or weights.
<b>Gel brittle</b>	Cross-linker too high	Use correct % cross-linker

<b>Sample floats out of the well</b>	Sample is not dense enough  Pipetting, loading error	Induce 10% glycerol in sample to make it denser than surrounding buffer. Slowly pipet sample into well. Do not squirt sample quickly into well as it may bounce off bottom or sides and flow into next well. Do not pipet tip from well before last of sample has left the tip.
<b>Problem: Electrophoresis</b>	Cause	Solution
<b>Current zero or less than expected and samples do not migrate into gel</b>	Tape at the bottom of precast gel cassette not removed Insufficient buffer in inner buffer chamber Insufficient buffer in outer buffer chamber Electrical disconnection	Remove tape.  Fill buffer chamber with running buffer.  Fill inner and outer buffer chambers to ensure wells are completely covered. Check electrodes and connections.
<b>Gels run faster than expected</b>	Running buffer too concentrated and gel temperature too high; incorrect running buffer concentration or type used Running or reservoir buffer too dilute Voltage too high	Check buffer composition and type.  Check buffer protocol and concentrate if necessary. Decrease voltage by 25-50%.
<b>Gels run slower than expected</b>	Incorrect running buffer composition or type Excessive salt in sample	Check buffer composition and type.  Desalt sample.
<b>Buffer leaking from inner chamber</b>	Incomplete gasket seal	Set up again with sliding clamps tighter.
<b>Problem: Total Protein Staining</b>	Cause	Solution
<b>Bands not visible</b>	No protein in gel  Imaging system malfunctioning  Incorrect imaging parameters were used	Stain with another method to confirm there is protein. Check instrument manual for troubleshooting or contact imaging instrument manufacturer. Check Instrument manual.
<b>Poor staining sensitivity</b>	Dirty staining trays  Insufficient stain volume  Insufficient staining time	Clean staining trays and other equipment with laboratory glassware cleaner. Follow recommendations for stain volume (appropriate to gel size). Increase staining time.

	Reuse of staining solution	Repeat staining protocol with fresh staining solution.
<b>High or uneven background staining</b>	Staining trays or equipment dirty  Too much time in staining solution  Reagent impurities	Clean staining trays and other equipment with laboratory glassware cleaner. Restrict duration of incubation in staining solutions as recommended in protocol. Wash gel in water or retrospective destaining solution for >30min. Use high-purity water and reagents for staining.
<b>Speckles or blotches in gel image</b>	Particulate material from reagents, staining tray, dust or gloves	Clean staining trays thoroughly. Decrease time that gels and staining solution are exposed to open air. Use dust-free gloves and handle gels only by edges.
<b>Uneven staining</b>	Insufficient shaking during staining	Agitate gel during staining.
<b>Gel shrinkage</b>	Gel dehydrated	Transfer gel to water for rehydration.
Problem: Evaluation of Separation	Cause	Solution
<b>Diffuse or broad bands</b>	Poor quality acrylamide or bis-acrylamide incomplete polymerization Old SDS or sample buffer Gel temperature too high	Use electrophoresis-grade reagents. Check polymerization conditions.  Prepare fresh solutions. Use external cooling during run or run out a lower voltage.
<b>Bands 'smile' across gel, band pattern curves upward at both sides of gel</b>	Excess heating of gel; center of gel runs hotter than either end  Power conditions excessive  Insufficient buffer	Check buffer composition; buffer not mixed well, or buffer in upper chamber too concentrated. Prepare new buffer, ensuring thoroughly mixing, especially when diluting 5x or 10x stock. Do not exceed recommended running conditions. Decrease power setting from 200V to 150V or fill lower chamber to within 1cm of top of short plate. Fill inner and outer buffer chambers to ensure that wells are completely covered.
<b>Smiling or frowning bands with gel lane</b>	Overloaded proteins Sample preparation/ buffer issues  Incorrect running conditions	Load less protein. Minimize salts, detergents and solvents in sample preparation and sample buffers. Use correct voltage.

