

vertical electrophoresis systems

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Vertical Electrophoresis

Key features of Cleaver Scientific vertical systems include:

- Up to 4 size formats with options for resolution, capacity and processing speed.
- Tank and insert design that prevents current leakage for reproducible gel resolution and run times.
- Dedicated systems for 2-D electrophoresis in mini, mini wide and maxi formats, plus large-format systems for specialist techniques, such as DGGE, SSCP and band shift assays.
- Leak-free casting and a maximum 4-gel capacity.


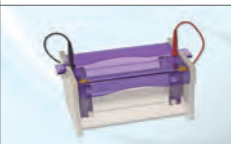


Vertical electrophoresis utilises potent protein and nucleic acid analytical tools for applications within all aspects of life science research, ranging from purity determination to analysis of complex protein lysates. Accordingly, Cleaver Scientific's remit is simple: to provide a comprehensive range of vertical electrophoresis systems – complete with tanks, inserts and reagents – to fulfil a variety of applications and techniques in different gel sizes and sample capacities.




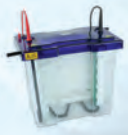
Overview of Vertical Gel Electrophoresis Systems

The omniPAGE mini, mini wide, maxi and new VS20 WAVE systems all comprise a modular tank design with dedicated inserts for PAGE, blotting and capillary gel isoelectric focusing (IEF).



Vertical Electrophoresis Selection Guide

	OmniPAGE Mini System	OmniPAGE Mini Wide System	OmniPAGE Maxi System	New VS20 WAVE Maxi System
				
Advantages	<p>Run 1-4 handcast gels, and up to 2 precast gels in mini format</p> <p>Sliding clamp assembly ensures fast set up times and leak-free operation</p> <p>Insert for both gel casting and running eliminating time-consuming transfer of fragile gels</p> <p>Small compact unit offering ultimate economy in buffer and reagent consumption</p> <p>Modular design for rapid turnaround of data, allowing PAGE, 2-D and blotting to be completed within a working day</p> <p>Ideal for discovery projects and evaluation of sample preparation conditions</p>	<p>Mini wide format effectively allows 2 mini gels to be compared within a single gel for gel-to-gel reproducibility</p> <p>Run 1-2 handcast gels; perfect for users with >20 samples to compare and resolve</p> <p>Screw assembly and moveable gel stops prevent gel leakage</p> <p>Combine pI (isoelectric point) separation with speed by resolving 2x 7cm IPG strips or 2x 8cm capillary tube gels per gel using special 2-D gel combs and plates</p> <p>Ability to perform three techniques in a day: IEF, PAGE and blotting</p>	<p>Large format system provides superior resolution compared to smaller formats, allowing more samples to be separated over a longer running distance</p> <p>Accommodates up to 2x 1-D gels with the capacity to blot 3 gels in the transfer module using the same outer tank and lid</p>	<p>Runs 1-4 large format gels at maximum resolution</p> <p>Fewer screws compared to traditional formats resulting in rapid set up times</p> <p>Innovative vertical screw-clamp technology exerts uniform pressure along the height of the glass plates, facilitating a leak-free seal, without gel compression and bowing, ensuring even sample migration</p> <p>Optional blotting insert supplied with additional tank and lid for a dedicated 4-gel blotting system; rapid transfer plate electrodes available</p> <p>Detachable cooling core for fast, smile-free electrophoresis</p> <p>Seamless injection moulded construction free of potential leakage-prone glue joints</p> <p>Capacity to run 1-4 18cm capillary tube gels or IPG strips in second dimension; optional 2-D module</p>

	OmniPAGE Mini System	OmniPAGE Mini Wide System	OmniPAGE Maxi System	New VS20 WAVE Maxi System
				
Compatible Gel Formats				
Precast	Commercial 10x10cm and 10x8cm (W x H) precast gels: e.g. IDGel™, SERVA, Thermo and Invitrogen, etc.			
Handcast	OmniPAGE VS10 glass plates with or without bonded spacers for handcast gels	VS10W plain and notched glass plates with or without bonded spacers for handcast gels	VS20 plain and notched glass plates with or without bonded spacers for handcast gels	
Electrophoresis Systems				
Standard Precast (<i>tank, lid and running insert only</i>) Tapecast (<i>includes glass plates</i>) Handcast (<i>with glass plates and caster</i>) (<i>with extra casting stand and plates to run 2 gels in tank, while casting 2 simultaneously</i>)	2-gel systems CVS10PRE (Pg 25) CVS10D (Pg 25) CVS10DSYS (Pg 25) CVS10DSYS-CU (Pg 25)	VS10WD (Pg 29) VS10WDSYS (Pg 29) VS10WDSYS-CU (Pg 29)	VS20D (Pg 30) VS20DSYS (Pg 30) VS20DSYS-CU (Pg 30)	WAVESYS (Pg 31) WAVESYS-CU (Pg 31)
Combination Package 2-gel vertical system and optional power supply combination				
Precast Handcast Handcast with blotting insert	CVS10PRE-CS300 (Pg 42) CVS10DSYS-CS300 (Pg 42) CVS10CBS-CS300 (Pg 42)	VS10WDSYS-CS300 (Pg 42) VS10WCBS-CS300 (Pg 42)		
Tetrad Packages 4-gel vertical system and optional power supply combination				
Handcast (<i>with blotting option</i>) (<i>with power supply</i>) (<i>with power supply and blotting option</i>) (<i>with high current power supply</i>) (<i>with high current power supply and blotting option</i>)	CVS10TETRAD1 (Pg 41) CVS10TETRAD1CBS (Pg 41) CVS10TETRAD1-CS300 (Pg 41) CVS10TETRAD1CBS-CS300 (Pg 41) CVS10TETRAD1-CS3AMP (Pg 41) CVS10TETRAD1CBS-CS3AMP (Pg 41)			WAVETETRAD1 (Pg 43) WAVETETRAD1CBS (Pg 43) WAVETETRAD1-CS500 (Pg 43) WAVETETRAD1CBS-CS500 (Pg 43) WAVETETRAD1-CS3AMP (Pg 44) WAVETETRAD1CBS-CS3AMP (Pg 44)
Active Gel Dimensions (W x H)	8 x 8.5cm	18 x 8cm	16 x 17.5cm	16 x 17.5cm
Available Gel Thicknesses	0.5, 0.75, 1, 1.5 & 2mm			
Compatible Electroblothing Transfer Systems Systems Integrated modular	OmniPAGE Mini CVS10CBS (PAGE & Blotting, Pg 50) and CVS10CES (PAGE, Blotting & 2-D, Pg 35)	OmniPAGE Mini Wide VS10WCBS (PAGE & Blotting, Pg 50) and VS10WCES (PAGE, Blotting & 2-D, Pg 35)	OmniPAGE Maxi VS20CBS (PAGE & Blotting, Pg 50) and VS20CES (PAGE, Blotting & 2-D, Pg 35)	WAVECBS (PAGE & Blotting, Pg 51)
Standalone Wet/tank transfer	SB10 and EBM10 4- and 5-blot transfer systems (Pg 52-53)	SB10W and EBM20 3- and 5-blot transfer systems (Pg 52-53)	SB20 and EBM20 3- and 5-blot transfer systems (Pg 52-53)	
Semi-dry	SD10 10x10cm and SD20 20x20cm for 1x and 4x blots (Pg 54)	SD20 20x20cm for 2x blots (Pg 54)	SD20 20x20cm, SD33 33x45cm, and SD50 20x50cm for 1-3 blots (Pg 54)	

omniPAGE *mini*

Cleaver Scientific Mini Vertical systems are predominantly used for protein electrophoresis. They include the OmniPAGE CVS10TETRAD systems equipped with enough combs and glass plates to run 4 gels, and the standard OmniPAGE CVS10 systems, which accommodate up to 2 handcast or commercial precast gels.

By combining both functionality and ease of use, the OmniPAGE CVS10TETRAD and standard OmniPAGE CVS10 systems set the bench mark for simple, versatile vertical mini gel electrophoresis. Each OmniPAGE electrophoresis system can accommodate up to 4 handcast gels and 2 commercial precast gels to provide complete flexibility for individual research needs, while unique sliding clamp technology within the PAGE insert facilitates fast, intuitive leak-free casting.

With a trouble-free set up and consistent performance, the OmniPAGE Mini Vertical systems are perfect for today's laboratories where the ability to generate reproducible results quickly is essential.

OmniPAGE mini vertical component parts

1. Lid
2. Tank
3. Combs
4. Plain glass plates with bonded spacers
5. PAGE insert
6. Caster
7. Gel release tool
8. Freezer pack
9. Notched glass plates



Use OmniPAGE mini vertical systems to:

- Run a maximum of 4 gels within an hour
- Perform 2-D and blotting within a day
- Undertake discovery projects
- Screen new samples and evaluate sample preparation conditions

Loading and Running Innovations

- Reversible combs also serving as loading indicators aid pipette-well alignment, preventing sample loading errors – simply insert your comb into a freshly poured gel which is allowed to set before inverting the comb to use a loading template that sits conveniently above the newly formed sample wells
- Run up to 4 gels in a single PAGE module using a combination of plain and notched glass plates with spacers in between corresponding to your chosen gel thickness

Dedicated modules for different applications

- Interchangeable modular inserts for slab gels, 2-D electrophoresis and electroblotting allow the user to switch quickly and easily from one electrophoresis technique to another, using the same, single universal buffer tank and lid. Our modular system configurations are as follows: -
- **OmniPAGE CVS10TETRAD** – supplied with casting base and external casting module for running up to 4 handcast or 2 precast native PAGE and SDS-PAGE gels (pg 41)
- **OmniPAGE CVS10TETRAD-CBS** – also includes blotting insert to transfer up to 4 gels for western blotting; tube gel 2-D insert available separately (pg 41)
- **OmniPAGE standard CVS10PRE** – supplied only with tank, lid and PAGE insert for running 10x10cm and 10x8cm (w x h) precast gels (pg 41)
- **OmniPAGE standard CVS10D and CVS10DSYS** – complete with combs, and bonded spacer and notched glass plates, to run up to 2 tapecast gels or 2 handcast gels using caster; and CVS10DSYS-CU, supplied as per CVS10DSYS with an external casting stand and an extra set of glass plates for 2 gels (pg 25-28)
- **OmniPAGE standard CVS10CBS** – complete blotting system with PAGE and blotting inserts; glass plates make 2 gels (pg 50)
- **OmniPAGE standard CVS102DS** – for 2-D electrophoresis using tube gel insert for first dimension capillary gel IEF and PAGE insert for second dimension (pg 37)
- **OmniPAGE standard CVS10CES** – complete system for 3 different applications, with modular inserts for slab gels, tube gels and blotting (pg 35)



CVS10DSYS

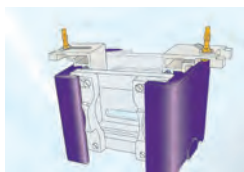


CVS10CBS

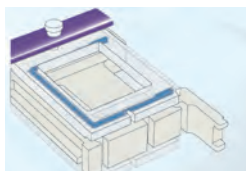


CVS10CES

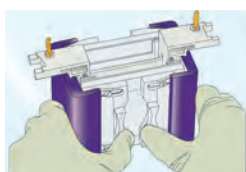
Casting Advantages



Page insert employed for both gel casting and running, which, unlike the leading brand, eliminates time-consuming transfer of potentially fragile glass plates between separate casting and running modules.



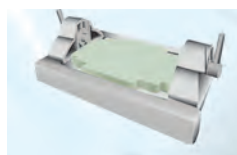
Flat, ultra-soft moulded gasket acts in tandem with a unique single piece pressure clamping frame to facilitate even pressure distribution to minimise gel compression; gasket reversible for Bio-Rad compatibility.



Unique sliding-clamp technology within PAGE insert allows rapid set up of handcast and precast gels; may be converted to single screw option if required.



