Cleaver Scientific Ltd

EXPERTS IN ELECTROPHORESIS

LABOMODERNE

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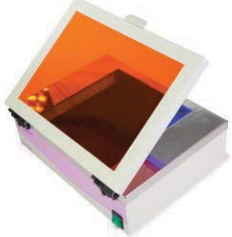
PRODUCT CATALOGUE 2015




Welcome to Cleaver Scientific

2014 is our 10th Anniversary and I am delighted to introduce to you the latest product catalogue from Cleaver Scientific Ltd for 2015. This is the fifth edition since our company was incorporated, just 10 years ago. Now even larger, it offers a range of instruments, chemicals and consumables for both electrophoresis and indeed the life science laboratory.

Much of the catalogue growth has come from creative and innovative product additions, including our patented COMPAC-50™, which we designed and manufactured in conjunction with the University of Leicester. We are proud that this edition contains significantly more product and technical content than before. We believe that this will be invaluable to both researchers and dealers for product selection as well as everyday reference.

For those of you who know us and have used our products previously, you will be pleased to see that the latest product additions uphold the same high standards for innovation and quality that we are known for. All of our products, including our flagship gel electrophoresis systems, are supplied directly from our manufacturing facility in Rugby, based within the heart of the United Kingdom and central to all major international road, rail and air transport networks. Each product represents the culmination of the combined creativity, technical and engineering expertise acquired over many years by our in-house manufacturing and scientific product development team.

In all of these products, our philosophy remains that we are committed to offering the highest quality products with the latest technical innovations to make the researcher's life that little bit easier, but also more affordable, particularly in these price-sensitive times.

Quality may be a much misused word, but at Cleaver Scientific it defines what we do, by the timely manufacture and supply of products to our customers that not only fulfil their purpose, but will remain durable and free of imperfections for many years to come. Our accredited ISO9001/2008 quality management system and adherence to this ensures that these principles are met.

Please read on to see the exciting products we have to offer.

Adie Cleaver
Managing Director
Cleaver Scientific Ltd.

Cleaver Headquarters UK


Some of the Cleaver Team

Contents

Cleaver Scientific Ltd

THE MULTISUB™ RANGE – KEY FEATURES

Cleaver Scientific's multiSUB™ horizontal gel electrophoresis units have been designed by scientists with the laboratory scientist in mind. Through its advanced features each unit provides an easy to use, versatile and flexible system to evolve and adapt with the changing needs of today's laboratory researcher.

TANK AND LID DESIGN

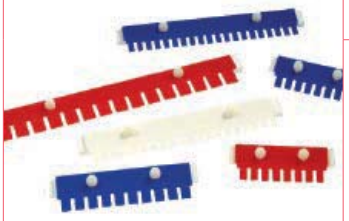
High quality injection moulded construction and durable leak-proof design for complete safety and longevity

Cassette-style electrodes – difficult to break, but inexpensive and easy to change – composed of 99.99% corrosion-resistant, pure platinum

Electrical safety – lid removal immediately disconnects power to the lower buffer chamber to allow entirely safe access to the gel

Easy-click lid removal – asymmetric lid design and thumb locators on colour-coded cassette-style electrodes ensure that electrophoresis is always performed in the correct polar direction – i.e. negative to positive

COMBS



The widest range of combs available of any gel tank manufacturer - fit virtually every application from preparatory electrophoresis to high-throughput screening

Available in four thicknesses and colour-coded. Range from:

- White – 1mm supplied as standard
- Black – 0.75mm for tightly resolved bands
- Red – 1.5mm to maximise sample volume
- Blue – 2mm to maximise sample volume

Black and white combs recommended for high resolution gels and publication quality data; red and blue to scale-up nucleic acid volumes for preparatory techniques

Height-adjustable, without any requirement for specialist tools or comb holders, to give user full control over well depth and sample-loading volume; rigid comb back prevents heat-induced warping

Reversible loading guides sit directly above each well to provide a convenient loading template for single- and multi-channel pipettes

TRAYS

Multiple gel tray options – eliminate the need for additional gel tanks and allow gels to be cast externally, keeping the tank permanently in use for electrophoresis if required

UV and blue light transparent

CASTING

'Plug-and-Go' casting – moulded casting dams clip easily onto the ends of the gel tray for rapid external casting, allowing the multiSUB™ unit to remain in use for gel running.

Casting is as simple as 1, 2, 3...Simply place one dam onto the lab bench facing upwards and insert the tray into the groove in the dam(1) and repeat with the second dam at the other end(2). The tray is now sealed and may be placed on flat bench space or gel levelling table in readiness for leak proof gel-casting (3).

Other casting options include flexicaster and plastic casting gates - see multiSUB™ Selection Guide

ACCESSORIES

Red loading guides – aid well and sample visualisation during loading (1).

White gel platform – provides a contrasting background to view bromophenol blue migration fronts and determine electrophoresis progress during every run (2).

Gel levelling table – recommended especially for MSMAXI or MSSCREEN gel trays. Adjustable levelling feet used in conjunction with a levelling bubble provide an even surface upon which to pour wide- and large-format gels, to ensure consistent and uniform migration

runFAST cool pack and platform – sit directly above the gel in the buffer to provide enhanced resolution and faster run times; especially suited to larger format horizontals. To use: fill the tank with buffer and load samples (1.); insert platform above the gel (2.); place pre-frozen cool pack onto platform (3.); connect to power supply and run samples at higher voltage (4.).

Power cables – with 4mm connectors compatible with most modern low-to-medium voltage power supplies; CE compliant (1). Adaptors available for complete power supply compatibility.

Buffer Saver Blocks – conserve buffer for added economy – especially beneficial in larger format MSMAXI and MSSCREEN units (2).

HORIZONTAL GEL SYSTEMS

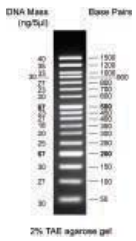
Although a long-established technique, horizontal gel electrophoresis offers many advantages for nucleic acid separation and remains today one of the mainstays of molecular biology. Cleaver Scientific's multiSUB™ range offers the most comprehensive and versatile line of horizontal gel electrophoresis units currently available for low – and high-throughput DNA and RNA applications.

RELATED PRODUCTS

POWER SUPPLIES
PAGES 82-89

REAGENTS AND CHEMICALS
PAGES 134-145

READY TO USE DNA MARKER
PAGE 139



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Selection Guide

	MSMINI	MSMIDI	MSCHOICE	MSCHOICEST	MSMAXI
	The preferred option for quick sample-checks, particularly following restriction digestion during cloning. Its slim tray format makes the MSMINI a very economical choice for separation of up to 64 samples.	These units offer the same trays lengths, but in a wider format, to run more samples just as economically as in the MSMINI under similar running conditions.	Wide-format system with 2-3 times the sample capacity as the MSMIDI and MSMINI units. A comprehensive selection of combs provides full flexibility for preparatory and screening techniques. Suitable for cloning and mini-prep analysis.	A 'stretched' version of the MSCHOICE, this system is perfect for extended high-resolution separations of samples from 96-well microplates and blocks, using its 15x20cm and 15x25cm gel trays and four 28-sample multichannel compatible combs. May also be used for routine preparatory techniques.	Large-format system versatile enough to be used for routine preparatory and high-throughput techniques. Combs with spacing compatible with fixed multichannel pipettes simplify loading from 96-well microplates and thermal cycler blocks. Suitable for RFLP analysis, Southern and northern blotting applications, and DNA library and PCR fragment analyses.
Unit Dimensions (w x l x h)	9 x 21 x 9cm	12.5 x 22 x 9cm	17.5 x 26.5 x 9cm	17.5 x 41 x 9cm	23 x 39.5 x 9cm
Active Gel Size (w x l) / Corresponding Gel Tray	7x7cm / MS7-UV7 7x10cm / MS7-UV10	10x7cm / MS10-UV7 10x10cm / MS10-UV10	15x7cm / MS15-UV7 15x10cm / MS15-UV10 15x15cm / MS15-UV20	15x20cm / MS15-UVST20 15x25cm / MS15-UVST25	20x10cm / MS20-UV10 20x15cm / MS20-UV15 20x20cm / MS20-UV20 20x25cm / MS20-UV25
Sample Capacity	1-32 (7x7cm)a 1-64 (7x10cm)b	1-50 (10x7cm)a 1-100 (10x10cm)b	1-70 (15x7cm)a 1-140 (15x10cm)b 1-210 (15x15cm)c	1-280 (15x20cm)† 1-350 (15x25cm)††	1-200 (20x10cm)b 1-350 (20x15cm)c 1-450 (20x20cm)d 1-550 (20x25cm)e
Tank Buffer Volume	225ml	300ml	500ml	1000ml	1500ml
Buffer Recirculation	No	No	Recommended for high voltage applications or extended runs. Requires modified lid with 2 buffer recirculation ports. Available on request as per part numbers below: -		
			MS15LID-BP	MS15STLID-BP	MS20LID-BP
Plug-and-Go Casting Dams Supplied	Yes, 1 pair	Yes, 1 pair	Yes, 1 pair	Yes, 1 pair	Yes, 1 pair
Flexicaster Options & Tray Capacity	MS7/10-FC: 1 tray MS15/20-FC: 2 trays* MS26-FC: 3 trays*	MS7/10-FC: 1 tray MS15/20-FC: 1 tray MS26-FC: 3 trays*	MS15/20-FC: 1 tray MS26-FC: 1 tray		
Typical Running Conditions	80V, 45-60 minutes	90V, 45-60 minutes	90-150V, 60-90 minutes	100-150V, 60-90 minutes	100-150V,60-90 minutes
Bromophenol Blue Migration	~4-5cm/h at 80V	~4-5cm/h at 90V	~4-7cm/h at 90-150V	~4-6cm/h at 100-150V	~4-6.5cm/h at 100-150V

a Assumes 1-2 combs per gel; b Assumes 1-4 combs per gel; c Assumes 1-6 combs per gel; d Assumes 1-9 combs per gel; e Assumes 1-11 combs per gel; f Assumes 1-12 combs per gel

† Assumes 1-8 combs per gel; †† Assumes 1-10 combs per gel

* Assumes multiSUB™ trays are of the same length (e.g two MS7-UV7) and arranged side-by-side.