<p><b>Skewed or distorted bands, lateral band spreading</b></p>	<p>Excess salt in samples</p> <p>Ionic strength of sample lower than that of gel Insufficient sample buffer or wrong formulation Diffusion prior to turning on current</p> <p>Diffusion during migration through stacking gel</p> <p>Uneven gel interface</p>	<p>Remove salts, from sample by dialysis or desalting column prior to sample preparation. Use same buffer in samples as in gel.</p> <p>Check buffer composition and dilution instructions. Minimize time between sample application and power start-up. Increase %T of stacking gel to 4.5% or 5%T. Increase current by 25% during stacking. Decrease polymerization rate. Overlay gels carefully. Rinse wells after removing comb to remove residual acrylamide.</p>
<p><b>Vertical streaking</b></p>	<p>Overloaded samples</p> <p>Sample precipitation</p>	<p>Dilute sample. Selectively remove predominant protein in sample (fractionate). Reduce voltage by 25% to minimize streaking. Centrifuge samples to remove particulate prior to sample loading. Dilute sample in sample buffer.</p>
<p><b>Fuzzy or spurious artefactual bands</b></p>	<p>Concentration of reducing agent too low</p>	<p>Use 5% BME or 1% DTT.</p>
<p><b>Protein bands do not migrate down as expected</b></p>	<p>Bands of interest may be neutral or positively charged in buffer used; pH of bands must be -2pH units more negative than pH of running buffer</p>	<p>Use SDS-PAGE or a different buffer system in native PAGE or IEF.</p>

# Care and Maintenance

## Cleaning Vertical Units

Units are best cleaned using warm water and a mild detergent. **Water at temperatures above 60°C can cause damage to the unit and components.**

The tank should be thoroughly rinsed with warm water or distilled water to prevent build-up of salts, but care should be taken not to damage the enclosed electrode and vigorous cleaning is not necessary or advised.

Air drying is preferably before use.

**The units should only be cleaned with the following:**

Warm water with a mild concentration of soap or other mild detergent.

Compatible detergents include dishwashing liquid, Hexane and Aliphatic hydrocarbons

The units should not be left in detergents for more than 30 minutes.

**The units should never come into contact with the following cleaning agents, these will cause irreversible and accumulative damage:**

Acetone, Phenol, Chloroform, Carbon tetrachloride, Methanol, Ethanol, Isopropyl alcohol, Alkalis.

## RNase Decontamination

This can be performed using the following protocol:

Clean the units with a mild detergent as described above.

Wash with 3% hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) for 10 minutes.

Rinsed with 0.1% DEPC-(diethyl pyro carbonate) treated distilled water,

**Caution:** DEPC is a suspected carcinogen. Always take the necessary precautions when using.

RNaseZAP™ (Ambion) can also be used. Please consult the instructions for use with acrylic gel tanks.

# Ordering information

Catalogue No.	Product description
<b>CVS10D</b>	omniPAGE Mini, 10 x 10cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 12 sample, 1mm thick combs. CLAMP VERSION
<b>CVS10DSYS</b>	omniPAGE Mini, 10 x 10cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 12 sample, 1mm thick combs including caster. CLAMP VERSION
<b>CVS10PRE</b>	omniPAGE Mini, 10 x 10cm Dual. No accessories. CLAMP VERSION
<b>CVS10DSYS-CU</b>	omniPAGE Mini, 10 x 10cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 12 sample, 1mm thick combs including caster. CLAMP VERSION, External casting upstand
<b>CVS10EXCASTER</b>	External Casting Stand - No Casting Base
<b>CVS10EXCASTERSYS</b>	External Casting System - Upstand+ Base
<b>VS10DCAST</b>	10 x 10cm Casting Base
<b>VS10DCASTM</b>	Replacement Silicone Mat for 10 x 10cm Casting Base
<b>CVS10DIRM</b>	Inner Running Module
<b>VS10ICB</b>	Mini Cooling Pack
<b>VS10NG</b>	10 x 10cm Notched Glass Plates 2mm thick (pk/2)
<b>VS10PG</b>	10 x 10cm Plain Glass Plates 2mm thick (pk/2)
<b>VS10NGS0.75</b>	10 x 10cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)
<b>VS10PGS0.75</b>	10 x 10cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)
<b>VS10NGS1</b>	10 x 10cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
<b>VS10PGS1</b>	10 x 10cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
<b>VS10NGS1.5</b>	10 x 10cm Notched Glass Plates with 1.5mm Bonded Spacers (pk/2)
<b>VS10PGS1.5</b>	10 x 10cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
<b>VS10NGS2</b>	10 x 10cm Notched Glass Plates with 2mm Bonded Spacers (pk/2)
<b>VS10PGS2</b>	10 x 10cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)

<b>VS10DP</b>	Dummy Plate, 10 x 10cm
<b>VS10S0.75</b>	10cm Spacers - 0.75mm (pk/2)
<b>VS10S1</b>	10cm Spacers - 1mm thick (pk/2)
<b>VS10S1.5</b>	10cm Spacers - 1.5mm thick (pk/2)
<b>VS10S2</b>	10cm Spacers - 2mm thick (pk/2)
<b>RPW-0.2</b>	Replacement Platinum Wire - 0.2mm, 50cm