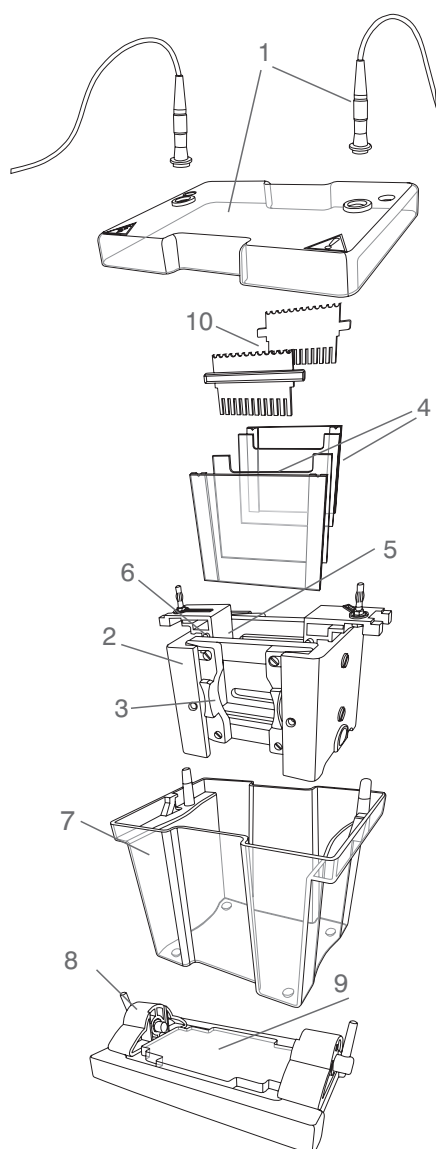
Gel release tool quickly releases glass plates from PAGE insert



Very forgiving ultra-soft gasket within caster compensates for plate misalignment to prevent leakage.



Spacers - colour coded with compatible comb thickness - are bonded to 2mm thick ground glass plates to guarantee correct alignment and leak free casting, whereas notched glass plates with bonded spacer option, included with the CVS10TETRAD, doubles gel capacity of the PAGE insert; optional dummy plate allows for single gels to be run.



omniPAGE mini component parts

- | |
|---------------------------|
| 1. Lid and power cables |
| 2. PAGE insert |
| 3. Sliding clamps |
| 4. Glass plates |
| 5. Inner buffer chamber |
| 6. Gasket |
| 7. Outer tank |
| 8. Cam-pin caster |
| 9. Ultra-soft casting mat |
| 10. Combs |

Cast and Run with Sliding Clamp Technology

The unique sliding clamp technology of the CVS10 PAGE insert ensures simple, rapid, leak-proof gel casting in 4 easy steps...



Insert glass plates into PAGE insert and slide clamps into side cheeks to create an effective seal to prevent current leakage during electrophoresis



Transfer PAGE insert to casting base, insert cams and turn until tightened

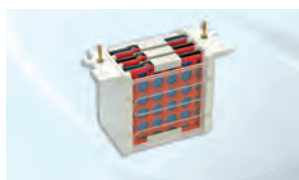


Pour in gel solution, insert comb and allow to polymerise



Transfer PAGE insert to tank, fill with buffer, load samples, replace lid and run

Specifications			
Number of gels	1-4	Total buffer Volume for 2 gels	Min: 250mL; Max: 1200mL
Precast gel compatibility (Up to 2 gels/run)	IDGel™, Novex®, SERVAGel™, Thermo Precise Pierce Protein Gel	Total buffer volume for 4 gels	Min: 250mL; Max: 1200mL
Handcast gels (Up to 4 gels/run)	Using VS10 glass plates	Standard run time for SDS-PAGE	1-2 hours at from 90-225V
Plate dimensions (w x h x t)	10x10x0.2cm	Recommended power supplies	NanoPAC-300 (Pg 59); CS-300V (Pg 60); CS-3AMP for blotting (Pg 61)
Gel Dimensions (w x h)	8x8.5cm	Unit Dimensions (w x d x h) Weight	19x13x15cm 1.8Kg



VS10BI



VS10BI-HI



VS10DCI

Optional Blotting Insert

The OmniPAGE Mini blotting insert uses the same tank and lid to adapt your OmniPAGE Standard or Tetrad system for fast, high-quality electroblotting of mini gels. Able to transfer 4 gels at a time, the OmniPAGE Mini blotting insert is available in either the traditional wire electrode format or with rapid high-intensity plate electrodes (see pg 53).

This insert is available as a standalone add-on (VS10BI or VS10BI-HI) to the OmiPAGE Mini vertical or as part of a fully integrated system for multiple electrophoresis techniques (CVS10CBS or CVS10CES).

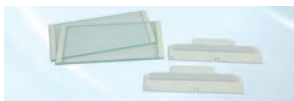
Optional 2-D Insert

The OmniPAGE Mini capillary tube gel insert may be used with the same tank and lid to adapt your OmniPAGE Mini Standard or Tetrad system for reproducible 2-D electrophoresis. IEF of up to 10 capillary tube gels may be achieved in as little as 3.5 hours, while second dimension PAGE takes no more than an hour. Available as a standalone add-on (VS10DC) or as part of a fully integrated electrophoresis system (CVS10C2DS and CVS10CES; see pages 37 & 35).

Ordering Information	
CVS10D	omniPAGE Mini, 10 x 10cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 12 sample, 1mm thick combs. CLAMP VERSION
CVS10DSYS	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
CVS10PRE	omniPAGE Mini, 10 x 10cm Dual. No accessories. CLAMP VERSION
CVS10DSYS-CU	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
CVS10EXCASTER	External Casting Upstand - No Casting Base
CVS10EXCASTERSYS	External Casting System - Upstand + Base
VS10DCAST	10 x 10cm Casting Base
VS10DCASTM	Replacement Silicone Mat for 10 x 10cm Casting Base
CVS10DIRM	Inner Running Module
VS10ICB	Mini Cooling Pack
VS10-X-LG	Loading Guides x = sample number
VS10NG	10 x 10cm Notched Glass Plates 2mm thick (pk/2)
VS10PG	10 x 10cm Plain Glass Plates 2mm thick (pk/2)
VS10NGS0.75	10 x 10cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS10PGS0.75	10 x 10cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS10NGS1	10 x 10cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
VS10PGS1	10 x 10cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
VS10NGS1.5	10 x 10cm Notched Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS10PGS1.5	10 x 10cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS10NGS2	10 x 10cm Notched Glass Plates with 2mm Bonded Spacers (pk/2)
VS10PGS2	10 x 10cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)
VS10DP	Dummy Plate, 10 x 10cm
VS10S0.75	10cm Spacers - 0.75mm (pk/2)
VS10S1	10cm Spacers - 1mm thick (pk/2)
VS10S1.5	10cm Spacers - 1.5mm thick (pk/2)
VS10S2	10cm Spacers - 2mm thick (pk/2)
RPW-0.2	Replacement Platinum Wire - 0.2mm, 50cm

Comb Specification					
Code	Description	Sample Volume per well	Code	Description	Sample Volume per well
VS10-1-0.75	Comb 1 Prep, 1 Marker, 0.75mm thick	500µl	VS10-1-1.5	Comb 1 Prep, 1 Marker, 1.5mm thick	1000µl
VS10-5-0.75	Comb 5 sample, 0.75mm thick	70µl	VS10-5-1.5	Comb 5 sample, 1.5mm thick	140µl
VS10-8MC-0.75	Comb 8 sample MC, 0.75mm thick	40µl	VS10-8MC-1.5	Comb 8 sample MC, 1.5mm thick	80µl
VS10-9-0.75	Comb 9 sample, 0.75mm thick	35µl	VS10-9-1.5	Comb 9 sample, 1.5mm thick	70µl
VS10-10-0.75	Comb 10 sample, 0.75mm thick	30µl	VS10-10-1.5	Comb 10 sample, 1.5mm thick	30µl
VS10-12-0.75	Comb 12 sample, 0.75mm thick	25µl	VS10-12-1.5	Comb 12 sample, 1.5mm thick	50µl
VS10-16MC-0.75	Comb 16 sample MC, 0.75mm thick	20µl	VS10-16MC-1.5	Comb 16 sample MC, 1.5mm thick	40µl
VS10-20-0.75	Comb 20 sample, 0.75mm thick	15µl	VS10-20-1.5	Comb 20 sample, 1.5mm thick	30µl
VS10-1-1	Comb 1 Prep, 1 Marker, 1mm thick	650µl	VS10-1-2	Comb 1 Prep, 1 Marker, 2mm thick	1300µl
VS10-5-1	Comb 5 sample, 1mm thick	100µl	VS10-5-2	Comb 5 sample, 2mm thick	200µl
VS10-8MC-1	Comb 8 sample MC, 1mm thick	60µl	VS10-8MC-2	Comb 8 sample MC, 2mm thick	120µl
VS10-9-1	Comb 9 sample, 1mm thick	50µl	VS10-9-2	Comb 9 sample, 2mm thick	100µl
VS10-10-1	Comb 10 sample, 1mm thick	40µl	VS10-10-2	Comb 10 sample, 2mm thick	80µl
VS10-12-1	Comb 12 sample, 1mm thick	35µl	VS10-12-2	Comb 12 sample, 2mm thick	70µl
VS10-16MC-1	Comb 16 sample MC, 1mm thick	25µl	VS10-16MC-2	Comb 16 sample MC, 2mm thick	50µl
VS10-20-1	Comb 20 sample, 1mm thick	20µl	VS10-20-2	Comb 20 sample, 2mm thick	40µl

Combs, spacers and accessories also available in 0.5mm MC = multichannel pipette compatible



Typical Applications

Mini SDS PAGE, Native PAGE, Gradient, Second dimension and Nucleic acid separations

- Offers the capacity of two mini gels on a single gel
- Rapid gel casting and loading
- Optional low or high buffer volumes
- Rapid set up cooling

omniPAGE *mini wide*

The omniPAGE mini wide vertical gel unit with an active gel width of 18cm effectively allows double the number of samples to be resolved as the omniPAGE mini unit. This allows consistency of sample comparison on a single gel and is designed for those with greater than 20 samples to compare and resolve.

Simple set up using ultra soft silicone seals guarantees trouble free glass plate loading and gel casting. Dual gaskets on the gel running insert along with notched and plain glass plates ensure leak proof gel running. Rapid set up cooling retains resolution in extended separations and also saves on buffer volume without affecting run quality.

4mm thick glass plates reduce breakage and have bonded spacers for added convenience. A wide range of accessories is available allowing many techniques to be performed using the same unit. Prep combs can be used to maximise sample loading and recovery. Accessory electroblotting and tube gel modules are available which use the same outer tank and lid.

Technical Specifications

Plate dimensions, Gel dimensions (w x L)	20 x 10cm 18 x 8cm
Unit dimensions (w x L x H)	26 x 16 x 16cm
Max. sample capacity	192 samples, 48 samples per gel
Buffer volume	Min 600ml; Max 2800ml
Combs available: No. of samples Thicknesses	1, 5, 10, 18MC, 24, 30, 36MC, 48 0.75, 1, 1.5, 2mm

Ordering Information

VS10WD	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	
VS10WDSYS	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	
VS10WDSYS-CU	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	
VS10WEXCASTER	<i>VS10W External Casting Upstand - No Casting Base</i>	VS10WPGS0.75 20 x 10cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS20CAST	20 x 10cm Casting Base	VS10WNGS1 20 x 10cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
VS20DCASTM	Replacement Silicone Mat for 20 x 10cm Casting Base	VS10WPGS1 20 x 10cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
VS10WDIRM	Inner Running Module	VS10WPGS1.5 20 x 10cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS20-x -LG	Loading guides for omniPAGE mini combs, x = comb well number	VS10WPGS2 20 x 10cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)
VS10WNG	20 x 10cm Notched Glass Plates 4mm thick (pk/2)	VS10WDP Dummy Plate, 20 x 10cm
VS10WPG	20 x 10cm Plain Glass Plates 4mm thick (pk/2)	RPW-0.2 Replacement Platinum Wire - 0.2mm, 50cm
VS10WNGS0.75	20 x 10cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)	VS20ICB Maxi Cooling Pack VS10WEXCASTER
VS10W-IEFKIT	IEF Conversion kit for 2 x 7cm IPG strips or 2 x 8cm Gels	

For compatible VS20 combs, please see page 30.