	MSSCREEN	FMMS10	MSBGEL	MSMIDI96	MULTISUB-4
	Supplied with six 28-sample multichannel compatible combs, with well-spacing that favours direct loading. The content of at least one 96-well microplate or thermal cycler block may be screened in a single gel. Standard combs may be exchanged for 56-sample versions to double the sample capacity. A dedicated system for all high-throughput screening applications.	An ultra-compact self-contained system for routine molecular biology procedures and quick checks of samples. Buffer and gel volumes kept to a minimum to maximise current and separation speed.	Designed specifically with safety and cost constraints in mind, this system is ideal for education as no power supply is required – only batteries. Educational kits are available which include: protocols, non-toxic electrophoretic dyes, agarose and buffers.	96-well comb block and specialised tray replicate the format and well-spacing of microplates and thermal cycler blocks. Offset well configuration and short separation distance (1.8cm) allow samples to be run within 15-30 minutes. Ideal system for rapid screening of up to 96 PCR-fragment length polymorphisms. Stretch versions available with extended 3.6cm separation distance to double capacity.	Separates up to 1200 samples in as little as 15 minutes, over a short 1cm separation distance, in 4 stacked horizontal gel trays. A relatively small footprint area, plus the capacity to run 4 gels in 1 tank, saves on valuable laboratory bench space as well as resources.
Unit Dimensions (w x l x h)	28 x 50 x 9cm	15 x 15 x 4cm	17 x 11 x 3.5cm	12.5 x 22 x 9cm (MIDI96) 12.5 x 46.5 x 8cm (MIDI96ST)	11 x 35 x 16cm
Active Gel Size (w x l) / Corresponding Gel Tray	26x16cm / MS26-UV16 26x24cm / MS26-UV24 26x32cm / MS26-UV32	10x8cm / in-built tray	6x7.5cm / in-built tray	10x12cm / MS10-UV96 10x24cm / MS10-UV96ST	8x6cm / MSUB4UV6 8x12cm / MSUB4UV12 8x18cm / MSUB4UV18
Sample Capacity	28-336 (26x16cm)c 28-504 (26x24cm)e 28-672 (26x32cm)f	1-40 (10x8cm)a	4-32 (6x7.5cm)a	96 samples plus 12 (1 lane) or 24 (2 lanes) marker wells	8-126 (8x6cm)g 8-198 (8x12cm)e 8-306 (8x24cm)h
Tank Buffer Volume	2000ml	50ml	50ml	300ml (MSMIDI96) 700ml (MIDI96ST)	200ml: 1 tray 400ml: 2 trays 600ml: 3 trays 800ml: 4 trays
Buffer Recirculation	Yes – buffer recirculation ports included as standard	No	No	No	No
Plug-and-Go Casting Dams Supplied	No – supplied with dedicated MSSCREEN flexicaster; See MS26-FC, pg 23	No – plastic casting gates	No – plastic casting gates	Yes, 1 pair	No
Flexicaster Options & Tray Capacity	MS26-FC: 1 tray	No	No	No	MSUB4EXCASTER: 4 trays
Typical Running Conditions	100-150V, 90-120 minutes	50V, 30-60 minutes	12V, 1-3 hours	90V, 15-30 minutes	100-150V, 15-30 minutes
Bromophenol Blue Migration	~4-6cm/hr at 100-150V	~4cm/hr at 50V	~1cm/hr at 12V	~4-5cm/h at 90V	~4-6cm/hr at 100-150V

ORDERING INFORMATION

MSMINI7	multiSUB Mini, 7 x 7cm UV Tray, 2 x 8 sample combs, loading guides and dams
MSMINI10	multiSUB Mini, 7 x 10cm UV Tray, 2 x 8 sample combs, loading guides and dams
MSMINIDUO	multiSUB Mini, 7 x 7cm & 7 x 10cm UV Tray, 2 x 8 sample combs, loading guides and dams
MS7-UV7	7 x 7cm UV Tray
MS7-UV10	7 x 10cm UV Tray
MS7-PE	Positive Electrode
MS7-NE	Negative Electrode
MS7-UVDAM	Casting Dams
MS7/10-FC	multiSUB Mini/Midi Flexi caster
MS7-LG	Adhesive Loading Guides
MS7-WP	Viewing Platform
MSMINICP	Cool-pack and Platform
MSMINIBSB	Buffer Saver Blocks, pk/2 saves 100ml of buffer
MS7-UVS	7cm UV Gel Scoop
CSL-CAB	Electrophoresis cable (Black & Red)

MSMiniduo complete system

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	7 x 7cm 7 x 10cm
Unit dimensions (w x l x h)	9 x 21 x 9cm
Max Sample Capacity	7 x 7cm tray - 32 samples 7 x 10cm tray - 64 samples
Buffer volume	225ml
Combs available: No. of samples Thicknesses	 1, 2, 4, 8MC, 8, 10, 12MC, 16 0.75, 1, 1.5, 2mm

MULTISUB™ MINI COMBS

Code	Description	Sample volume for a 5mm thick gel
MS7-1-0.75	Comb Prep 1, Marker 1, 0.75mm thick	152µl
MS7-2-0.75	Comb Prep 2, Marker 2, 0.75mm thick	68µl
MS7-4-0.75	Comb Prep 4, Marker 2, 0.75mm thick	36µl
MS7-8MC-0.75	Comb 8 sample MC, 0.75mm thick	8µl
MS7-8-0.75	Comb 8 sample, 0.75mm thick	19µl
MS7-10-0.75	Comb 10 sample, 0.75mm thick	14µl
MS7-12MC-0.75	Comb 12 sample MC, 0.75mm thick	10µl
MS7-16-0.75	Comb 16 sample, 0.75mm thick	7µl
MS7-1-1	Comb Prep 1, Marker 1, 1mm thick	203µl
MS7-2-1	Comb Prep 2, Marker 2, 1mm thick	90µl
MS7-4-1	Comb Prep 4, Marker 2, 1mm thick	48µl
MS7-8MC-1	Comb 8 sample MC, 1mm thick	11µl
MS7-8-1	Comb 8 sample, 1mm thick	25µl
MS7-10-1	Comb 10 sample, 1mm thick	18µl
MS7-12MC-1	Comb 12 sample MC, 1mm thick	14µl
MS7-16-1	Comb 16 sample, 1mm thick	10µl
MS7-1-1.5	Comb Prep 1, Marker 1, 1.5mm thick	304µl
MS7-2-1.5	Comb Prep 2, Marker 2, 1.5mm thick	135µl
MS7-4-1.5	Comb Prep 4, Marker 2, 1.5mm thick	72µl
MS7-8MC-1.5	Comb 8 sample MC, 1.5mm thick	17µl
MS7-8-1.5	Comb 8 sample, 1.5mm thick	37µl
MS7-10-1.5	Comb 10 sample, 1.5mm thick	27µl
MS7-12MC-1.5	Comb 12 sample MC, 1.5mm thick	20µl
MS7-16-1.5	Comb 16 sample, 1.5mm thick	15µl
MS7-1-2	Comb Prep 1, Marker 1, 2mm thick	405µl
MS7-2-2	Comb Prep 2, Marker 2, 2mm thick	180µl
MS7-4-2	Comb Prep 4, Marker 2, 2mm thick	96µl
MS7-8MC-2	Comb 8 sample MC, 2mm thick	23µl
MS7-8-2	Comb 8 sample, 2mm thick	50µl
MS7-10-2	Comb 10 sample, 2mm thick	36µl
MS7-12MC-2	Comb 12 sample MC, 2mm thick	27µl
MS7-16-2	Comb 16 sample, 2mm thick	20µl

FEATURES:

- Available with 7 x 7cm, 7 x 10cm or with both gel trays
- Economic low gel and buffer volumes
- Small lab bench footprint

multiSUB™ Mini

The multiSUB™ Mini is the smallest unit in the range, designed for low to medium numbers of samples. The small gel size maximises run economy but does not compromise versatility as two tray options are available – 7 x 7cm and 7 x 10cm – and combs ranging from preparative up to 16 samples. Simply by altering the gel tray or comb, this compact unit is capable of resolving up to 64 different samples, prepping 1ml of sample or separating sample bands over a distance of 9cm. Buffer saver blocks physically reduce the volume of a gel chamber and so reduce buffer requirements, saving cost.