## Comb options

<b>Code</b>	<b>Description</b>	<b>Sample Volume <math>\mu</math>l for a 5mm thick gel</b>
<b>VS10-1-0.75</b>	Comb 1 Prep, 1 Marker, 0.75mm thick	500
<b>VS10-5-0.75</b>	Comb 5 sample, 0.75mm thick	70
<b>VS10-8MC-0.75</b>	Comb 8 sample MC, 0.75mm thick	40
<b>VS10-9-0.75</b>	Comb 9 sample, 0.75mm thick	35
<b>VS10-12-0.75</b>	Comb 12 sample, 0.75mm thick	25
<b>VS10-16-0.75</b>	Comb 16 sample, 0.75mm thick	20
<b>VS10-20-0.75</b>	Comb 20 sample, 0.75mm thick	15
<b>VS10-1-1</b>	Comb 1 Prep, 1 Marker, 1mm thick	650
<b>VS10-5-1</b>	Comb 5 sample, 1mm thick	100
<b>VS10-8MC-1</b>	Comb 8 sample MC, 1mm thick	60
<b>VS10-9-1</b>	Comb 9 sample, 1mm thick	50
<b>VS10-10-1</b>	Comb 10 sample, 1mm thick	40
<b>VS10-12-1</b>	Comb 12 sample, 1mm thick	35
<b>VS10-16-1</b>	Comb 16 sample, 1mm thick	25
<b>VS10-20-1</b>	Comb 20 sample, 1mm thick	20

<b>VS10-1-1.5</b>	Comb 1 Prep, 1 Marker, 1.5mm thick	1000
<b>VS10-5-1.5</b>	Comb 5 sample, 1.5mm thick	140
<b>VS10-8MC-1.5</b>	Comb 8 sample MC, 1.5mm thick	80
<b>VS10-9-1.5</b>	Comb 9 sample, 1.5mm thick	70
<b>VS10-10-1.5</b>	Comb 10 sample, 1.5mm thick	30
<b>VS10-12-1.5</b>	Comb 12 sample, 1.5mm thick	50
<b>VS10-16-1.5</b>	Comb 16 sample, 1.5mm thick	40
<b>VS10-20-1.5</b>	Comb 20 sample, 1.5mm thick	30
<b>VS10-1-2</b>	Comb 1 Prep, 1 Marker, 2mm thick	1300
<b>VS10-5-2</b>	Comb 5 sample, 2mm thick	200
<b>VS10-8MC-2</b>	Comb 8 sample MC, 2mm thick	120
<b>VS10-9-2</b>	2 Comb 9 sample, 2mm thick 100	100
<b>VS10-10-2</b>	Comb 10 sample, 2mm thick	80
<b>VS10-12-2</b>	Comb 12 sample, 2mm thick	70
<b>VS10-16-2</b>	Comb 16 sample, 2mm thick	50
<b>VS10-20-2</b>	Comb 20 sample, 2mm thick	40

MC denotes multichannel pipette spacing

## Related Products

<b>Catalogue No.</b>	<b>Product description</b>
<b>CSL-PPL</b>	CSL Pink Plus Prestained Protein Ladder, 10-175kDa, with 10, 40 & 90kDa reference bands, 1x 500µL vial.
<b>CSL-BBL</b>	CSL BLUE Wide Range Prestained Protein Ladder, 10-245kDa, with 25 & 75kDa reference bands, 1x 500µL vial.
<b>CSL-TGSDSP</b>	Powdered Tris-Glycine-SDS Running buffer - 10 Pouches(10 litres/pk)
<b>CSL-TGP</b>	Powdered Tris-Glycine Running buffer - 10 Pouches(10 litres/pk)