IPG Converter kit

Includes special 2-D comb for 2x 7cm IPG strips or 2x 8cm tube gels (1 marker well followed by preparative well for one strip/gel, and then another marker well followed by a preparative well for a second strip/gel) and plates with 10-mm-wide bonded spacers to increase gel width to 18cm.

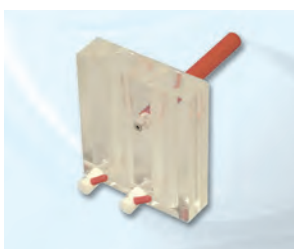


- Integral levelling feet and level bubble
- Standard and gradient gels can be poured
- Choice of 6, 12 or 24 gel casting models

multiple minigel casting

Advance casting of multiple mini gels can help to achieve consistent results between runs. These multiple gel casting systems are tailored for use with omniPAGE mini vertical electrophoresis units; with three models of 6, 12 and 24 gel capacities. Fewer gels can be poured if required using the acrylic saver blocks supplied with each system.

The fixed hinged clamps allows the gel sandwich to be adjusted to the correct pressure irrespective of the number or the thickness of gels being poured. Separation sheets allow the easy separation of the glass plates after pouring.

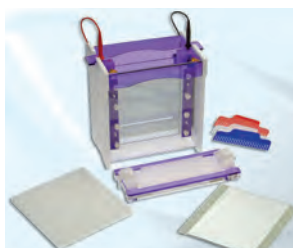
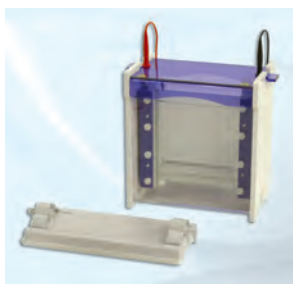


gradient mixers

Ideal for Caesium, Sucrose and Gel gradients these Gradient Mixers comprise two chambers – a reservoir and a mixing chamber with an interconnecting valve. A second valve regulates the output flow from the mixing chamber. All mixers have a flat base which allows them to be placed on a magnetic stirrer. A magnetic stirring bar can be placed directly in the mixing chamber to ensure a constant gradient. The support rod allows the mixer to be fixed to a retort stand for extra stability.

Ordering Information

CSL-6CAST	6 gel caster for 8 x 10cm or 10 x 10cm gels	CSL-GM15	15ml Gradient Mixer	CSL-GM100	100ml Gradient Mixer
CSL-12CAST	12 gel caster for 8 x 10cm or 10 x 10cm gels	CSL-GM25	25ml Gradient Mixer	CSL-GM500	500ml Gradient Mixer
CSL-24CAST	24 gel caster for 8 x 10cm or 10 x 10cm gels	CSL-GM50	50ml Gradient Mixer		



omniPAGE maxi

The preferred unit for maxi protein electrophoresis, the omniPAGE maxi unit combines convenient ease of use features with high resolution separations. Simple set up using ultra soft silicone seals guarantees trouble free glass plate loading and gel casting.

Dual gaskets on the gel running insert, along with notched and plain glass plates, ensure leak proof gel running. Rapid set up cooling retains resolution in extended separations and also saves on buffer volume without affecting run quality.

Glass plates reduce breakage and have bonded spacers for added convenience. A wide range of accessories is available allowing many techniques to be performed using the same unit. Prep combs can be used to maximize sample loading and recovery. Accessory electroblotting and tube gel modules are available which use the same outer tank and lid.

Typical Applications

Maxi SDS PAGE, Native PAGE, Gradient, Second dimension and Nucleic acid separations

- Ideal for high resolution separations
- Rapid gel casting and loading
- Optional low or high buffer volumes
- Rapid set up cooling

Technical Specifications

Plate dimensions, Gel dimensions (w x L)	20 x 20cm 16 x 17.5cm
Unit dimensions (w x D x H)	26 x 16 x 28cm
Max. sample CAPACITY	192 samples, 48 samples per gel
Buffer volume	Min 1200ml; Max 5600ml
Combs available: No. of samples Thicknesses	1, 5, 10, 18MC, 24, 30, 36MC, 48 0.75, 1, 1.5, 2mm

Ordering Information

VS20D	omniPAGE Maxi, 20 x 20cm Dual with Glass Plates with bonded 1mm thick spacers, 2x 24 sample combs, cooling pack, dummy plate		
VS20DSYS	omniPAGE Maxi, 20 x 20cm Dual with Glass Plates with bonded 1mm thick spacers, 2x 24 sample combs, cooling pack, dummy plate and Casting Base		
VS20DSYS-CU	omniPAGE Maxi, 20 x 20cm Dual, 2 sets of Glass Plates, 1mm thick bonded Spacers, 2 x 24 sample, 1mm thick combs including caster, External casting upstand		
VS20WEXCASTER	VS20WEXCASTER	VS20NGS1	20 x 20cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
VS20DCAST	VS20DCAST	VS20PGS1	20 x 20cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
VS20DCASTM	VS20DCASTM	VS20PGS1.5	20 x 20cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS20DIRM	VS20DIRM	VS20PGS2	20 x 20cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)
VS20ICB	VS20ICB	VS20DP	Dummy Plate, 20 x 20cm
VS20-x -LG	VS20-x -LG	VS20S0.75	20cm Spacers - 0.75mm (pk/2)
VS20NG	VS20NG	VS20S1	20cm Spacers - 1mm thick (pk/2)
VS20PG	VS20PG	VS20S1.5	20cm Spacers - 1.5mm thick (pk/2)
VS20NGS0.75	VS20NGS0.75	VS20S2	20cm Spacers - 2mm thick (pk/2)
VS20PGS0.75	VS20PGS0.75	RPW-0.2100	Replacement Platinum Wire - 0.2mm, 100cm

Code	Description	Sample Volume per well	Code	Description	Sample Volume per well
VS20-1-0.75	Comb 1 Prep, 1 Marker, 0.75mm thick	1100µl	VS20-1-1.5	Comb 1 Prep, 1 Marker, 1.5mm thick	2200µl
VS20-5-0.75	Comb 5 sample, 0.75mm thick	160µl	VS20-5-1.5	Comb 5 sample, 1.5mm thick	320µl
VS20-10-0.75	Comb 10 sample, 0.75mm thick	80µl	VS20-10-1.5	Comb 10 sample, 1.5mm thick	160µl
VS20-18MC-0.75	Comb 18 sample MC, 0.75mm thick	40µl	VS20-18MC-1.5	Comb 18 sample MC, 1.5mm thick	80µl
VS20-24-0.75	Comb 24 sample, 0.75mm thick	30µl	VS20-24-1.5	Comb 24 sample, 1.5mm thick	60µl
VS20-30-0.75	Comb 30 sample, 0.75mm thick	25µl	VS20-30-1.5	Comb 30 sample, 1.5mm thick	50µl
VS20-36MC-0.75	Comb 36 sample MC, 0.75mm thick	20µl	VS20-36MC-1.5	Comb 36 sample MC, 1.5mm thick	40µl
VS20-48-0.75	Comb 48 sample, 0.75mm thick	15µl	VS20-48-1.5	Comb 48 sample, 1.5mm thick	30µl
VS20-1-1	Comb 1 Prep, 1 Marker, 1mm thick	1500µl	VS20-1-2	Comb 1 Prep, 1 Marker, 2mm thick	3000µl
VS20-5-1	Comb 5 sample, 1mm thick	200µl	VS20-5-2	Comb 5 sample, 2mm thick	400µl
VS20-10-1	Comb 10 sample, 1mm thick	100µl	VS20-10-2	Comb 10 sample, 2mm thick	200µl
VS20-18MC-1	Comb 18 sample MC, 1mm thick	50µl	VS20-18MC-2	Comb 18 sample MC, 2mm thick	100µl
VS20-24-1	Comb 24 sample, 1mm thick	40µl	VS20-24-2	Comb 24 sample, 2mm thick	80µl
VS20-30-1	Comb 30 sample, 1mm thick	35µl	VS20-30-2	Comb 30 sample, 2mm thick	70µl
VS20-36MC-1	Comb 36 sample MC, 1mm thick	25µl	VS20-36MC-2	Comb 36 sample MC, 2mm thick	50µl
VS20-48-1	Comb 48 sample, 1mm thick	20µl	VS20-48-2	Comb 48 sample, 2mm thick	40µl

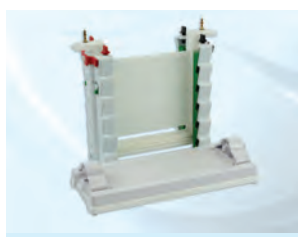
Combs, spacers and accessories also available in 0.5mm MC = multichannel pipette compatible

The New VS20 'WAVE' Maxi Vertical Electrophoresis System

The new VS20 'WAVE' Maxi System is Cleaver Scientific's latest product innovation for large-format vertical gel electrophoresis. Designed to perform a variety of separations, including first- and second-dimension SDS-PAGE, native, preparative, gradient and high-resolution nucleic acid electrophoresis, plus capillary tube gel IEF and electroblotting, the VS20 WAVE is one of the most versatile maxi vertical systems available.

By introducing innovative, new vertical screw-clamp technology within the PAGE insert only four screws are now necessary to secure as many 20x20cm gels. This gives the VS20 WAVE Maxi the selective advantage of a much faster set up speed compared to competitor products whose traditional clamping configurations require as many as 24 screws to secure just two glass plates. In addition, the WAVE's vertical screw-clamp configuration distributes pressure evenly along the height of the gel rather than in the centre to eliminate plate bowing and gel compression, but still maintains a leak-proof seal during casting; while the ergonomic wave-like design of the PAGE insert aids both handling and set up.

Whatever your requirements are the WAVE can be made to meet them. Regardless of whether it is running 2 or 4 gels, electroblotting, and IEF using capillary tube gels or IPG strips, all of these techniques may be performed using the same omni-purpose unit while retaining the benefits of large format electrophoresis, such as extended separation distances, greater sample throughput and superior resolution.



Versatility and Adaptability

- **More Gels** – run 2-4 gels simultaneously in standard 2-gel WAVE and 4-gel WAVE TETRAD systems (pages 43-44)
- **Customise your system** – for second-dimension runs with 18cm IPG strips and gels using the IEF conversion kit
- **Utilise modular inserts** – with the same universal tank and lid to extend the application of your standard WAVE unit to create a complete 2-D or blotting system:
 - WAVEC2DS with capillary tube gel insert for 2-D electrophoresis (pg 38);
 - WAVECBS and WAVETETRAD-CBS for 2- and 4-gel electroblotting (pg 43)

Reproducible Separations

- Vertical screw-clamps distribute pressure evenly along the height of the gel to prevent plate bowing and gel compression
- Glass plates compress gently against a flat, level gasket to prevent current leakage from the inner buffer chamber during electrophoresis
- Detachable inner cooling coil connects to the laboratory water supply or a recirculating chiller to provide uniform, smile-free electrophoresis, while allowing runs to be performed at higher voltage
- Deep gel tank with adequate clearance beneath the glass plates to allow a magnetic stirrer to maintain buffer recirculation and uniform pH

Faster Set Up

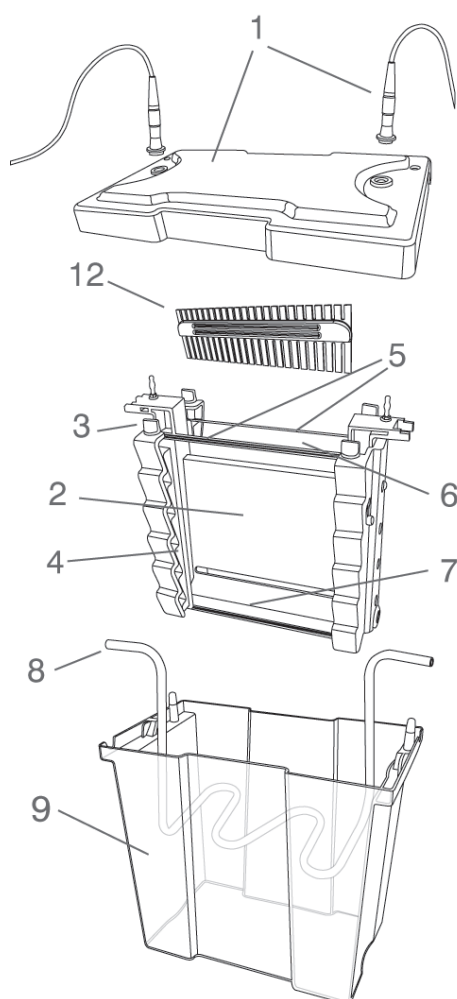
- **Fewer Screws** – novel vertical screw-clamp technology reduces the number of screws required for set up compared to traditional large-format systems, dramatically reducing assembly time
- **No Top Tank Assembly** – A built-in inner buffer chamber within the PAGE insert allows set up to be completed without inclusion of a top tank or upper buffer chamber