TYPICAL APPLICATIONS

Designed for quick checks of low to medium numbers of samples

Condensation free lids available in all sizes

MultiSUB Mini/Midi Flexi-caster

ORDERING INFORMATION

MSMIDI7	multiSUB Midi, 10 x 7cm UV Tray, 2 x 16 sample combs, loading guides and dams
MSMIDI10	multiSUB Midi, 10 x 10cm UV Tray, 2 x 16 sample combs, loading guides and dams
MSMIDIDUO	multiSUB Midi, 10 x 7cm & 10 x 10cm UV Tray, 2 x 16 sample combs, loading guides and dams
MS10-UV7	10 x 7cm UV Tray
MS10-UV10	10 x 10cm UV Tray
MS10-PE	Positive Electrode
MS10-NE	Negative Electrode
MS10-UVDAM	Casting Dams
MS7/10-FC	multiSUB Mini/Midi Flexi caster
MS10-LG	Adhesive Loading Guides
MS10-WP	Viewing Platform
MSMIDICP	Cool-pack and Platform
MSMIDIBSB	Buffer Saver Blocks, pk/2 saves 100ml of buffer
MS10-UVS	10cm UV Gel Scoop
CSL-CAB	Electrophoresis cable (Black & Red)

MSMidi complete system

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	10 x 7cm 10 x 10cm
Unit dimensions (w x l x h)	12.5 x 22 x 9cm
Max Sample Capacity	10 x 7cm tray - 50 samples 10 x 10cm tray - 100 samples
Buffer volume	300ml
Combs available: No. of samples Thicknesses	 1, 2, 4, 8, 10MC, 12,16, 20MC, 25 0.75, 1, 1.5, 2mm

MULTISUB™ MIDI COMBS

Code	Description	Sample volume for a 5mm thick gel
MS10-1-0.75	Comb Prep 1, Marker 1, 0.75mm thick	270µl
MS10-2-0.75	Comb Prep 2, Marker 2, 0.75mm thick	118µl
MS10-4-0.75	Comb Prep 4, Marker 2, 0.75mm thick	57µl
MS10-8-0.75	Comb 8 sample, 0.75mm thick	30µl
MS10-10MC-0.75	Comb 10 sample MC, 0.75mm thick	20µl
MS10-12-0.75	Comb 12 sample, 0.75mm thick	17µl
MS10-16-0.75	Comb 16 sample, 0.75mm thick	12µl
MS10-20MC-0.75	Comb 20 sample MC, 0.75mm thick	10µl
MS10-25-0.75	Comb 25 sample, 0.75mm thick	7µl
MS10-1-1	Comb Prep 1, Marker 1, 1mm thick	360µl
MS10-2-1	Comb Prep 2, Marker 2, 1mm thick	158µl
MS10-4-1	Comb Prep 4, Marker 2, 1mm thick	77µl
MS10-8-1	Comb 8 sample, 1mm thick	41µl
MS10-10MC-1	Comb 10 sample MC, 1mm thick	27µl
MS10-12-1	Comb 12 sample, 1mm thick	23µl
MS10-16-1	Comb 16 sample, 1mm thick	16µl
MS10-20MC-1	Comb 20 sample MC, 1mm thick	14µl
MS10-25-1	Comb 25 sample, 1mm thick	10µl
MS10-1-1.5	Comb Prep 1, Marker 1, 1.5mm thick	540µl
MS10-2-1.5	Comb Prep 2, Marker 2, 1.5mm thick	236µl
MS10-4-1.5	Comb Prep 4, Marker 2, 1.5mm thick	115µl
MS10-8-1.5	Comb 8 sample, 1.5mm thick	61µl
MS10-10MC-1.5	Comb 10 sample MC, 1.5mm thick	41µl
MS10-12-1.5	Comb 12 sample, 1.5mm thick	34µl
MS10-16-1.5	Comb 16 sample, 1.5mm thick	24µl
MS10-20MC-1.5	Comb 20 sample MC, 1.5mm thick	20µl
MS10-25-1.5	Comb 25 sample, 1.5mm thick	15µl
MS10-1-2	Comb Prep 1, Marker 1, 2mm thick	720µl
MS10-2-2	Comb Prep 2, Marker 2, 2mm thick	315µl
MS10-4-2	Comb Prep 4, Marker 2, 2mm thick	153µl
MS10-8-2	Comb 8 sample, 2mm thick	81µl
MS10-10MC-2	Comb 10 sample MC, 2mm thick	54µl
MS10-12-2	Comb 12 sample, 2mm thick	45µl
MS10-6-2	Comb 16 sample, 2mm thick	32µl
MS10-20MC-2	Comb 20 sample MC, 2mm thick	27µl
MS10-25-2	Comb 25 sample, 2mm thick	20µl

FEATURES:

- Available with 10 x 7cm, 10 x 10cm or with both gel trays
- Run up to 100 samples
- Low buffer volumes
- Ideal for rapid electrophoresis

multiSUB™ Midi

With gel tray options of 10 x 7cm and 10 x 10cm, the multiSUB™ Midi has been designed for routine horizontal gel electrophoresis. Extending only the width of this unit allows more samples to be resolved per gel than the multiSUB™ Mini without a significant increase in buffer or gel volumes.

A maximum of 100 samples per gel can be resolved making this unit ideal for those routinely checking medium numbers of samples over short to medium gel run lengths. Loading guides allow easy well identification and sample loading. Scoops available as an option allow safe transfer of gels. For Power Supplies and Product Selector see page 84.

TYPICAL APPLICATIONS

Ideal for quick checks of samples from PCR and cloning

Condensation free lids available

ORDERING INFORMATION

MSCHOICE7 multiSUB™ Choice	15 x 7cm UV Tray, 2 x 20 sample combs, loading guides and dams
MSCHOICE10 multiSUB™ Choice	15 x 10cm UV Tray, 2 x 20 sample combs, loading guides and dams
MSCHOICE15 multiSUB™ Choice	15 x 15cm UV Tray, 2 x 20 sample combs, loading guides and dams
MSCHOICETRIO multiSUB™ Choice Trio	15 x 7,10 & 15cm UV Tray, 2 x 20 sample combs, loading guides and dams
MSCHOICETRIO15 multiSUB™ Choice Trio 15	3 x 15cm UV tray, 2x 20 sample combs, loading guides and dams
MSCHOICEST20 multiSUB™ Choice Stretch 20	15 x 20cm UV tray, 4 x 28 sample combs, loading guides and dams
MSCHOICEST25 multiSUB™ Choice Stretch 25	15 x 25cm UV tray, 4 x 28 sample combs, loading guides and dams

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	15 x 7cm 15 x 10cm 15 x 15cm 15 x 20cm 15 x 25cm
Unit dimensions (w x l x h)	17.5 x 26.5 x 9cm 17.5 x 41 x 9cm (Stretch models only)
Max. sample capacity	15 x 7cm tray – 70 samples 15 x 10cm tray – 140 samples 15 x 15cm tray – 210 samples 15 x 20cm tray – 280 samples 15 x 25cm tray – 350 samples
Buffer volume	500ml (choice) 1000ml (choice stretch)
Combs available: No. of samples Thicknesses	 1, 2, 4, 10, 10MC, 12, 14MC, 16, 18MC, 20, 28MC, 30MC, 35 0.75, 1, 1.5, 2mm

MULTISUB™ CHOICE ACCESSORIES

MS15-UV7	15 x 7cm UV Tay	MS15-UVDAM	Casting Dams
MS15-UV10	15 x 10cm UV Tray	MS15-PE	Positive Electrode
MS15-UV15	15 x 15cm UV Tray	MS15-NE	Negative Electrode
MS15-UVST20	15 x 20 UV Tray	MS15-LG	Adhesive Loading Guides
MS15-UVST25	15 x 25 cm V Tray	MS15-WP	Viewing Platform
MS15-UVS	15cm UV Gel Scoop	MSCHOICECP	Cool-Pack and Platform
MS15/20-FC	multiSUB™ Choice/Maxi Flexi caster		