<b>CSL-TTSDSP</b>	Powdered Tris-TRICINE-SDS Running buffer - 10 Pouches(10 litres/pk)
<b>CSL-MSDSP</b>	Powdered MOPS-SDS buffer Running buffer - 10 Pouches(10 litres/pk)
<b>TG10X1L</b>	Cleaver Buffer Tris-Glycine 10 x 1litre
<b>TG10x5L</b>	Cleaver Buffer Tris-Glycine 10 x 5litre
<b>TG-SDS10X1L</b>	Cleaver Buffer Tris-Glycine SDS 10 x 1litre
<b>TG-SDS10X5L</b>	Cleaver Buffer Tris-Glycine SDS 10 x 5litre
<b>CSL-GELX4</b>	4mm x 1mm, Gel Cutting Tips, 250/ bag
<b>CSL-GELX4RACK</b>	4mm x 1mm, Gel Cutting Tips, 5 racks of 48
<b>CSL-GELX6.5</b>	6.5mm x 1mm, Gel Cutting Tips, 250/ bag
<b>CSL-GELX6.5RACK</b>	6.5mm x 1mm, Gel Cutting Tips, 5 racks of 48
<b>POWERPRO300</b>	Power Supply MIDI 300V 700mA 150W - 110/230V
<b>POWERPRO500</b>	Power Supply MAXI 500V 800mA 200W - 110/230V
<b>VS10BI</b>	omniBlot Mini Insert - including 4 cassettes, 16 foam pads
<b>VS10DCI</b>	omniPAGE Mini Tube Gel Insert - including 10 glass tubes
<b>OMNIDOCIPROSAFE</b>	OMNIDOC-i plus Blue LED Epi-illumination Module (OMNIDOC-BL), and 520, 560 & 580nm filters (OMNIDOC-SYBR, -AF560 & -AF580); and White Light Table (OMNIDOC-WLT)
<b>CVS10CBS</b>	Complete system for Mini Vertical Electrophoresis & Blotting including: Vertical unit, Blotting insert & accessories. CLAMP VERSION.
<b>SB10</b>	OmniBlot Mini, 10 x 10cm Blotting System, including 4 cassettes
<b>SB20</b>	OmniBlot Maxi, 20 x 20cm Blotting System, including 4 cassettes
<b>CV20</b>	Cleaver Pipette - Volume; 2 - 20ul
<b>CSLVORTEX</b>	Cleaver Vortex Mixer with general purpose head, 230V
<b>CSLQSPIN</b>	Mini Centrifuge complete with 1.5/2.0 ml rotor, strip tube rotor, 0.5 and 0.4 ml adapters, 230V, Purple lid
<b>TCDB-01</b>	The Cube Dry Bath Incubator (one block unit); without block 220V
<b>CSL-UVCAB</b>	UV sterilisation cabinet with timer, four UV lights and white light, no Tray - 230V
<b>SD20</b>	Semi Dry Maxi, 20 x 20cm System

<b>VS10WD</b>	omniPAGE Mini Wide, 20 x 10cm Dual, 2 sets of Glass Plates with 1mm thick bonded Spacers, 2 x 24 sample, 1mm thick combs, cooling pack
<b>VS10WDSYS</b>	omniPAGE Mini Wide, 20 x 10cm Dual, 2 sets of Glass Plates with 1mm thick bonded Spacers, 2 x 24 sample, 1mm thick combs, cooling pack including caster
<b>VS10WDSYS-CU</b>	omniPAGE Mini Wide, 20 x 10cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 24 sample, 1mm thick combs including caster, External casting upstand
<b>VS20WAVESYS</b>	VS20WAVE Maxi, 20 x 20cm Dual with Glass Plates with bonded 1mm thick spacers, 2x 24  sample combs, cooling coil, dummy plate and Casting Base
<b>VS20WAVESYS-CU</b>	VS20WAVE Maxi, 20 x 20cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 24 sample, 1mm thick combs, cooling coil, dummy plate;includes caster and External casting upstand
<b>VS20WAVE-EC</b>	VS20WAVE External Casting Stand - No Casting Base

# Warranty

The Cleaver Scientific Ltd. (CSL) omniPAGE Vertical Electrophoresis units have a warranty against manufacturing and material faults of twelve months from date of customer receipt.

If any defects occur during this warranty period, CSL will repair or replace the defective parts free of charge.

This warranty does not cover defects occurring by accident or misuse or defects caused by improper operation.

Units where repair or modification has been performed by anyone other than CSL or an appointed distributor or representative are no longer under warranty from the time the unit was modified.

Units which have accessories or repaired parts not supplied by CSL or its associated distributors have invalidated warranty.

CSL cannot repair or replace free of charge units where improper solutions or chemicals have been used. For a list of these please see the Care and Maintenance subsection.

If a problem does occur, then please contact your supplier or Cleaver Scientific Ltd:

Cleaver Scientific Ltd.

Unit 41, Somers Road Industrial Estate

Rugby, Warwickshire, CV22 7DH

Tel: +44 (0)1788 565300

Email: [info@cleaverscientific.com](mailto:info@cleaverscientific.com)

**DOMINIQUE DUTSCHER SAS**

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