Casting Advantages

- Dual purpose PAGE insert eliminates time-consuming transfer of glass plates between separate casting and running modules
- Ground glass plates with bonded injection moulded spacers consistent with comb thickness ensure 'clean' well formation, as well as the correct alignment for leak-free casting; also eliminate the need for easily mislaid and awkward to use spacer aligners
- Very forgiving, ultra-soft silicone mat within cam-caster compensates for glass plate misalignment to ensure leak-free casting

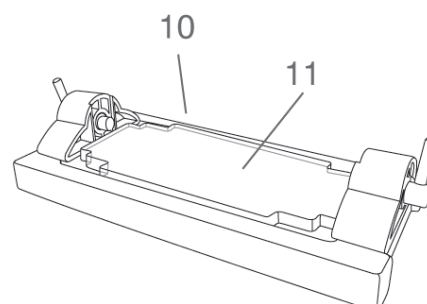
Other Benefits

- Notched glass plates with bonded spacers supplied with WAVETETRAD systems allow gel capacity to be doubled from 2 to 4, while dummy plate allows single gels to be run
- Bonded spacers and combs colour coded for thickness
- Widest selection of combs allow separation of up to 192 samples
- Robust 4-mm-thick glass plates
- Asymmetric lid design and colour-coded screw pins in PAGE insert prevent polarity reversal
- All parts injection moulded using durable industrial-grade plastic to guarantee longevity and reliable and consistent performance



WAVE Maxi vertical component parts

1. Lid and power cables
2. PAGE insert
3. Vertical screw-pin
4. Clamping bars
5. Glass plates
6. Inner buffer chamber
7. Gasket
8. Detachable cooling coil
9. Outer tank
10. Cam-pin caster
11. Ultra-soft casting mat
12. Combs



Leak-free Casting with Vertical Screw-Pin Technology

The vertical screw-clamp technology of the VS20 WAVE PAGE insert facilitates fast, leak-proof gel casting.



1 Assemble each gel cassette on a flat level surface, by placing the plain glass plate down with the spacers facing upwards followed by the resting glass plate.



2 Loosen the vertical screw-pins in the PAGE insert to release the locking mechanism, allowing the gel clamps to sit in the resting slots.



3 Insert a gel cassette into each side of the inner buffer chamber in the PAGE insert, and begin tightening the vertical screw-pins.



4 Continue to tighten the screw-pins until the gel clamps glide out of the resting slots and fix firmly against the glass plates pushing them upright.



5 Check the bottom of the glass plates to ensure that they are flush together, and place the PAGE insert on the casting base; make sure that the cams are facing downwards.



6 Insert cam pins and turn until tightened, drawing the PAGE insert onto the casting to form a leak-proof seal.



7 Pour in the gel solution, insert the combs and allow the wells to polymerise.



8 Transfer the PAGE insert to gel the tank. Fill the inner and outer buffer chambers before loading samples.



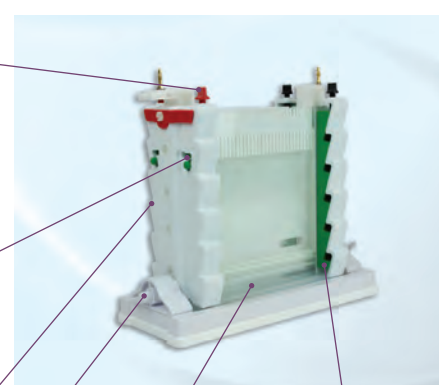
9 Replace the lid, connect to the power supply and run.

Vertical screw-pins, colour-coded to prevent polarity reversal, push gel clamps out of the resting slots to secure glass plates firmly within the PAGE insert

Resting slots allow the gel clamps to sit conveniently out of the way, to aid hindrance-free loading of the cassettes into the PAGE insert

Ergonomic 'wave' design of PAGE insert provides convenient finger grips for easy handling

Cam pins lock PAGE insert onto the ultra-soft silicone mat within the casting base to provide leak-free seal



Flat, level gasket prevents current leakage from inner buffer chamber

Sliding gel clamps available in two thicknesses to accommodate single- and double-gel cassettes

Specifications			
Number of gels	1-4	Total Volume Inner Buffer Chamber	640mL
Handcast gels	Using VS20 glass plates and combs	Total buffer Volume for 2 gels	5.3L
		Total buffer volume for 4 gels	4.8L
Plate dimensions (w x h x t)	20x20x0.4cm	Standard run time for SDS-PAGE <i>Without Cooling</i>	4-5 hours
		<i>With Cooling</i>	3-4 hours
Standard Spacer Dimensions (w x h)	2x20cm	Recommended power supplies	EV233 for IEF (page 62); CS-500V for PAGE (pg 61); CS-3AMP for blotting (pg 61)
IPG Spacer Dimensions (w x h)	0.6x20cm	Unit Dimensions (w x d x h)	30x18x27cm
		Weight	2.5Kg

Ordering Information	
VS20WAVESYS	VS20 WAVE Maxi, 20 x 20cm Dual with Glass Plates with bonded 1mm thick spacers, 2x 24 sample combs, cooling coil, dummy plate and Casting Base
VS20WAVESYS-CU	VS20 WAVE 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
VS20WAVE-EC	VS20 WAVE External Casting Stand - No Casting Base
VS20WAVECAST	20 x 20cm Dual Casting Base
VS20DCASTM	Replacement Silicone Mat for 20 x 20cm Casting Base
VS20WAVEDIRM	PAGE insert
VS20WAVE-CC	Detachable Cooling Coil
VS20-x -LG	Loading guides for omniPAGE maxi combs, x = comb well number
VS20NG	20 x 20cm Notched Glass Plates 4mm thick (pk/2)
VS20PG	20 x 20cm Plain Glass Plates 4mm thick (pk/2)
VS20NGS0.75	20 x 20cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS20PGS0.75	20 x 20cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS20NGS1	20 x 20cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
VS20PGS1	20 x 20cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
VS20PGS1.5	20 x 20cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS20PGS2	20 x 20cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)
VS20DP	Dummy Plate, 20 x 20cm
VS20S0.75	20cm Spacers - 0.75mm (pk/2)
VS20S1	20cm Spacers - 1mm thick (pk/2)
VS20S1.5	20cm Spacers - 1.5mm thick (pk/2)
VS20S2	20cm Spacers - 2mm thick (pk/2)
VS20WAVE-IEFKIT	IEF Conversion for 18cm IPG strips and tube gels, includes: 1 set of plain glass plates with bonded spacers, 0.6x20cm (WxH); and 2x 2-D combs with one 3.5mm marker lane and one 18cm preparatory well
RPW-0.2100	Replacement Platinum Wire - 0.2mm, 100cm

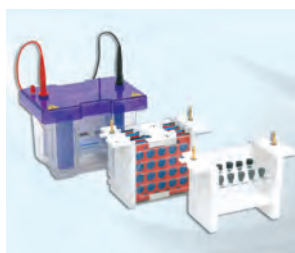
MC = multichannel pipette compatible

Comb Specification					
Code	Description	Sample Volume per well	Code	Description	Sample Volume per well
VS20-1-0.75	Comb 1 Prep, 1 Marker, 0.75mm thick	1100µl	VS20-1-1.5	Comb 1 Prep, 1 Marker, 1.5mm thick	2200µl
VS20-5-0.75	Comb 5 sample, 0.75mm thick	160µl	VS20-5-1.5	Comb 5 sample, 1.5mm thick	320µl
VS20-10-0.75	Comb 10 sample, 0.75mm thick	80µl	VS20-10-1.5	Comb 10 sample, 1.5mm thick	160µl
VS20-18MC-0.75	Comb 18 sample MC, 0.75mm thick	40µl	VS20-18MC-1.5	Comb 18 sample MC, 1.5mm thick	80µl
VS20-24-0.75	Comb 24 sample, 0.75mm thick	30µl	VS20-24-1.5	Comb 24 sample, 1.5mm thick	60µl
VS20-30-0.75	Comb 30 sample, 0.75mm thick	25µl	VS20-30-1.5	Comb 30 sample, 1.5mm thick	50µl
VS20-36MC-0.75	Comb 36 sample MC, 0.75mm thick	20µl	VS20-36MC-1.5	Comb 36 sample MC, 1.5mm thick	40µl
VS20-48-0.75	Comb 48 sample, 0.75mm thick	15µl	VS20-48-1.5	Comb 48 sample, 1.5mm thick	30µl
VS20-1-1	Comb 1 Prep, 1 Marker, 1mm thick	1500µl	VS20-1-2	Comb 1 Prep, 1 Marker, 2mm thick	3000µl
VS20-5-1	Comb 5 sample, 1mm thick	200µl	VS20-5-2	Comb 5 sample, 2mm thick	400µl
VS20-10-1	Comb 10 sample, 1mm thick	100µl	VS20-10-2	Comb 10 sample, 2mm thick	200µl
VS20-18MC-1	Comb 18 sample MC, 1mm thick	50µl	VS20-18MC-2	Comb 18 sample MC, 2mm thick	100µl
VS20-24-1	Comb 24 sample, 1mm thick	40µl	VS20-24-2	Comb 24 sample, 2mm thick	80µl
VS20-30-1	Comb 30 sample, 1mm thick	35µl	VS20-30-2	Comb 30 sample, 2mm thick	70µl
VS20-36MC-1	Comb 36 sample MC, 1mm thick	25µl	VS20-36MC-2	Comb 36 sample MC, 2mm thick	50µl
VS20-48-1	Comb 48 sample, 1mm thick	20µl	VS20-48-2	Comb 48 sample, 2mm thick	40µl

Combs, spacers and accessories also available in 0.5mm MC = multichannel pipette compatible



CVS10CES



VS20CES

- Economy of bench space and cost
- Enhanced reproducibility
- Simple to use casting
- Rapid set up cooling

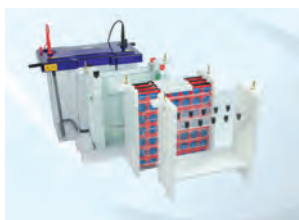
modular systems

Mini, Mini Wide and Maxi Complete Modular Systems

The omniPAGE range of Modular Vertical Gel Systems allow multiple electrophoresis techniques to be performed in the same unit. These systems include all modules and accessories required for Slab Gel Electrophoresis, 2-D Electrophoresis and Electroblotting. The central component is the omniPAGE Mini Vertical unit, Mini Wide Vertical Unit or omniPAGE Maxi Vertical unit. These include a rapid and intuitive casting system, enhanced and easy to set up cooling system and have increased capacity – can run up to four gels per run. In addition, the omniPAGE Tube gel module is capable of resolving up to 10 first dimension gels and the Electroblotting module has a four blot capacity for the Mini system, and a three blot capacity for the Mini Wide and Maxi. The package includes all the necessary accessories for Slab Gel, First Dimension and Electroblotting. Each of these techniques benefits from rapid set up cooling packs which provide enhanced resolution even during high intensity 2-D electrophoresis and Electroblotting.