MULTISUB™ CHOICE COMBS

Code	Description	Sample volume for a 5mm thick gel
MS15-1-0.75	Comb Prep 1, Marker 1, 0.75mm thick	371µl
MS15-2-0.75	Comb Prep 2, Marker 2, 0.75mm thick	169µl
MS15-4-0.75	Comb Prep 4, Marker 2, 0.75mm thick	91µl
MS15-10-0.75	Comb 10 sample, 0.75mm thick	34µl
MS15-12-0.75	Comb 12 sample, 0.75mm thick	30µl
MS15-20-0.75	Comb 20 sample, 0.75mm thick	16µl
MS15-35-0.75	Comb 35 sample, 0.75mm thick	7µl
MS15-10MC-0.75	Comb 10 sample MC, 0.75mm thick	22µl
MS15-14MC-0.75	Comb 14 sample MC, 0.75mm thick	22µl
MS15-16MC-0.75	Comb 16 sample MC, 0.75mm thick	20µl
MS15-18MC-0.75	Comb 18 sample MC, 0.75mm thick	8µl
MS15-28MC-0.75	Comb 28 sample MC, 0.75mm thick	8µl
MS15-30MC-0.75	Comb 30 sample MC, 0.75mm thick	9µl
MS15-1-1	Comb Prep 1, Marker 1, 1mm thick	495µl
MS15-2-1	Comb Prep 2, Marker 2, 1mm thick	225µl
MS15-4-1	Comb Prep 4, Marker 2, 1mm thick	122µl
MS15-10-1	Comb 10 sample, 1mm thick	45µl
MS15-12-1	Comb 12 sample, 1mm thick	41µl
MS15-20-1	Comb 20 sample, 1mm thick	21µl
MS15-35-1	Comb 35 sample, 1mm thick	10µl
MS15-10MC-1	Comb 10 sample MC, 1mm thick	29µl
MS15-14MC-1	Comb 14 sample MC, 1mm thick	29µl
MS15-16MC-1	Comb 16 sample MC, 1mm thick	27µl
MS15-18MC-1	Comb 18 sample MC, 1mm thick	11µl
MS15-28MC-1	Comb 28 sample MC, 1mm thick	11µl
MS15-30MC-1	Comb 30 sample MC, 1mm thick	13µl
MS15-1-1.5	Comb Prep 1, Marker 1, 1.5mm thick	743µl
MS15-2-1.5	Comb Prep 2, Marker 2, 1.5mm thick	338µl
MS15-4-1.5	Comb Prep 4, Marker 2, 1.5mm thick	182µl
MS15-10-1.5	Comb 10 sample, 1.5mm thick	68µl
MS15-12-1.5	Comb 12 sample, 1.5mm thick	61µl
MS15-20-1.5	Comb 20 sample, 1.5mm thick	32µl
MS15-35-1.5	Comb 35 sample, 1.5mm thick	15µl
MS15-10MC-1.5	Comb 10 sample MC, 1.5mm thick	44µl
MS15-14MC-1.5	Comb 14 sample MC, 1.5mm thick	44µl
MS15-16MC-1.5	Comb 16 sample MC, 1.5mm thick	41µl
MS15-18MC-1.5	Comb 18 sample MC, 1.5mm thick	17µl
MS15-28MC-1.5	Comb 28 sample MC, 1.5mm thick	17µl
MS15-30MC-1.5	Comb 30 sample MC, 1.5mm thick	19µl
MS15-1-2	Comb Prep 1, Marker 1, 2mm thick	990µl
MS15-2-2	Comb Prep 2, Marker 2, 2mm thick	450µl
MS15-4-2	Comb Prep 4, Marker 2, 2mm thick	243µl
MS15-10-2	Comb 10 sample, 2mm thick	90µl
MS15-12-2	Comb 12 sample, 2mm thick	81µl
MS15-20-2	Comb 20 sample, 2mm thick	43µl
MS15-35-2	Comb 35 sample, 2mm thick	20µl
MS15-10MC-2	Comb 10 sample MC, 2mm thick	59µl
MS15-14MC-2	Comb 14 sample MC, 2mm thick	59µl
MS15-16MC-2	Comb 16 sample MC, 2mm thick	54µl
MS15-18MC-2	Comb 18 sample MC, 2mm thick	23µl
MS15-28MC-2	Comb 28 sample MC, 2mm thick	23µl
MS15-30MC-2	Comb 30 sample MC, 2mm thick	25µl

FEATURES:

- Three tray options
- Run up to 210 samples
- Low buffer volumes
- Multichannel pipette compatible combs for speed loading

multiSUB™ Choice

The multiSUB™ Choice offers a wide degree of versatility. Three tray options are available – 15 x 7cm, 15 x 10cm and 15 x 15cm – allowing the choice of one, two or all three gel length options at the time of purchase. Further purchases of additional accessories are no longer required. Maximising comb and tray options allow up to 210 samples to be resolved per gel. The 15cm total run length allows restriction fragment or other close MW sample bands to be easily separated and identified. Speed loading is accomplished using 10, 14, 16, 18, 28 or 30 sample multi-channel pipette compatible combs. multiSUB™ choice stretch units are available with optional 15 x 20cm and 15 x 25cm gel trays and four 28-sample combs for those researchers wanting to perform higher resolution separation of more samples over a longer distance. multiSUB™ Choice Trio includes all 3 tray sizes for optimum versatility and value.

TYPICAL APPLICATIONS

Ideal for restriction fragment analysis, sample prep or checking of high numbers of samples

Condensation free lids available

multiSUB™ Choice stretch version

ORDERING INFORMATION

MSMAXI10 multiSUB Maxi	20 x 10cm UV Tray, 2 x 20 sample, 1mm thick combs, casting dams, loading guides
MSMAXI15 multiSUB Maxi	20 x 15cm UV Tray, 2 x 20 sample, 1mm thick combs, casting dams, loading guides
MSMAXI20 multiSUB Maxi	20 x 20cm UV Tray, 2 x 20 sample, 1mm thick combs, casting dams, loading guides
MSMAXIDUO multiSUB Maxi	20 x 10 & 20 x 20cm UV Tray, 2 x 20 sample, 1mm thick combs, casting dams, loading guides
MSMAXI25 multiSUB Maxi	20 x 25cm UV Tray, 2 x 20 sample, 1mm thick combs, casting dams, loading guides
MS20-UV10	20 x 10cm UV Tray
MS20-UV15	20 x 15cm UV Tray
MS20-UV20	20 x 20cm UV Tray
MS20-UV25	20 x 25cm UV Tray
MS20-UVDAM	Casting Dams
MS15/20-FC	multiSUB Choice/Maxi Flexi caster
MS20-LG	Adhesive Loading Guides
MS20-WP	Viewing Platform
MS20-PE	Positive Electrode
MS20-NE	Negative Electrode
MS20-UVS	20cm UV Gel Scoop
MSMAXICP	Cool-Pack and Platform
MSMAXIBSB	Buffer Saver Blocks pk/2 saves 450ml of buffer

MultiSUB Maxi complete system

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	20 x 10cm 20 x 20cm 20 x 15cm 20 x 25cm
Unit dimensions (w x l x h)	23 x 39.5 x 9cm
Max Sample Capacity	20 x 10cm tray - 200 samples 20 x 15cm tray - 350 samples 20 x 20cm tray - 450 samples 20 x 25cm tray - 550 samples
Buffer volume	1500ml
Combs available: No. of samples Thicknesses	1, 2, 4, 10, 16, 20MC, 25, 30, 36, 40MC, 50 0.75, 1, 1.5, 2mm

MULTISUB™ MAXI COMBS

Code	Description	Sample volume for a 5mm thick gel
MS20-1-0.75	Comb Prep 1, Marker 1, 0.75mm thick	506µl
MS20-2-0.75	Comb Prep 2, Marker 2, 0.75mm thick	236µl
MS20-4-0.75	Comb Prep 4, Marker 2, 0.75mm thick	115µl
MS20-10-0.75	Comb 10 sample, 0.75mm thick	54µl
MS20-16-0.75	Comb 16 sample, 0.75mm thick	30µl
MS20-20MC-0.75	Comb 20 sample MC, 0.75mm thick	20µl
MS20-25-0.75	Comb 25 sample, 0.75mm thick	16µl
MS20-30-0.75	Comb 30 sample, 0.75mm thick	13µl
MS20-36-0.75	Comb 36 sample, 0.75mm thick	11µl
MS20-40MC-0.75	Comb 40 sample MC, 0.75mm thick	8µl
MS20-50-0.75	Comb 50 sample, 0.75mm thick	8µl
MS20-1-1	Comb Prep 1, Marker 1, 1mm thick	675µl
MS20-2-1	Comb Prep 2, Marker 2, 1mm thick	315µl
MS20-4-1	Comb Prep 4, Marker 2, 1mm thick	153µl
MS20-10-1	Comb 10 sample, 1mm thick	72µl
MS20-16-1	Comb 16 sample, 1mm thick	41µl
MS20-20MC-1	Comb 20 sample MC, 1mm thick	27µl
MS20-5-1	Comb 25 sample, 1mm thick	21µl
MS20-30-1	Comb 30 sample, 1mm thick	17µl
MS20-36-1	Comb 36 sample, 1mm thick	14µl
MS20-40MC-1	Comb 40 sample MC, 1mm thick	11µl
MS20-50-1	Comb 50 sample, 1mm thick	10µl
MS20-1-1.5	Comb Prep 1, Marker 1, 1.5mm thick	1013µl
MS20-2-1.5	Comb Prep 2, Marker 2, 1.5mm thick	473µl
MS20-4-1.5	Comb Prep 4, Marker 2, 1.5mm thick	230µl
MS20-10-1.5	Comb 10 sample, 1.5mm thick	108µl
MS20-16-1.5	Comb 16 sample, 1.5mm thick	61µl
MS20-20MC-1.5	Comb 20 sample MC, 1.5mm thick	41µl
MS20-25-1.5	Comb 25 sample, 1.5mm thick	32µl
MS20-30-1.5	Comb 30 sample, 1.5mm thick	26µl
MS20-36-1.5	Comb 36 sample, 1.5mm thick	22µl
MS20-40MC-1.5	Comb 40 sample MC, 1.5mm thick	17µl
MS20-50-1.5	Comb 50 sample, 1.5mm thick	16µl
MS20-1-2	Comb Prep 1, Marker 1, 2mm thick	1350µl
MS20-2-2	Comb Prep 2, Marker 2, 2mm thick	630µl
MS20-4-2	Comb Prep 4, Marker 2, 2mm thick	306µl
MS20-10-2	Comb 10 sample, 2mm thick	144µl
MS20-16-2	Comb 16 sample, 2mm thick	81µl
MS20-20MC-2	Comb 20 sample MC, 2mm thick	54µl
MS20-25-2	Comb 25 sample, 2mm thick	42µl
MS20-30-2	Comb 30 sample, 2mm thick	34µl
MS20-36-2	Comb 36 sample, 2mm thick	29µl
MS20-40MC-2	Comb 40 sample MC, 2mm thick	23µl
MS20-50-2	Comb 50 sample, 2mm thick	21µl

FEATURES:

- Now available with 20 x 25cm, 20 x 20cm, 20 x 15cm or 20 x 10cm gel trays
- Run up to 550 samples
- Low buffer volumes
- Ideal for extended separations

multiSUB™ Maxi

The multiSUB™ Maxi is primarily designed for resolution of high numbers of samples such as from Cloning or PCR. The multiSUB™ Maxi allows ultra high-resolution separations over extended runs. Tray sizes correspond to standard blotter sizes. It also allows easy sample transfer onto a membrane for further analysis.

Four gel tray sizes are available – 20 x 10cm, 20 x 15cm, 20 x 20cm and 20 x 25cm. Multichannel pipette compatible combs up to 40 sample facilitate speed loading of up to 440 samples per gel. 50 sample combs allow maximum sample capacity of 550 samples per gel.Casting dams allow gels to be rapidly cast externally while the multiSUB™ unit is in use for gel running.

TYPICAL APPLICATIONS

Primarily designed for separating high numbers of samples from PCR or cloning

Condensation free lids available

multiSUB™ Choice/Maxi flexi caster

MULTISUB™ SCREEN ACCESSORIES

MS26-UV32	26 x 32cm, UV Tray	MS26-PE	Positive Electrode
MS26-UV24	26 x 24cm, UV Tray	MS26-NE	Negative Electrode
MS26-UV16	26 x 16cm, UV Tray	MS26-WP	Viewing Platform
MS26-LG	Adhesive Loading Guides	MSSCRNBSB	Buffer Saver Blocks, pk/2 saves 625ml of buffer
MS26-FC	Flexicaster for gels up to 32cm. Casts MSMINI, MSMIDI, MSCHOICE, MSMAXI and MSSCREEN gels.	MS26-x -yLG	CombiComb and Loading Guide; x = comb well no.,y = comb Thickness
MS26-UVS	26cm UV Gel Scoop	MSSCRNCP	Cool-Pack and Platform

MULTISUB™ SCREEN COMBS

Code	Description a 5mm thick gel	Sample volume for a 5mm thick gel
MS26-28MC-0.75	Comb 28 sample MC, 0.75mm thick	25µl
MS26-56MC-0.75	Comb 56 sample MC, 0.75mm thick	10µl
MS26-28MC-1	Comb 28 sample MC, 1mm thick	34µl
MS26-56MC-1	Comb 56 sample MC, 1mm thick	14µl
MS26-28MC-1.5	Comb 28 sample MC, 1.5mm thick	51µl
MS26-56MC-1.5	Comb 56 sample MC, 1.5mm thick	20µl
MS26-28MC-2	Comb 28 sample MC, 2mm thick	68µl
MS26-56MC-2	Comb 56 sample MC, 2mm thick	27µl

ORDERING INFORMATION

MSSCREEN32	multiSUB Screen, 26 x 32cm UV Tray, 6 x 28 sample combs, loading guides & flexicaster
MSSCREEN24	multiSUB Screen, 26 x 24cm UV Tray, 6 x 28 sample combs, loading guides & flexicaster
MSSCREEN16	multiSUB Screen, 26 x 16cm UV Tray, 6 x 28 sample combs, loading guides & flexicaster
MSSCREENTRIO	multiSUB Screen, 26 x 16cm, 26 x 24cm, 26 x 32cm UV Trays, 6 x 28 sample combs, loading guides & flexicaster

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	26 x 32cm, 26 x 24cm, 26 x 16cm
Unit dimensions (w x l x h)	28 x 50 x 9cm
Max. sample capacity	26x32cm tray – 672 samples 26x24cm tray – 504 samples 26x16cm tray – 336 samples
Buffer volume	2 litres
Combs available: No. of samples Thicknesses	 28MC, 56MC 0.75, 1, 1.5, 2mm

FEATURES:

- Available with 26 x 16, 26 x 24 and 26 x 32cm, or all three gel trays
- Run up to 672 samples
- Buffer Recirculation Included
- Multichannel pipette compatible combs for speed loading

multiSUB™ Screen

Designed for rapid screening of very large numbers of Clonal or PCR samples, the multiSUB™ Screen horizontal gel unit has a 672 maximum sample capacity per gel. This allows loading and analysis of exactly seven 96-well format microtitre plates.

The large gel run length of 32cm also allows resolution of samples over a long distance for separation of complex sample bands such as in restriction fragment analysis.

The unit is available with a full length tray or with other tray length options of 16 or 24cm so that the user's exact requirements can be matched. In addition to options for single length gel trays, the multiSUB™ Screen is available with all three gel tray lengths to provide the maximum in flexibility, versatility and value.

Buffer recirculation ports are included as standard to allow enhanced resolution over extended runs while loading guides enhance well visibility for easy sample loading.

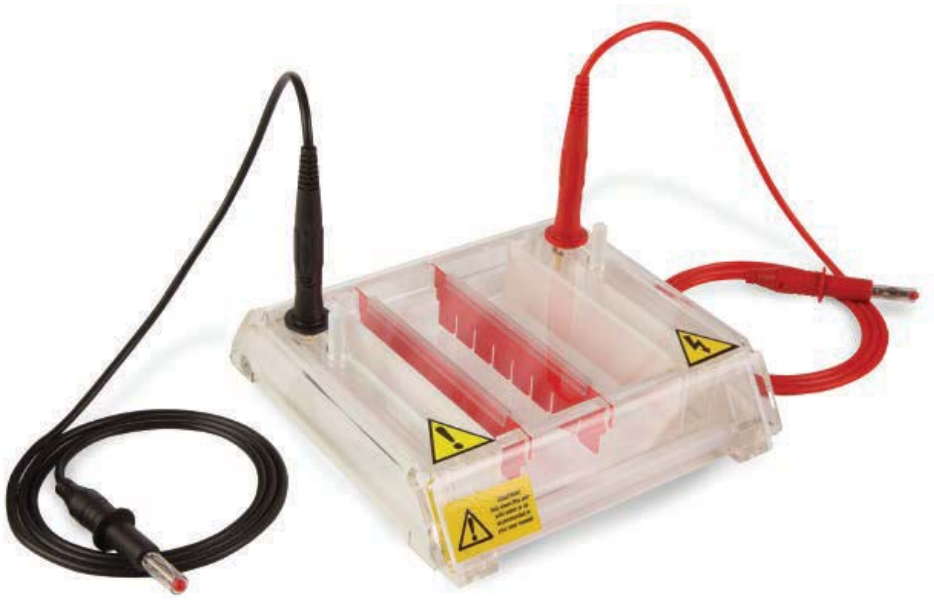
The MS26-FC flexicaster is now included with each multiSUB™ screen unit.

TYPICAL APPLICATIONS

Ideal for checking very high number of samples for pcr and cloning.

MSScreen with recirculation ports

Flexi caster for all gels upto 32cm



miniRAPIDE

The miniRAPIDE is a completely self contained system designed for quick checks of samples. Gel casting, running and analysis are all performed in the same ultra compact unit. Buffer and gel volumes have been kept to a minimum and the parallel electrode arrangement allows ultra efficient current transfer, enabling resolution to be completed within 30 minutes. The UV transparent base allows direct viewing on a UV Transilluminator with no need for time consuming transfer and potential gel damage. Dual comb slots allow the loading of up to 40 samples per gel while multichannel pipette compatible combs further enhance the speed and convenience.