Technical Specifications	
Unit dimensions (w x d x h)	Mini 19 x 13 x 15cm Mini Wide 26 x 16 x 16cm Maxi 26 x 16 x 28cm
Max. sample, Mini Capacity	Slab 80 samples, 20 samples /gel Tube - 10 tubes; Blot - 4 blots
Max. sample, Mini Wide Capacity	Slab 192 samples, 48 samples /gel Tube - 10 tubes; Blot - 3 blots
Max. sample, Maxi Capacity	Slab 192 samples, 48 samples /gel Tube - 10 tubes; Blot - 3 blots
Buffer volume	Mini: Min 250ml; Max 1200ml Mini Wide: Min 600ml; Max 2800ml Maxi: Min 1200ml; Max 5600ml

Ordering Information	
CVS10CES	Complete system for Mini Vertical Electrophoresis comprising:
	1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick notched glass plates, 2x2mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples), 1x casting base, silicone mat, cooling pack.
	plus: 1x Capillary Electrophoresis Module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers
	plus: 1x Electroblotting Module comprising: internal electroblotting module, 4x compression cassettes for gel sizes up to 10x10cm and 16x fibre pads.
VS10WGES	Complete Mini Wide (20x10cm) Vertical Electrophoresis Modular System, comprising:
	1x omniPAGE Mini Wide Vertical Unit which includes: 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick, 24 samples), 1x casting base, silicone mat, cooling pack.
	plus: 1x Capillary Electrophoresis Module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers
	plus: 1x Electroblotting Module comprising: internal electroblotting module, 3x compression cassettes for gel sizes up to 20x10cm and 12x fibre pads.
VS20CES	Complete system for Maxi Vertical Electrophoresis comprising:
	1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling pack.
	plus: 1x Capillary Electrophoresis Module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers.
	plus: 1x Electroblotting Module comprising: internal electroblotting module, 3x compression cassettes for gel sizes up to 20x20cm and 12x fibre pads.



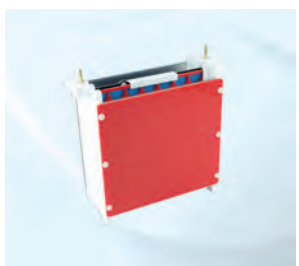
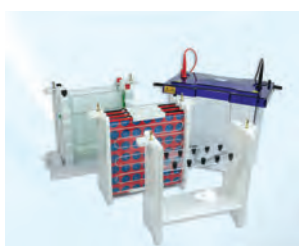
the VS20 WAVE complete electrophoresis system

The VS20 WAVE complete electrophoresis system provides a fully integrated solution using one universal gel tank and lid for vertical PAGE, tube gel IEF and electroblotting.

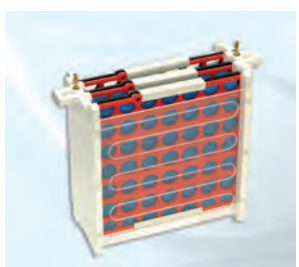
- Interchangeable modular inserts allow users to combine vertical PAGE with capillary gel IEF to perform 2-D electrophoresis, followed by western transfer for enhanced sensitivity
- Scale-up your discovery projects using a large format, high-resolution system
- Cooling supplied for temperature-sensitive separations and samples
- High-intensity blotting system available for rapid transfers

Technical Specifications	
IEF tube gel capacity	1-10
PAGE gel capacity	2 as standard; up to 4 maximum
Blotting Capacity	1-4
Buffer Volume 2-D Insert	640mL
Outer Tank Buffer Volume	5.3L
Tube Gel Dimensions	18x0.1cm (length x diameter)
Plate Dimensions (w x h x t)	20x20x0.4cm
2-D Gel Dimensions (w x h)	18.8x17.5cm
Blotting cassettes dimensions	20x20cm
Recommended power supply	EV215 (pg 62)

Ordering Information	
VS20WAVECES	Complete WAVE Maxi System for 2-D electrophoresis and blotting, comprising: 1x WAVE Maxi Vertical Unit which includes: PAGE insert, 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling coil; plus: 1x WAVE Standard Electroblotting Module which includes: WAVE Maxi Platinum Wire Blotting Insert, 4x compression cassettes and 18x fibre pads; and: 1x WAVEDCI Capillary Electrophoresis Module which includes: WAVE Maxi Tube Gel Insert, 100x capillary tubes, 10x blanking ports; and 1x WAVE IEF-KIT: 1 set of plain glass plates with bonded spacers, 0.6x20cm (w x h); and 2x 2-D combs with one 3.5mm marker lane and one 18cm preparatory well.
VS20WAVECES-HI	Complete WAVE Maxi System 2-D electrophoresis and high intensity blotting, comprising: 1x WAVE Maxi Vertical Unit which includes: PAGE insert, 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling coil; plus: 1x WAVE High Intensity Electroblotting Module which includes: WAVE Maxi Plate Electrode Blotting Insert, 1x compression cassette and 6x fibre pads; and: 1x WAVEDCI Capillary Electrophoresis Module which includes: WAVE Maxi Tube Gel Insert, 100x capillary tubes, 10x blanking ports; and 1x WAVE IEF-KIT: 1 set of plain glass plates with bonded spacers, 0.6x20cm (w x h); and 2x 2-D combs with one 3.5mm marker lane and one 18cm preparatory well.
VS20WAVEBI	WAVE Maxi Platinum Wire Blotting Insert, 4x compression cassettes and 18x fibre pads
VS20WAVEBI-HI	WAVE Maxi Plate Electrode Blotting Insert, 1x compression cassettes and 6x fibre pads



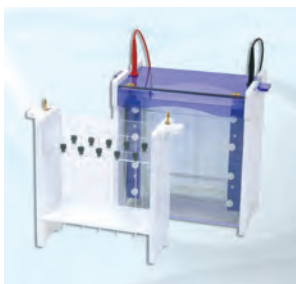
VS20WAVEBI-HI



VS20WAVEBI



- Rapid set-up electrofocusing
- 10 tube capacity
- Extended accessory range
- Enhanced cooling features

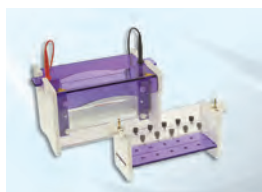


modules included in omniPAGE Maxi 2-D System, VS20C2DS

omniPAGE 2D systems

Mini, Mini Wide and Maxi Complete 2-D Systems

The omniPAGE 2-D Systems include both modules required for Slab Gel and First Dimension Electrophoresis and accessories, to provide a complete Mini, Mini Wide or Maxi 2-D system. The Tube Gel Module includes a rapid release gasket for easy tube extraction. Focusing can be accomplished in as little as three hours in the Mini Unit. Disposable capillary tubes are included for added convenience, plus 2-D combs and spacers which are colour coded according to thickness for easy identification.



modules included in omniPAGE Mini Wide 2-D System, VS10WC2DS



modules included in omniPAGE Mini 2-D System, CVS10C2DS

Ordering Information

Code	Complete System comprising:
CVS10C2DS	Complete Mini 2-D System comprising:
	1x omniPAGE Mini Vertical Unit which includes: 2x2mm thick notched glass plates, 2x2mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 12 samples), 1x casting base, silicone mat, cooling pack.. plus: 1x Capillary electrophoresis module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers.
VS10WC2DS	Complete Mini Wide 2-D System comprising:
	1x omniPAGE Mini Wide Vertical Unit which includes: 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling pack. plus: 1x Capillary electrophoresis module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers.
VS20C2DS	Complete Maxi 2-D System comprising:
	1x omniPAGE Maxi Vertical Unit which includes: 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling pack. plus: 1x Capillary Electrophoresis Module which includes: internal running module for tube gels, capillary tubes, blanking plugs, 2-D combs and spacers



VS20DC



VS20DCI

Tube Gel Units, inserts and accessories

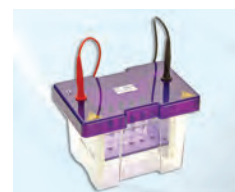
These stand-alone, complete units for first dimension capillary/tube gel electrophoresis, Mini 10x10cm, Mini Wide 20x10cm and Maxi 20x20cm formats, include omniPAGE tank and lid, tube gel insert, tubes and blanking ports. Units are interchangeable with omniPAGE slab gel and electroblotting inserts.



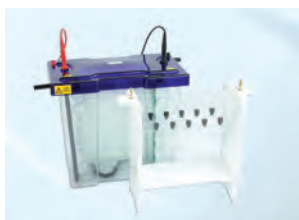
VS10WDCI



VS10DCI



Ordering Information			
VS10DC	omniPAGE Mini Tube Gel Unit, 10x10cm with tank and lid, glass capillary tubes, blanking ports & cooling pack.		
VS10DCI	omniPAGE Mini Tube Gel Insert - includes glass tubes and blanking ports.		
VS10WDC	omniPAGE Mini Tube Wide Gel Unit, 20x10cm with tank and lid, glass capillary tubes, blanking ports & cooling pack		
VS10WDCI	omniPAGE Mini Tube Wide Gel Insert - includes glass tubes and blanking ports.		
MCT10	Mini Capillary Tubes, pk/100	MCT101.5	Mini Capillary Tubes, 1.5mm, pk/100
VS20DC	omniPAGE Maxi Tube Gel Unit, 20x20cm with tank and lid, glass capillary tubes, blanking ports & cooling pack		
VS20DCI	omniPAGE Maxi Tube Gel Insert - includes glass tubes and blanking ports.		
MCT20	Maxi Capillary Tubes, pk/100	MCT201.5	Maxi Capillary Tubes, 1.5mm, pk/100
MCBP	Mini and Maxi Capillary Blanking ports		

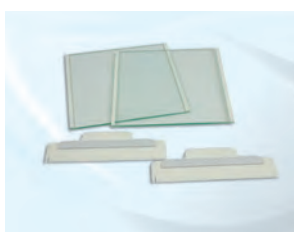


the VS20 WAVE 2-D tube gel system

The VS20 WAVE 2-D tube gel system provides all necessary components for 2-D electrophoresis using capillary ampholyte tube gels.



VS20WAVEDCI



VS20WAVE-IEFKIT

- Interchangeable modular inserts run capillary tube gels for first-dimension IEF and vertical slab gels for second-dimension SDS-PAGE using the same universal tank and lid
- Detachable cooling coil, which connects to the laboratory water supply or a recirculating chiller, enables application of high voltages to achieve precise, high-resolution focusing for pI determination
- Focus up to 10 first-dimension IEF tube gels within a single run using the dedicated 2-D insert, or use included blanking ports to run fewer gels if preferred
- Run up to four 20x20cm second-dimension slab gels using specially adapted notched glass plates with bonded 2-D spacers to accommodate 18cm tube gels
- System may also be used for 18cm IPG strips resolved in the first-dimension on the CSL-IEF flat-bed IEF system (pg 39)
- Two 24-sample 1mm combs included for routine SDS-PAGE techniques

Technical Specifications	
IEF tube gel capacity	1-10
Number of second-dimension PAGE gels	2 as standard; up to 4 maximum
Tube Gel Dimensions	18x0.1cm (length x diameter)
Plate Dimensions (w x h x t)	20x20x0.4cm
2-D Gel Dimensions (w x h)	18.8x17.5cm
Running conditions for IEF with cooling	Up to 20 hours; 800V maximum
Recommended power supply for IEF	EV215 (pg 62)

Ordering Information	
VS20WAVEC2DS	Complete WAVE Maxi 2-D System comprising: 1x WAVE Maxi Vertical Unit which includes: PAGE insert, 2x4mm thick notched glass plates, 2x4mm thick plain glass plates with 1mm thick bonded spacers, 1x dummy plate, 2x combs (1mm thick 24 samples), 1x casting base, silicone mat, cooling pack; plus: 1x WAVEDCI Capillary Electrophoresis Module which includes: WAVE Maxi Tube Gel Insert, 100x capillary tubes, 10x blanking ports; and 1x WAVE IEF-KIT: 1 set of plain glass plates with bonded spacers, 0.6x20cm (w x h); and 2x 2-D combs with one 3.5mm marker lane and one 18cm preparatory well
VS20WAVEDCI	WAVE Maxi Tube Gel insert – includes glass tubes and blanking ports, plus WAVEIEF-KIT
VS20WAVE-IEFKIT	IEF Conversion Kit for 18cm IPG strips and tube gels, includes: 1 set of plain glass plates with bonded spacers, 0.6x20cm (w x h); and 2x 2-D combs with one 3.5mm marker lane and one 18cm preparatory well



- For IPG strips and IEF gels
- Large cooling platform area
- 'Pick-and-Place' adjustable electrodes
- Focusing tray for a maximum twelve IPG strips
- Rehydration tray also included



isoelectric focusing

Now equipped with rehydration and focusing trays, the redesigned CSL-IEF has been optimised to perform first-dimension isoelectric focusing (IEF) with IPG (immobilised pH gradient) strips quickly, easily and reproducibly.

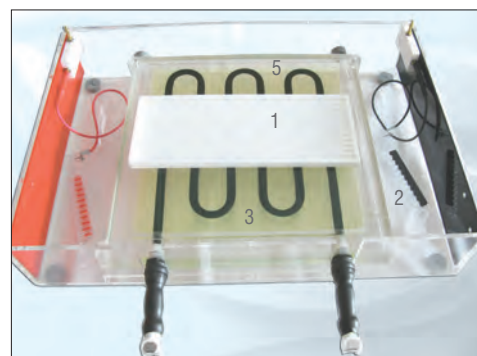
An ideal entry-level system for both inexperienced and occasional IEF users, the CSL-IEF is also versatile enough to meet the needs of laboratories with increased throughput requirements.

Features include:

- A high-capacity focusing tray that accommodates up to twelve IPG strips
- Adjustable 'pick-and-place' electrodes clip conveniently anywhere within the focusing tray to resolve IPG strips 7-24cm in length; colour-coded to prevent polarity reversal
- A cooling plate, manufactured from a special grade ceramic in a large 26x26cm surface area, facilitates effective heat dissipation and homogenous thermal control, particularly during high voltage IEF techniques
- An optional, but recommended, Cleaver Scientific recirculating chiller (pg 81) connects quickly and easily to the cooling plate via snap-lock connectors to maintain optimal operating temperatures for IPG strips (20°C) and precast gels (4°C)
- Rehydration tray allows convenient transfer of IPG strips to the focusing tray without time-consuming removal of residual rehydration buffer; also enables focusing tray to remain permanently in use for IEF to maximise throughput, and provides useful storage at -20°C for focused strips before second-dimension runs
- Electrode frame clips directly on to the cooling plate and includes adjustable electrodes to run horizontal precast IEF and PAGE gels

Power Supply Option – Consort EV232

- 3000V, 150mA, 150W power supply - enables desired Volt-hours for focusing to be attained faster at maximum voltage
- Nine different program settings with nine different parameters and voltage ramping make the EV232 ideal for multi-step IEF techniques
- Data-logging capacity for up to 3600 output values, while run data may be collected via RS232 connection and free downloadable data acquisition software



CSL-IEF Components

1. Focusing Tray
2. Adjustable 'pick-and-place' electrodes
3. Ceramic cooling plate with snap-lock connectors
4. Rehydration tray (not shown)
5. Electrode frame for horizontal precast gels
6. Shrouded 2mm high voltage cables (not shown)

CSL-IEF – Typical Running Conditions

7cm IPG Strip						
IEF Step	1	2	3	4	5	6
Voltage (V)	150	300	600	1500	3000	300
Time (h)	0.5	0.5	0.5	0.5	2.5	<20
Volt-hours	75	150	300	750	7500	-
18cm IPG strip						
IEF Step	1	2	3	4	5	
Voltage (V)	300	600	1500	3000	300	
Time (h)	0.5	1	1	12	<20	
Volt-hours	150	600	1500	36000	-	

Tray Specifications	IPG Strip Length			
	7cm	11cm*	18cm	24cm
Focusing Tray				
Electrode Distance	6.5cm	10.2cm	17.1cm	22.7cm
Maximum Strip Length Accommodated	25.3cm	25.3cm	25.3cm	25.3cm
Cleaver Scientific IPG Strip Length	7cm	n/a*	18cm	24cm
Rehydration Tray				
Maximum Strip Length Accommodated	24cm	24cm	24cm	24cm
Recommended Volume for Strip Rehydration	3.5ml	6ml	8.0ml	12.0ml

*11cm strips available from other suppliers

CSL-IEF Technical Specifications

Max. commercial strip length accommodated	24cm
Max. gel dimensions on cooling plate	26x26cm
Unit dimensions (w x d x h)	55x35x10cm
Focusing tray strip capacity	12x 18 and 24cm strips; 24x 7 and 11cm strips
Operating temperature	4-25°C
Regulatory certification	CE, EN61010

Ordering Information

CSL-IEF	Flatbed IEF system for IPG strips and gels, with focusing and rehydration trays		
CSL-CHILLER	Chiller for electrophoresis systems	EV232	Consort 3000V, 150mA, 150W power supply
CSL-IEF-KIT	1-D Combination Package, includes CSL-IEF, CSL-CHILLER and EV232		
CSL-IEFPOS	Replacement positive electrode	CSL-IEFFRME	Replacement electrode frame
CSL-IEFNEG	Replacement negative electrode	CSL-RHDTRAY	Rehydration tray and lid
CSL-IEFPLT	Replacement glass platform	CSL-FOCUSTRAY	Focusing tray with adjustable electrodes



second stage 2-D

The omniPAGE VS30 maxi-plus large format vertical has been designed as a convenient unit for second-dimension PAGE following first-dimension isoelectric focusing using the CSL-IEF.

An active gel width of 26cm easily accommodates IPG strips up to 24cm in length, the longest available commercially, while an extended gel height of 22cm maximises separation distance and resolution of proteins similar in size or isoelectric point (pI). In combination with the CSL-IEF, the VS30DSYS provides a complete 2-D electrophoresis system which utilises the advanced features of the omniPAGE range to produce a unit that is both easy to use and consistent in generating reproducible results.

- Ideal for second-dimension electrophoresis
- Accepts IPG strips 24cm in length, the longest available commercially
- Rapid set-up cool packs enhance resolution, particularly during extended runs

Technical Specification	
Unit dimensions (w x h x d)	36x33x18cm
Plate dimensions (w x h)	30x22cm
Gel dimensions (w x h)	28x20cm
Max. sample capacity	300 samples per run; 75 per gel
Buffer volume	1800-8400ml
Comb options	
No. of teeth	1, 2, 4, 28MC, 56MC, 75
Thicknesses	0.25, 0.35, 0.5, 1, 1.5, 2

Rapid set-up cooling retains resolution in extended separations and also conserves buffer volume without affecting run quality. A maximum of four 1-mm-thick gels may be resolved per run, using notched glass plates with 1mm bonded spacers; and a comprehensive range of accessories facilitate easy interchange between 2-D and standard vertical electrophoresis techniques. Different types of 2-D comb offer a wide degree of versatility in sample selection and gel set-up.

Ordering Information

VS30D omniPAGE Maxi Plus 30 x 22cm Dual with Glass Plates with bonded 1.5mm spacers, 2 x 28 sample combs, 2 x 2-D combs, cooling pack, dummy plate					
VS30DSYS	VS30D with Casting Base	VS30NGS1	30 x 22cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)		
VS30BI	omniPAGE VS30 Blot Maxi Insert - includes 3 cassettes and 6 fibre pads.	VS30PGS1	30 x 22cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)		
VS30DCAST	30 x 22cm Dual Casting Base	VS30PGS1.5	30 x 22cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)		
VS30DCASTM	Replacement Silicone Mat for 30 x 22cm Casting Base	VS30PGS2	30 x 22cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)		
VS30DIRM	Inner Running Module	VS30DP	Dummy Plate, 30 x 22cm		
VS30ICB	Maxi Cooling Pack	VS30S0.75	22cm Spacers - 0.75mm (pk/2)		
VS30-x-LG	Loading guides for omniPAGE maxi combs, x = comb well number	VS30S1	22cm Spacers - 1mm thick (pk/2)		
VS30NG	30 x 22cm Notched Glass Plates 4mm thick (pk/2)	VS30S1.5	22cm Spacers - 1.5mm thick (pk/2)		
VS30PG	30 x 22cm Plain Glass Plates 4mm thick (pk/2)	VS30S2	22cm Spacers - 2mm thick (pk/2)		
VS30NGS0.75	30 x 22cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)	RPW-0.2100	Replacement Platinum Wire - 0.2mm, 100cm		
VS30PGS0.75	30 x 22cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)				

Code	Description	Sample Volume per well	Code	Description	Sample Volume per well
VS30-1-1	Comb 1 Prep, 1 Marker, 1mm thick	2250µl	VS30-1-1.5	Comb 1 Prep, 1 Marker, 1.5mm thick	3375µl
VS30-2-1	Comb 2 sample, 1mm thick	1125µl	VS30-2-1.5	Comb 2 sample, 1.5mm thick	1680µl
VS30-4-1	Comb 4 sample, 1mm thick	550µl	VS30-4-1.5	Comb 4 sample, 1.5mm thick	825µl
VS30-28MC-1	Comb 28 sample, 1mm thick MC compatible	80µl	VS30-28MC-1.5	Comb 28 sample, 1.5mm thick MC compatible	120µl
VS30-56MC-1	Comb 56 sample, 1mm thick MC compatible	40µl	VS30-56MC-1.5	Comb 56 sample, 1.5mm thick MC compatible	60µl
VS30-75-1	Comb 75 sample, 1mm thick MC compatible	25µl	VS30-75-1.5	Comb 75 sample, 1.5mm thick MC compatible	37µl

Combs also available in other thicknesses and sample number, please enquire

2-D combination packages

Available in Mini, Mini-Wide, Maxi, WAVE and Maxi-Plus size formats, Cleaver 2-D combination packages allow you to combine the CSL-IEF-KIT 1-D Combination Package, including flat-bed IEF unit, chiller and power supply, with a second-dimension vertical of your choice.

Ordering Information

Code	Description	Second-dimension strip throughput	Code	Description	Second-dimension strip throughput
CSL-IEF-KIT-MINI	CSL-IEF-KIT and CVS10DSYS	2x 7cm IPG strips	CSL-IEF-KIT-WAVE	CSL-IEF-KIT and WAVEDSYS and IPG Converter Kit	4x 7cm IPG strips; 2x 18cm strips
CSL-IEF-KIT-MINIWIDE	CSL-IEF-KIT and VS10WDSYS and IPG Converter Kit	4x 7cm IPG strips	CSL-IEF-KIT-MAXIPLUS	CSL-IEF-KIT and VS30DSYS	2x 24cm strips
CSL-IEF-KIT-MAXI	CSL-IEF-KIT and VS20DSYS and IPG Converter Kit	4x 7cm IPG strips; 2x 18cm strips		Each kit includes CSL-IEF, CSL-CHILLER, EV232 & CSL-4-2, plus vertical system; IPG Converter kits (pg 29), including 2 sets of special 2-D combs for 2x7cm IPG strips and plates with 10mm bonded spacers, available for Mini & Mini Wide packages. Maxi & WAVE packages include kit for 2x 18cm IPG strips (see page 34).	