FEATURES:

- A convenient self contained solution for routine agarose gel electrophoresis
- Ultra compact
- Low buffer volumes
- Multichannel pipette compatible combs for speed loading

ORDERING INFORMATION

FMMS10	miniRapide 10 x 8cm, 2 x 8 sample combs 1.5mm thick and casting dams
FMMS-DAM	miniRapide Casting dams, pk/2
RPW0.2	Replacement Platinum Wire 0.2mm – 50cm

TECHNICAL SPECIFICATION

Gel dimensions (w x l)	10 x 8cm
Unit dimensions (w x l x h)	15 x 15 x 4cm
Max. samplecapacity	40 samples
Buffer volume	50ml
Combs available: No. of samples Thicknesses	 1, 4, 8, 12, 16, 20 1, 1.5mm

MIN RAPIDE COMBS

Code	Description	Sample volume for a 5mm thick gel
FMMS-1-1	Comb 1 sample , 1 dye , 1mm thick	330µl
FMMS-4-1	Comb 4 sample, 1mm thick	90µl
FMMS-8-1	Comb 8 sample, 1mm thick	40µl
FMMS-12-1	Comb 12 sample, 1mm thick	25µl
FMMS-16-1	Comb 16 sample, 1mm thick	15µl
FMMS-20MC-1	Comb 20 sample MC, 1mm thick	10µl
FMMS-1-1.5	Comb 1 sample , 1 dye , 1.5mm thick	495µl
FMMS-4-1.5	Comb 4 sample, 1.5mm thick	135µl
FMMS-8-1.5	Comb 8 sample, 1.5mm thick	60µl
FMMS-12-1.5	Comb 12 sample, 1.5mm thick	38µl
FMMS-16-1.5	Comb 16 sample, 1.5mm thick	23µl
FMMS-20MC-1.5	Comb 20 sample MC, 1.5mm thick	15µl

FEATURES:

- Low voltage makes the MSBGEL ideal for use in schools and colleges where safety is paramount
- Integrated safety lid makes the gel inaccessible during use
- UV-transparent acrylic for direct visualisation of the gel within the tank
- Small size minimises buffer and gel consumption
- Cost-effective – no need for expensive power supplies, or transilluminators if supplied with optional kit

Battery Gel

The MSBGEL battery mini-gel is designed specifically with safety and cost in mind: as no power supply is necessary. Results are obtainable within 1.5 hours and it is ideal for schools, classrooms and electrophoresis in the field where no power source is available.

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l)	6 x 7.5cm
Unit dimensions (w x l x h)	17 x 11 x 3.5cm
Max. sample (capacity)	32 samples
Buffer volume	50ml
Combs available: No. of samples Thicknesses	 4, 8, 12 and 16 1mm

ORDERING INFORMATION

MSBGEL		Battery operated horizontal gel 6 x 7.5cm, 2 x 8 sample 1-mm-thick combs, casting gates	
RPW0.2		Replacement Platinum Wire 0.2mm – 50cm	
MSBGEL-CG	Casting gates Pk/2 for MSBGEL	MSBG-1-8	Comb 8 sample, 1mm thick
MSBGEL-BAT	PP3 batteries for MSBGEL Pk/2	MSBG-1-12	Comb 12 sample, 1mm thick
MSBG-1-4	Comb 4 sample, 1mm thick	MSBG-1-16	Comb 16 sample, 1mm thick

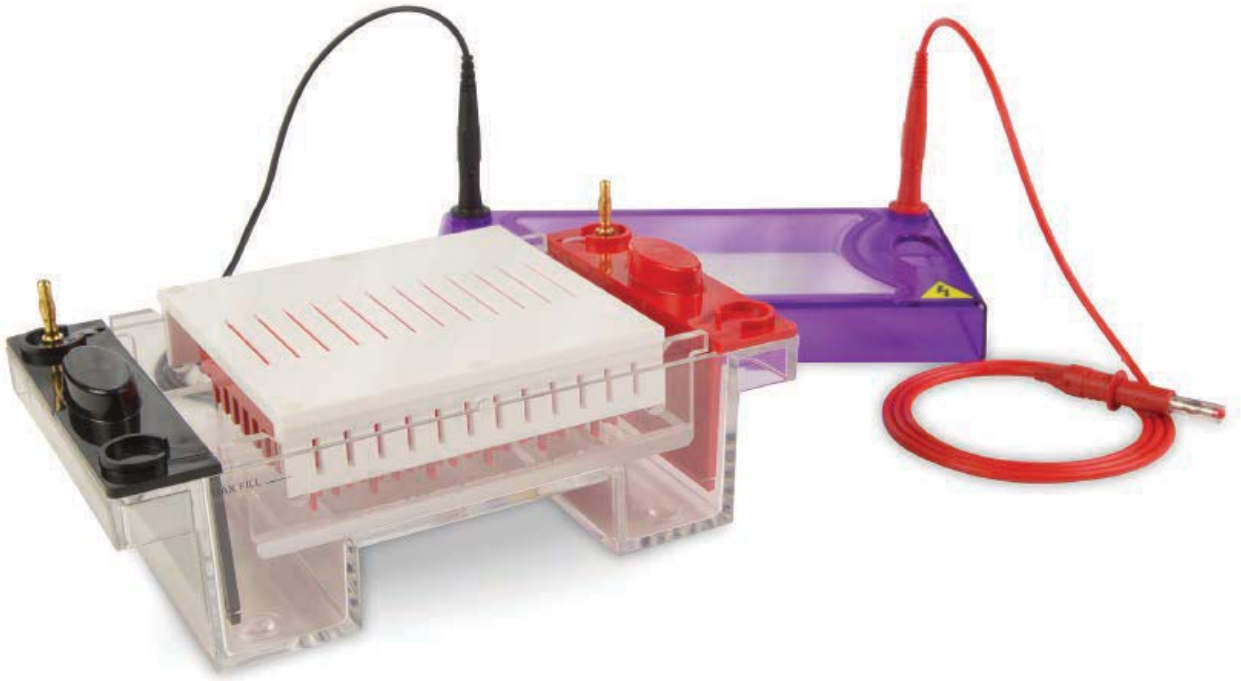
ORDERING INFORMATION

MSMIDI96	multiSUB™ Midi96, UV tray, Comb block with 12 x 8 sample, 1mm thick combs, casting dams
MSMIDI961.5	multiSUB™ Midi96, UV tray, Comb block with 12 x 8 sample, 1.5mm thick combs, casting dams. Combs have one marker lane
MSMIDI96/2M	multiSUB™ Midi96, UV tray, Comb block with 12 x 8 sample, 1mm thick combs, casting dams. Combs have two marker lanes
MSMIDI96/1.5/2M	multiSUB™ Midi96, UV tray, Comb block with 12 x 8 sample, 1.5mm thick combs, casting dams. Combs have two marker lanes
MSMIDI96ST	multiSUB™ Midi96 STRETCH, UV tray, Comb block with 12 x 8 sample, 1mm thick combs, casting dams
MSMIDI96ST1.5	multiSUB™ Midi96 STRETCH, UV tray, Comb block with 12 x 8 sample, 1.5mm thick combs, casting dams. Combs have one marker lane
MSMIDI96ST/2M	multiSUB™ Midi96 STRETCH, UV tray, Comb block with 12 x 8 sample, 1mm thick combs, casting dams. Combs have two marker lanes
MSMIDI96ST /1.5/2M	multiSUB™ Midi96 STRETCH, UV tray , Comb block with 12 x 8 sample, 1.5mm thick combs, casting dams. Combs have two marker lanes
MSMIDI96STDBL	multiSUB™ Midi96 STRETCH, UV tray, Comb block with 24 x 8 sample, 1mm thick combs, casting dams - N.B. run length = 1.8cm.
MSMIDI96-8-1-CB	MSMIDI 96 Comb 8 sample MC + 1 Marker, 1mm thick COMB BLOCK
MSMIDI96-8-1.5-CB	MSMIDI 96 Comb 8 sample MC + 1 Marker, 1.5mm thick COMB BLOCK
MSMIDI96-8-1/2M-CB	MSMIDI 96 Comb 8 sample MC + 2 Marker, 1mm thick COMB BLOCK
MSMIDI96-8-1.5/2M-CB	MSMIDI 96 Comb 8 sample MC + 2 Marker, 1.5mm thick COMB BLOCK
MSMIDI96ST-8-1-CB	MSMIDI 96 STRETCH Comb 8 sample MC + 1 Marker, 1mm thick COMB BLOCK
MSMIDI96ST-8-1.5-CB	MSMIDI 96 STRETCH Comb 8 sample MC + 1 Marker, 1.5mm thick COMB BLOCK
MSMIDI96ST-8-1/2M-CB	MSMIDI 96 STRETCH Comb 8 sample MC + 2 Marker, 1mm thick COMB BLOCK
MSMIDI96ST-8-1.5/2M-CB	MSMIDI 96 STRETCH Comb 8 sample MC + 2 Marker, 1.5mm thick COMB BLOCK
MSMIDI96-8-1	MSMIDI 96 Comb 8 sample MC, 1mm thick. one marker lane.
MSMIDI96-8-1.5	MSMIDI 96 Comb 8 sample MC, 1.5mm thick. one marker lane.
MSMIDI96-8-1/2M	MSMIDI 96 Comb 8 sample MC, 1mm thick. two marker lanes.
MSMI-DI96-8-1.5/2M	MSMIDI 96 Comb 8 sample MC, 1.5mm thick. two marker lanes
MS10-UV96	multiSUB™ Midi, 96 Well Tray
MS10-UV96ST	multiSUB™ Midi STRETCH, 96 Well Tray

TECHNICAL SPECIFICATIONS

Gel dimensions (w x l) msmidi96: msmidi96st:	 10 x 12cm 10 x 24cm
Unit dimensions (w x l x h) msmidi96: msmidi96st:	 12.5 x 22 x 9cm 12.5 x 46.5 x 8cm
Max. sample capacity	96 samples plus 1 or 2 marker lanes
Buffer volume (w x l) msmidi96: msmidi96st:	 300ml 700ml
Combs available: No. of samples Thicknesses	8 + 1x Marker, 8 + 2x Markers 1, 1.5mm

Multisub Midi 96 Stretch



multiSUB™ Midi 96

FEATURES:

- Designed for loading of DNA samples from multi-well plates
- Ideal for high throughput electrophoresis
- Average run-time is just 15 to 30 minutes
- Direct microplate format for easy lane identification
- Multichannel pipette compatible combs for speed loading

The multiSUB™ Midi 96 Gel System is ideal for high throughput electrophoresis of PCR products or samples containing a small number of DNA bands.

Its 10x12cm (W x L) gel dimensions and 96-well comb block format correspond to the standard microplate configuration. Two different types of comb are available: one which has 8 wells and one additional lane for DNA markers and one which has 8 wells and 2 additional lanes for markers. The offset layout of the wells allows a maximum run length of 1.8cm per well, resulting in improved separation.

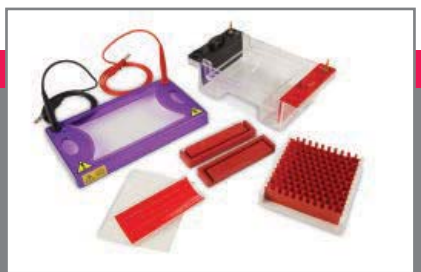
multiSUB™ Midi 96 can accommodate samples from a 96-well plate – samples can be loaded directly using 8-channel pipettes. As with all multiSUB™ units, leak-proof casting is simplified using the supplied casting dams while their ultra-compact size minimises buffer usage and bench space requirements.

MSMIDI96ST Stretch Systems are also available for those users requiring an extended run length per well of up to 3.6cm, or for loading of samples from two 96-well plates - MSMIDI96STDBL.

TYPICAL APPLICATIONS

Ideal for analysis of up to 96 PCR-fragment length polymorphisms loaded from 96-well microplates or thermal cycler blocks

multiSUB™ Midi 96 - Well comb blocks



multiSUB™ Midi 96 - Complete system

multiSUB™-4

The multiSUB™-4 is a compact system capable of running a maximum 1200 samples simultaneously by stacking up to 4 horizontal gels. This achieves high sample throughput while maintaining the time- and space-saving advantages of a small, compact unit.

Each multiSUB™-4 is supplied with 4 gel trays and 8 combs as standard, while additional trays and combs may be purchased as required. Two double-sided comb and three tray length formats are also available.

An optional flexicaster, either supplied separately or as a package with the multiSUB™-4, is also available that allows up to four 8x6, 8x12 and 8x18cm multiSUB™-4 gel trays to be cast simultaneously outside the tank.

FEATURES:

- Separates a maximum 1200 samples in as little as 15 minutes in 4 stacked horizontal gel trays
- Multichannel-compatible combs and gel plate configurations compatible with microplates and thermal cycler blocks ensure rapid loading of DNA minipreps and PCR products by 8-channel pipette
- Double-sided 1.5-mm-thick combs allow more sample volume to be loaded into each well
- Three gel tray options available in 8x6, 8x12 and 8x18cm (WxL) sizes for maximum flexibility
- Small footprint area reduces uptake of bench space within the laboratory

ORDERING INFORMATION

CSL-MULTISUB4	multiSUB4, Multi-Level Gel Chamber, Includes 4x 18cm UV Trays, 8x 18/8 Sample 1.5mm Combs (Tape UV Trays To Seal)
CSL-MULTISUB4EXCAS	multiSUB4, As Above But With External Caster For 4 Gels
MSUB4UV6	multiSUB4 tray 8 x 6cm
MSUB4UV12	multiSUB4 tray 8 x 12cm
MSUB4UV18	multiSUB4 tray 8 x 18cm
MSUB4EXCASTER	External Caster For Msub4 (4 Trays)
MSUB4-12/1-1	12/1 Sample 1mm Combs for multiSUB4
MSUB4-18/8-1	18/8 Sample 1mm Combs for multiSUB4
MSUB4-12/1-1.5	12/1 SAMPLE 1.5mm Combs for multiSUB4
MSUB4-18/8-1.5	18/8 SAMPLE 1.5mm Combs for multiSUB4
CSL-CAB	Electrophoresis cable (Black & Red)

TECHNICAL SPECIFICATION

Gel dimensions (w x l)	8 x 6cm, 8 x 12cm, 8 x 18cm
Unit dimensions (w x l x h)	11 x 35 x 16cm
Max. sample capacity	per 18cm tray with 1cm run length: 306 with 2cm run length: 144 with 3cm run length: 72
Buffer volume	200, 400, 600 or 800ml (for 1, 2, 3 or 4 gel trays resp.)
Combs available: No. of samples Thicknesses	1, 8, 12, 18 DuoCombs 1, 1.5mm

FEATURES:

- Adjustable barrier with ultra-soft silicone gasket ensures leak-proof casting
- Mini flexicaster accommodates 7x7, 7x10, 10x7 and 10x10cm gel trays
- Maxi flexicaster accommodates 15x7, 15x10 and 15x15 and 20x10, 20x15, 20x20 and 20x25cm gel trays
- Maxi flexicaster also accommodates MSMINI and MSMIDI gel trays
- MS26 flexicaster accommodates all tray sizes (gel can be poured at 80 degree C)

ORDERING INFORMATION

MS7/10-FC	multiSUB Mini/Midi Flexi Caster
MS15/20-FC	multiSUB Choice/Maxi Flexi Caster
MS26-FC	multiSUB SCREEN Flexi caster

MS26-FC TRAY COMPATIBILITY

Tray	Caster Capacity
MS7-UV7, MS7-UV10.	3 of each
MS10-UV7, MS10-UV10. MS15-UV7, MS15-UV10, MS15-UV15, MS15-UV17,	2 of each
MS15-UVST20, MS15-UVST25. MS20-UV10, MS15-UV15,	1 of each
MS20-UV17, MS15-UV20, MS15-UV25.	1 of each
MS26-UV16, MS26-UV24, MS26-UV32.	1 of each

Casting Systems

Three horizontal flexicasters are now available for use with the multiSUB™ Mini, Midi, Choice, Maxi and MSSCREEN gel trays. Each flexicaster is entirely versatile and when casting, one end of the gel tray is pushed into position against a fixed wall, while a moveable dam with twin cam-lock design and rubber insert locks into position at the other end to provide a leak proof seal. No further casting accessories are needed other than the gel tray, while adjustable levelling feet and a spirit bubble facilitate even gel-pouring.

FEATURES:

- View you gel more easily.
- Removes some of the heat generated by the electrophoresis procedure.
- Unique feature to the multiSUB™ range of tanks.

New Cleaver Scientific ClearSight Electrophoresis

A common problem associated with electrophoresis is condensation build up on the lids which obscures the progress of the run. This can make it difficult to see the dye progression in the gel and thus difficult to work out how far the samples have actually run.

It is often the case that the gel is stopped and checked by removing the lid which is time consuming.

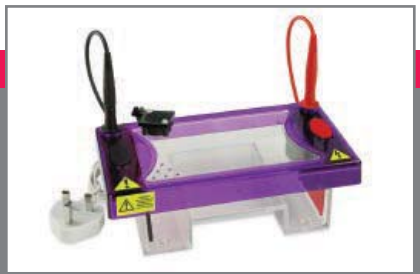
Cleaver Scientific ClearSight lids solve this problem.

These completely remove any condensation build up and give a perfectly clear view of the gel and the dye lane progression during the run using a USB powered fan within the lid. These are available either purchased as complete systems or if you already own a Cleaver Scientific gel tank as an upgrade.

Simply plug the lid into the USB source that is supplied and experience perfect clearly visible gels every time.

ORDERING INFORMATION

Complete systems:-	
MSMINI7CS	ClearSight MSMINI7, Fan & power source.
MSMINI10CS	ClearSight MSMINI10, Fan & power source
MSMINIDUOCS	ClearSight MSMINIDUO, Fan & power source.
MSMIDI7CS	ClearSight MSMINI7, Fan & power source.
MSMIDI10CS	ClearSight MSMIDI10, Fan & power source.
MSMIDIDUOCS	ClearSight MSMIDIDUO, Fan & power source.
MSCHOICE7CS	ClearSight MSCHOICE7, Fan & power source.
MSCHOICE10CS	ClearSight MSCHOICE10, Fan & power source.
MSCHOICE15CS	ClearSight MSCHOICE15, Fan & power source.
MSCHOICETRIOCS	ClearSight MSCHOICETRIO, Fan & power source.
MSCHOICETRIO15CS	ClearSight MSCHOICETRIO15, Fan & power source.
MSCHOICEST20CS	ClearSight MSCHOICEST20, Fan & power source.
MSCHOICEST25CS	ClearSight MSCHOICEST25, Fan & power source.
MSMAXIDUOCS	ClearSight MSMAXIDUO, Fan & power source.
MSMIDI96CS	ClearSight MSMIDI96, Fan & power source.
System Upgrades:-	
CLEARSIGHTMINI	ClearSight Lid for multiSUB Mini, Fan & power source.
CLEARSIGHTMIDI	ClearSight Lid for multiSUB Midi, Fan & power source.
CLEARSIGHTCHOICE	ClearSight Lid for multiSUB Choice, Fan & power source.
CLEARSIGHTMAXI	ClearSight Lid for multiSUB Maxi, Fan & power source.