4-gel vertical electrophoresis packages

Whether you require a package to match the market leader or one to address any budget or vertical electrophoresis technique, Cleaver Scientific now offers the ultimate range of Combination Packages that will meet your needs.



run 4 gels in the tank while casting another 4 externally

Ordering Information	
CVS10TETRAD	10mniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels, includes:
CVS10DSYS-CU	10x10cm mini-vertical unit with casting base and external casting stand, plus 2x 1mm 12-sample combs, 2x plain glass plates with 1mm spacer and 2x notched plates (Pg 28)
VS10-12-1	2 additional 1mm 12-sample combs, 1 pack of 2x plain glass plates with 1mm spacer 1 pack of 2x notched glass plates
VS10NGS1	2 packs of 2x notched glass plates with 1mm spacer

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75, CVS10TETRAD1.5 and CVS10TETRAD2 respectively



with interchangeable 4-blot module

Ordering Information	
CVS10TETRAD1CBS	OmniPAGE TETRAD with interchangeable 4-blot module, includes:
CVS10TETRAD1	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels
VS10BI	4-blot insert with 4 blotting cassettes and 8 fibre pads (Pg 52)

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75CBS, CVS10TETRAD1.5CBS and CVS10TETRAD2CBS respectively



with standard midi power supply option

Ordering Information	
CVS10TETRAD1-CS300	OmniPAGE TETRAD with standard Midi power supply option, includes:
CVS10TETRAD1	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75-CS300, CVS10TETRAD1.5-CS300 and CVS10TETRAD2-CS300 respectively



with standard midi power supply option and interchangeable 4-blot module

Ordering Information	
CVS10TETRAD1CBS-CS300	OmniPAGE TETRAD with Midi power supply and interchangeable 4-blot module, includes:
CVS10TETRAD1CBS	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels with blotting module
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75CBS-CS300, CVS10TETRAD1.5CBS-CS300 and CVS10TETRAD2CBS-CS300 respectively



with high current maxi power supply option

Ordering Information	
CVS10TETRAD1-CS3AMP	OmniPAGE TETRAD with high current Maxi power supply option, includes:
CVS10TETRAD1	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels cast gels with blotting module
CS-3AMP	300V, 3000mA, 300W maxi power supply (Pg 61)

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75-CS3AMP, CVS10TETRAD1.5-CS3AMP and CVS10TETRAD2-CS3AMP respectively



with high current maxi power supply option and interchangeable 4-blot module

Ordering Information	
CVS10TETRAD1CBS-CS3AMP	OmniPAGE TETRAD with Maxi power supply and interchangeable 4-blot module, includes:
CVS10TETRAD1CBS	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels with blotting module
CS-3AMP	300V, 3000mA, 300W maxi power supply (Pg 61)

For 0.75, 1.5 and 2mm versions please to remember to use the correct number. E.g. - CVS10TETRAD0.75CBS-CS3AMP for a 0.75mm version

standard vertical electrophoresis packages



pre cast gel mini vertical package

Ordering Information

CVS10PRE-CS300 Pre-cast gel mini-vertical electrophoresis package includes:

CVS10PRE	omniPAGE Mini-Protein system (Pg 28)
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)



Self cast and pre cast mini vertical package

Ordering Information

CVS10DSYS-CS300 Pre-cast and hand cast gel mini-vertical electrophoresis package includes:

CVS10DSYS	omniPAGE Mini-Protein system with casting base (Pg 28)
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)



Mini vertical, power supply and blotting package

Ordering Information

CVS10CBS-CS300 includes:

CVS10CBS	omniPAGE Mini-Protein system with casting base and blotting insert (Pg 50)
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)

For packages with high current power supply, use codes CVS10PRE-CS3AMP, CVS10DSYS-CS3AMP, CVS10CBS-CS3AMP; combs and glass plates with bonded spacers may be changed at order



Wide mini vertical self cast package

Ordering Information

VS10WDSYS-CS300 Self-cast gel mini-wide vertical electrophoresis package includes:

VS10WDSYS	omniPAGE Mini Wide Protein system with casting base (Pg 29)
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)

For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75CBS-CS300, CVS10TETRAD1.5CBS-CS300 and CVS10TETRAD2CBS-CS300 respectively



Wide mini vertical power supply and blotting package

Ordering Information

VS10WCBS-CS300 includes:

VS10WCBS	omniPAGE Mini Wide Protein system with casting base and blotting insert
CS-300V	300V, 700mA, 150W midi power supply (Pg 60)

For packages with high current power supply, use codes VS10WDSYS-CS3AMP, VS10WCBS-CS3AMP; combs and glass plates with bonded spacers may be changed at order



Self cast maxi vertical and power supply package

Ordering Information

VS20DSYS-CS500 Self-cast gel maxi vertical electrophoresis package includes:

VS20DSYS	omniPAGE Maxi Protein system with casting base (Pg 30)
CS-500V	500V, 800mA, 300W maxi programmable power supply (Pg 61)



Self cast maxi vertical, power supply and blotting package

Ordering Information

VS20CBS-CS500 includes:

VS20CBS	omniPAGE Maxi Protein system with casting base and blotting insert (Pg 50)
CS-500V	500V, 800mA, 300W maxi programmable power supply (Pg 60)

For packages with high current power supply, use codes VS20DSYS-CS3AMP, VS20CBS-CS3AMP; combs and glass plates with bonded spacers may be changed at order

VS20 WAVETETRAD 4-gel electrophoresis packages

Standard 4-gel Maxi Vertical packages.



Specifications		
WAVETETRAD1	4-gel electrophoresis package: run 4 gels in the tank and cast another 4 externally	
Includes:	WAVESYS-CU	VS20 WAVE Maxi, 20 x 20cm Dual, 2 sets of plain glass plates with 1mm thick bonded spacers, 2 set of notched glass plates 2 x 24 sample, 1mm thick combs, cooling coil, dummy plate; includes caster and external casting upstand
	VS2ONGS1	2 packs of 2x notched glass plates with 1mm bonded spacers
	VS20-24-1	2 additional 1mm 24-sample combs
WAVETETRAD1CBS	With interchangeable 4-blot running module	
Includes:	WAVETETRAD1	4-gel electrophoresis package
	WAVEBI	1x WAVE Standard Electroblotting Module for 4 cassettes (Pg 36)
WAVETETRAD1C2DS	With interchangeable capillary electrophoresis module for 10 tube gels	
Includes:	WAVETETRAD1	4-gel electrophoresis package
	WAVEDCI	WAVE Maxi Tube Gel insert – includes glass tubes and blanking ports, plus WAVEIEF-KIT (Pg 38)
WAVETETRAD1CES	With interchangeable blotting and capillary tube gel modules	
Includes:	WAVETETRAD1	4-gel electrophoresis package
	WAVEBI	1x WAVE Standard Electroblotting Module for 4 cassettes (Pg 36)
	WAVEDCI	WAVE Maxi Tube Gel insert – includes glass tubes and blanking ports, plus WAVEIEF-KIT (Pg 38)

Single Workstation 4-gel Maxi Vertical packages, complete with general purpose or specialist power supply option.

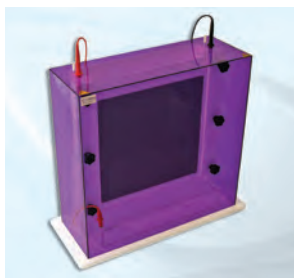


Specifications		
WAVETETRAD1-CS500	4-gel electrophoresis package with general purpose Maxi programmable power supply	
Includes:	WAVETETRAD1	4-gel electrophoresis package
	CS-500V	500V, 800mA, 300W maxi programmable power supply
WAVETETRAD1CBS-CS3AMP	4-gel electrophoresis package with Blotting module and high current Maxi programmable power supply	
Includes:	WAVETETRAD1CBS	4-gel electrophoresis package with blotting module
	CS-3AMP	300V, 3000mA, 300W Maxi power supply (Pg 61)
WAVETETRAD1C2DS-EV215	4-gel electrophoresis package with capillary electrophoresis module and high voltage Consort Maxi programmable power supply	
Includes:	WAVETETRAD1C2DS	4-gel electrophoresis package with capillary electrophoresis module
	EV215	1200V, 500mA, 300W Consort Maxi Power Supply (Pg 62)
WAVETETRAD1CES-EV215	4-gel electrophoresis package with interchangeable blotting and capillary tube gel modules and high voltage Consort Maxi programmable power supply	
Includes:	WAVETETRAD1CES	4-gel electrophoresis package with blotting capillary tube gel modules
	EV215	1200V, 500mA, 300W Consort Maxi Power Supply (Pg 62)

Dual Workstation 4-gel Maxi Vertical Packages - complete with extra tank and lid, and general purpose electrophoresis and specialist power supplies - allow users to dedicate individual tanks and specialised power supplies to specific electrophoresis techniques.



Specifications		
WAVETETRAD1CBS-CS5003AMP	4-gel electrophoresis package with Blotting module and general purpose & high current Maxi programmable power supplies	
Includes:	WAVETETRAD1CBS	4-gel electrophoresis package with blotting module
	WAVETANK	WAVE gel tank
	WAVELID	Lid complete with power cables
	CS-500V	500V, 800mA, 300W power supply (Pg 61)
	CS-3AMP	300V, 3000mA, 300W Maxi power supply (Pg 62)
WAVETETRAD1C2DS-CS500EV215	4-gel electrophoresis package with capillary electrophoresis module and general purpose & high voltage Consort Maxi programmable power supplies	
Includes:	WAVETETRAD1C2DS	4-gel electrophoresis package with capillary electrophoresis module
	WAVETANK	WAVE gel tank
	WAVELID	Lid complete with power cables
	CS-500V	500V, 800mA, 300W power supply (Pg 61)
	EV215	1200V, 500mA, 300W Consort Maxi Power Supply (Pg 62)
WAVETETRAD1CES-CS500EV215	4-gel electrophoresis package with interchangeable blotting and capillary tube gel modules and general purpose & high voltage Consort Maxi programmable power supplies	
Includes:	WAVETETRAD1CES	4-gel electrophoresis package with blotting capillary tube gel modules
	WAVETANK	WAVE gel tank
	WAVELID	Lid complete with power cables
	CS-500V	500V, 800mA, 300W power supply (Pg 61)
	EV215	1200V, 500mA, 300W Consort Maxi Power Supply (Pg 62)



large format vertical

Ideal for a variety of large format vertical gel applications, these units offer advanced features for enhancing gel resolution and ease of use, essential when handling gels of this size. Each unit contains ultra soft silicone seals for easy plate sealing and trouble free runs, even over extended run times.

Resolution is enhanced by using an aluminium heat sink plate, essential for even sample migration. Added convenience is provided by a removable lower buffer tank and upper buffer drainage tap.

Special buffer chambers allow either low buffer volumes to be used for economy or high buffer volumes to be used for extended runs.

A wide range of interchangeable comb and spacer options allows a large number of techniques to be easily accomplished including; DNA Sequencing, 2-D analysis, Micro-satellite analysis, DNA fingerprinting, Gel shift assays, Single-Strand Conformation Polymorphism (SSCP), Heteroduplex and Oligonucleotide analysis.

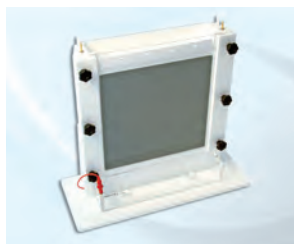
- Run up to 96 samples
- Enhanced gel heat homogenisation
- Variable low or high buffer volumes
- 20 x 50cm or 33 x 45cm formats

Typical Applications

DNA Sequencing, 2-D analysis, Micro-satellite analysis, DNA fingerprinting, Gel shift assays, Single-Strand Conformation Polymorphism (SSCP), Heteroduplex and Oligonucleotide analysis



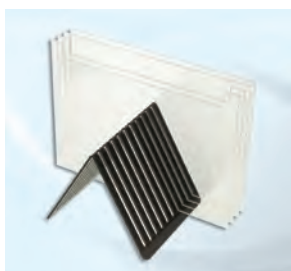
removable lower buffer tray for easy cleaning



easily replaced buffer seals

Plate Racks

These sturdy racks are designed for safe drying and storage of glass plates. The small rack can hold up to 20x 2mm thick plates while the larger rack can accommodate up to 10x 5mm thick glass plates.



fan heater sensor kit

Technical Specifications	
Plate dimensions (W x L)	CSQ20 20 x 50cm CSQ33 33 x 45cm
Max sample capacity	CSQ20 48 samples CSQ33 96 samples
Buffer Volume	CSQ20 Min 500ml, Max 1000ml CSQ33 Min 800ml, Max 2000ml
Combs available: No. of teeth Thicknesses	24, 48, 80, 96 0.25, 0.35, 1, 1.5mm

Ordering Information			
CSQ20	Large Format Vertical, 20cm wide, glass plates, 0.35mm spacers, 48 sample comb		
CSQ20-NG	Glass plates, pk/2 Notched	CSQ20-S0.35	Spacer set 0.35mm
CSQ20-PG	Glass plates, pk/2 Plain	CSQ20-S1	Spacer set 1mm
CSQ20-S0.25	Spacer set 0.25mm	CSQ20-S1.5	Spacer set 1.5mm
CSQ33	Large Format Vertical, 33cm wide, glass plates, 0.35mm spacers, 48 sample comb		
CSQ33-NG	Glass plates, pk/2 Notched	CSQ33-S0.35	Spacer set 0.35mm
CSQ33-PG	Glass plates, pk/2 Plain	CSQ33-S1	Spacer set 1mm
CSQ33-S0.25	Spacer set 0.25mm	CSQ33-S1.5	Spacer set 1.5mm
CSL-FHS*	Fan heater sensor kit for large format vertical units CSQ20 and CSQ33	CSL-MGR	Mini Glass Plate Rack for 20x2mm Plates
		CSL-LGR	Large Glass Plate Rack for 10x5mm Plates

Code	Description	Sample Volume per well	Code	Description	Sample Volume per well
CSQ20-0.25-24	Comb 24 sample, 0.25mm thick, Sharks tooth	7µl	CSQ20-1-24	Comb 24 sample, 1mm thick, Square tooth	40µl
CSQ20-0.25-48	Comb 48 sample, 0.25mm thick, Sharks tooth	3µl	CSQ20-1-48	Comb 48 sample, 1mm thick, Square tooth	20µl
CSQ33-0.25-48	Comb 48 sample, 0.25mm thick, Sharks tooth	7µl	CSQ33-1-48	Comb 48 sample, 1mm thick, Square tooth	35µl
CSQ33-0.25-96	Comb 96 sample, 0.25mm thick, Sharks tooth	3µl	CSQ33-1-80	Comb 80 sample, 1mm thick, Square tooth	20µl
CSQ20-0.35-24	Comb 24 sample, 0.35mm thick, Sharks tooth	9µl	CSQ20-1.5-24	Comb 24 sample, 1.5mm thick, Square tooth	60µl
CSQ20-0.35-48	Comb 48 sample, 0.35mm thick, Sharks tooth	5µl	CSQ20-1.5-48	Comb 48 sample, 1.5mm thick, Square tooth	30µl
CSQ33-0.35-48	Comb 48 sample, 0.35mm thick, Sharks tooth	9µl	CSQ33-1.5-48	Comb 48 sample, 1.5mm thick, Square tooth	50µl
CSQ33-0.35-96	Comb 96 sample, 0.35mm thick, Sharks tooth	5µl	CSQ33-1.5-80	Comb 80 sample, 1.5mm thick, Square tooth	30µl

The list above includes the most popular combs for these units. Many more comb options are available, please enquire.

* For 110 V AC, please add '-S' as a suffix to the appropriate code



denaturing gradient gel electrophoresis

Denaturing Gradient Gel Electrophoresis (DGGE) is an important technique used in the search for mutations and DNA polymorphisms critical in genetic disorders and cancers, and to understand genetic diversity among species. The new omniPAGE VS20WAVE-DGGE is a flexible and customisable system that can perform several different mutation detection techniques.

- Maximum 96-sample throughput compatible with microplates and thermal cycler blocks
- Four-screw vertical clamping technology accelerates set up
- Large format – 20x20cm glass plates for improved resolution
- 100ml gradient mixer, with valve-controlled 50ml reservoir and mixing chambers, makes two 1mm parallel denaturing gradient gels
- Microprocessor-controlled temperature control unit accurate to $\pm 0.02^{\circ}\text{C}$

The VS20WAVE-DGGE – a versatile single-unit solution for different single-base pair mutation detection methods

The newly designed VS20WAVE-DGGE is a complete system for DNA mutation analysis. Using the innovative vertical screw-clamp technology of the new VS20-WAVE system (pg 31), the VS20WAVE-DGGE is fully equipped – with temperature control unit, stirrer, and gradient mixer and casting accessories – to perform specific mutation analysis applications. A powerful microprocessor-controlled PID temperature control unit enables various mutation detection techniques to be undertaken between ambient temperature and 70°C , while the simple four-screw design of the WAVE insert accelerates set up of denaturing PAGE gels. Accordingly, the new VS20-DGGE can be used to screen single-base pair changes in the following applications:

- **Heteroduplex analysis (HA)**
- **Parallel Denaturing Gradient Gel Electrophoresis (DGGE)**
- **Constant Denaturing Gradient Gel Electrophoresis (CDGE)**

The flexibility provided by the modular design of the VS20WAVE-DGGE and its wide range of accessories enables laboratories to switch quickly and easily between different mutation detection techniques, thereby maximising throughput and screening efficiency. A maximum 96-sample throughput allows detection of as many mutations within a couple hours, alleviating many of the bottlenecks associated with screening for DNA mutations.

GM100 Gradient Mixer ensures efficient gradient formation

The GM100 gradient mixer is supplied as standard to ensure efficient gradient formation by mixing and delivering high- and low-density denaturant solutions. A flat-base design and support handle allows the GM100 to be secured to a retort stand, enabling it to be easily mounted on a magnetic stirring plate (e.g. CSL-STIR, pg 76), while the mixing chamber can accommodate a magnetic stirrer to form a linear gradient. The MU-D01 peristaltic pump (pg 76) is also recommended for delivery of linear and reproducible gradient gels.

Innovative Casting and Set-up Mechanism

The VS20WAVE-DGGE utilises novel vertical screw clamp technology to assemble two vertical gels. This reduces the number of screws required for set up making casting assembly faster, while a built-in inner buffer chamber within the PAGE insert allows set-up to be completed without the inclusion of heavy top tanks or buffer chambers. A dual purpose PAGE insert eliminates the need for plate transfer, and is used with a cam casting base to guarantee efficient leak free casting.

Utilises the same combs and accessories as standard VS20 systems

The VS20WAVE-DGGE can use all of the combs, glass plates and accessories of existing VS20 units, providing full flexibility. Two 1mm 24-sample combs are supplied as standard while optional 48-sample combs allow screening to take place directly from 96-well thermal cycler blocks after PCR® amplification.

Precise thermal control

The redesigned VS20DGGE-TC temperature control unit combines buffer recirculation with a heat sensor and 1.4kW heating element to facilitate precise temperature control to within $\pm 0.02^{\circ}\text{C}$, allowing the gel temperature to be set to the melting temperature (T_m) of the amplified DNA polymorphism or mutation of interest. Other benefits include: a conspicuous 4-digit 16mm LED panel to aid set-up; precise tuning to within 0.1°C resolution; an operating set point, plus three adjustable pre-set temperature values; and stirred buffer circulation for temperature stability and uniformity.

Programmable power supply option

At 500V, 800mA and 300W outputs, the optional CS-500V power supply provides full flexibility for different mutation detection techniques (pg 61).

Software options: There are three software options:

- **Pre-electrophoresis:** mutations are best detected when the single-base pair mutation itself is located within lowest melting domain of the DNA of interest, and the molecule does not denature entirely. GC-clamping at one end of the DNA molecule ensures that the region to be screened is in the lower melting temperature domain while the DNA molecule remains partly double-stranded. Recommended free POLAND analysis software (G Steger, University of Dusseldorf) predicts the melting behaviour of the DNA fragment of interest and resulting primer placement and GC clamp positioning.
- **Post electrophoresis:** Phoretix 1D is available for band pattern matching following parallel DGGE in a single gel; Phoretix 1D Pro allows comparison between multiple gels and different experiments (pg 66).



VS20WAVE-DGGE Components

- | |
|---|
| 1. WAVE electrophoresis insert and cam casting base |
| 2. GM100 gradient mixer |
| 3. Temperature control unit |
| 4. Electrophoresis tank |

VS20WAVE-DGGE - Applications			
Description	DGGE	CDGE	HA
	<ul style="list-style-type: none"> i. Determines the denaturing conditions required to identify unknown mutations ii. Works on the principle that increasing denaturant concentrations melt DNA in a domain-specific manner, and the mutation or polymorphism of interest is in the DNA domain with the lowest Tm iii. Requires parallel DGGE – a technique where DNA samples are resolved at uniform temperature in gels containing a formamide and urea denaturant gradient parallel to the direction of electrophoresis iv. Results in partial melting of DNA to produce a branched molecule identified by its reduced mobility within the gel. 	<ul style="list-style-type: none"> i. Rapid screening method for multiple samples containing an identified mutation ii. Requires DGGE beforehand to establish optimal denaturing conditions to identify a specific mutation iii. No denaturant gradient required as multiple samples are screened on a constant denaturant gel iv. Increases throughput and alleviates bottlenecks 	<ul style="list-style-type: none"> i. Used when it is difficult to detect a homoduplex mutation by DGGE ii. Requires denaturation and re-annealing of wild-type and mutant DNA mixed together, usually within a PCR reaction iii. Resultant heteroduplexes are less stable and melt at a lower denaturant concentration than wild-type and mutant homoduplex molecules, allowing them to be identified by reduced mobility within the gel iv. Requires parallel DGGE, or may be performed overnight in a TBE gel made from special high-resolution acrylamide
VS20WAVE-DGGE Application Benefits	<ul style="list-style-type: none"> i. GM100 gradient mixer and optional MU-D01 peristaltic pump simplify casting of denaturing gradient gels ii. New VS20WAVE electrophoresis insert and cam caster for leak free casting iii. Temperature control unit provides consistent run temperatures between 45-70°C iv. High resolution 20x20cm format 	<ul style="list-style-type: none"> i. Uses constant denaturant gels cast with new VS20WAVE electrophoresis insert and cam caster for leak free casting ii. Temperature control unit provides constant run temperature during electrophoresis iii. Maximum 96-sample throughput (48 samples per gel) 	<ul style="list-style-type: none"> i. New VS20WAVE electrophoresis insert and cam caster for leak free casting ii. Gradient mixer simplifies DGGE option iii. Optional temperature control for reproducibility iv. High resolution 20x20cm format

Technical Specification - VS20WAVE-DGGE			
WAVE electrophoresis insert and tank		Temperature Control Unit	
Max. Number of Gels	2 per run	Temperature Control	PID
Plate Dimensions (WxH)	20x20cm	Operating Temperature Range	Ambient-100°C
Active Gel Dimensions (WxH)	16x17.5cm	Working Temperature Range (DGGE)	45-70°C
Spacer Thicknesses	0.75, 1, 1.5 and 2mm	Buffer Recirculation Mechanism	Stirring
Max. Sample Capacity	96 samples; 48 per gel	Temperature Uniformity/Stability at 37°C	±0.05/0.02°C
Standard Combs	2x 1mm 24-sample	Setting/Display Resolution	0.1°C
Available Combs	1, 5, 10, 18MC, 24, 36MC, 48; as per VS20WAVE and MAXI units (pg 34 & 30)	Safety	Fluid-level float switch; isolated; IEC 1010 / CE
Max. Buffer Volume	8.5L	Stored Temperature Values	4
Unit Dimensions (W x D x H)	40.5 x 17 x 44cm	Heater Power at 230V/110VAC	1.4/1.3kW
Weight	8kg	Electrical Power at 230V/100VAC	1.5/1.4kW (50-60Hz)
Recommended Power Supply		Gradient Mixer	
Voltage	500V	Total Volume	100ml
Current	800mA	Volume of Reservoir & Mixing Chambers	50ml
Power	300W	Internal Diameter of Outlet Port	2mm

Ordering Information	
VS20WAVE-DGGE	Complete Denaturing Gradient Gel Electrophoresis System, 20x20cm; includes: temperature control unit, cam casting base, glass plates with 1mm bonded spacers, 2x 24-sample combs and gradient mixer – 240 VAC version
VS20WAVE-DGGE\$	VS20WAVE-DGGE – 110VAC version
VS20WAVE-DGGETC	VS20WAVE-DGGE Temperature Control Unit – 240VAC version
VS20WAVE-DGGETC\$	VS20WAVE-DGGETC – 110VAC version
GM100	Gradient Mixer, 100ml (pg 29)
Recommended Accessories	
CSL-STIR	CSL Magnetic Stirrer, 19x19cm (pg 76)
MU-D01	Single Peristaltic Pump (pg 76)
MU-S16	Silicon tube I.D. 1/8", 25 ft (for peristaltic pump, pg 76)
CS-500V	omniPAC Power Supply, 500V, 800mA, 300W (pg 61)
Software Options	
Phoretix 1D	1D image analysis with band pattern matching (pg 66)
Phoretix 1D Pro	1D image analysis with band pattern matching between different gels (pg 66)
DGGE Package	
VS20WAVE-DGGEKIT	VS20WAVE Package Deal; includes: VS20WAVE-DGGE, CSL-STIR, MU-D01, MU-S16, CS-500V – 240 VAC version
VS20WAVE-DGGEKIT\$	VS20WAVE-DGGEKIT – 110 VAC version