MSMIDI-FL

Accessories

Gel Levelling Table

The Gel Levelling Table provides a useful way of pouring gels of uniform thickness. The table features a large 32 x 26cm platform with large thumb-wheel levelling feet at each corner. A levelling bubble is supplied.

Buffer Saver Blocks

Buffer saver blocks physically reduce the volume in positive and negative compartments of a gel chamber and so reduces buffer requirements, saving cost. Blocks are available for all multiSUB™ Horizontal Gel Units.

RunFAST High Efficiency Horizontal Gel Cooling

- Effective cooling
- Cools without external chilling systems
- Improves gel resolution and reduces run times

Comprising a removable Gel Platform and CoolPack the unique runFAST system will cool the buffer chamber of multiSUB™ horizontal gel units without any external chilling. Simply place the platform over the running tray and place a pre-chilled CoolPack on top. This allows the CoolPack to sit above the gel in buffer directly removing any heat generated.

Gel Rulers

- Sharp, clear, easily visible markings
- For use with ethidium bromide gels
- Ideal for gel presentation

ORDERING INFORMATION

High Efficiency Horizontal Gel Cooling Systems	
MSMINICP	Cool-Pack and Platform for MSMINI
MSMIDICP	Cool-Pack and Platform for MSMIDI
MSCHOICECP	Cool-Pack and Platform for MSCHOICE
MSMAXICP	Cool-Pack and Platform for MSMAXI
MSSCREENCP	Cool-Pack and Platform for MSSCREEN
Horizontal Buffer Saver Blocks	
MSMINIBSB	Buffer Saver Blocks for MSMINI, pk/2 saves 100ml of buffer
MSMIDIBSB	Buffer Saver Blocks for MSMIDI, pk/2 saves 100ml of buffer
MSCHOICEBSB	Buffer Saver Blocks for MSCHOICE, pk/2 saves 190ml of buffer
MSMAXIBSB	Buffer Saver Blocks for MSMAXI, pk/2 saves 450ml of buffer
MSSCREENBSB	Buffer Saver Blocks for MSSCREEN, pk/2 saves 625ml of buffer
Gel Levelling Table	
CSL-GLT	Gel Levelling Table
UV Fluorescent Ruler	
CSL-RULER	UV Fluorescent Ruler

Package Deals Horizontals

Cleaver Scientific now offers a comprehensive range of Combination Packages to address any budget or horizontal electrophoresis application.

Mini Horizontal with Power Supply

ORDERING INFORMATION			
MSMINIDUO-NANO300 Mini Horizontal Electrophoresis Package, includes:			
MSMINIDUO	horizontal unit with 7x7cm and 7x10cm gel trays and combs (Pg 9)	nanoPAC-300	300V, 400mA, 60W mini power supply (Pg 86)
MSMINIDUO-NANO300KIT Mini Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSMINIDUO-NANO300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

Midi Horizontal with Power Supply

ORDERING INFORMATION			
MSMIDIDUO-NANO300 Midi Horizontal Electrophoresis Package, includes:			
MSMIDIDUO	horizontal unit with 10x7cm and 10x10cm gel trays and combs (Pg 11)	nanoPAC-300	300V, 400mA, 60W mini power supply (Pg 86)
MSMIDIDUO-NANO300KIT Mini Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSMIDIDUO-NANO300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

Choice Horizontal with Power Supply

ORDERING INFORMATION			
MSCHOICETRIO-CS300 Choice Horizontal Electrophoresis Package, includes:			
MSCHOICE TRIO	horizontal unit with 15x7cm, 15x10cm & 15x15cm gel trays & combs (Pg 13)	CS-300V	300V, 700mA, 150W midi power supply (Pg 87)
MSCHOICETRIO-CS300KIT Choice Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSCHOICETRIO-CS300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

Maxi Horizontal with Power Supply

ORDERING INFORMATION			
MSMAXIDUO-CS300 Maxi Horizontal Electrophoresis Package:			
MSMAXIDUO	horizontal unit with 20x10cm and 20x20cm gel trays and combs (Pg 15)	CS-300V	300V, 700mA, 150W midi power supply (Pg 87)
MSMAXIDUO-CS300KIT Maxi Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSMAXIDUO-CS300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

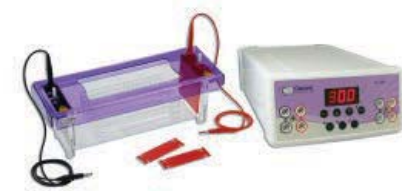
Screen Horizontal with Power Supply

ORDERING INFORMATION			
MSSCREENTRIO-CS500 Screen Horizontal Electrophoresis Package, includes:			
MSSCREENTRIO	horizontal unit with 26x16cm, 26x24cm & 26x32cm gel trays & combs (Pg 17)	CS-500V	500V, 800mA, 300W maxi power supply (Page 88)
MSSCREENTRIO-CS500KIT Screen Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSSCREENTRIO-CS500			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

Midi96 Horizontal with Power Supply

ORDERING INFORMATION			
MSMIDI96-CS300 Midi96 Horizontal Electrophoresis Package, includes:			
MSMIDI96	horizontal unit with UV tray and 12x8-sample 1mm comb block (Page 21)	CS-300V	300V, 700mA, 150W mini power supply (Page 87)
MSMIDI96-CS300KIT Midi96 Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSMIDI96-CS300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

multiSUB™-4 Horizontal with Power Supply



ORDERING INFORMATION			
MSUB4-CS300 MultiSUB-4 Horizontal Electrophoresis, includes:			
MULTISUB-4	horizontal unit with four 8x12cm gel trays and combs (Page 22)	CS-300V	300V, 700mA, 150W midi power supply (Page 87)
MSUB4-CS300KIT MultiSUB-4 Horizontal Electrophoresis Package with electrophoresis starter kit, includes:			
MSUB4-CS300			
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml (Pg 140)	CSL-AG100	100g agarose (Pg 136)
CSL-MDNA-1kb	1kb DNA ladder (Pg 139)	CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 pouches (Pg 138)

The Cleaver Scientific SAFE SERIES

Cleaver Scientific's 'Safe Series' has been developed to address the needs of researchers looking to work with safer alternatives to UV irradiation and ethidium bromide, both of which are known to have harmful mutagenic effects. Since starting with its award-winning* runVIEW™ electrophoresis system, the 'Safe Series' now includes the runDOC imaging system and its repertoire of runSAFE non-mutagenic, blue light fluorescent stains.

**Best Product Award at Lab Innovations 2013*

FEATURES:

- Contains everything except chemicals and reagents to perform horizontal electrophoresis and real-time gel free DNA band extraction and purification from runSAFE, and EtBr- and SYBR-stained agarose gels
- Combines the high resolution capability of the MSCHOICE system with the time-and space-saving convenience of a power supply and gel illuminator integrated within a compact bench top unit
- One viewing lid supplied, containing an amber emission filter for runSAFE and SYBR-stained gels which includes an extractor fan to keep the viewing pane free of condensation during electrophoresis
- Optional gel documentation system fits directly over the base unit and gel tank for imaging at the end of the electrophoresis run
- Perfect for education – let students learn the principles of electrophoresis by witnessing DNA size fractionation as it happens in the gel, in total safety from potentially hazardous UV and ethidium bromide!
- Money-saving – 30-50% less than the combined cost of a separate gel tank, power supply and transilluminator

TECHNICAL SPECIFICATION

runVIEW™ Viewing Dock			
Transilluminator Wavelength	470nm	Timer	1-999 minutes with alarm
Voltage/ Resolution	25-150V / 1V	Safety Device	No load detection
Current/ Resolution	300mA / 1mA	Operating Temperature	Ambient to 40°C
Power	30 W	Dimensions	293 x 220 x 80 mm
Operating Mode	Constant Voltage or Current	Rated Voltage	100-240V, 50/60Hz
runVIEW™ Gel System			
Gel Dimensions (W X L)	15 X 7, 15 x 10 & 15 X 15cm	bluVIEW Lid Design	CSL-RVLID1 - bluVIEW lid - bluVIEW lid – Amber (runSAFE & SYBR stains); Built-in extractor fan powered by base unit
Unit dimensions (W X D X H)	26.5 X 17.5 X 9cm	Combs	2 x extra thick 3mm preparatory combs double sided, 4 & 16MC and also 20/28MC. 2 x 1mm doubled sided combs, 4 & 16MC and 4 x double sided combs 20 & 28MC
Buffer volume	500ml	Comb Thickness	1&3mm

Real-time size fractionation and recovery of nucleic acids

runVIEW™ is an innovative new system which can be used to maximise the efficiency of DNA recovery from runSAFE, and EtBr- and SYBR-stained gels by minimising the number of steps involved in post-electrophoretic purification. runVIEW™ comprises the multiSUB™ MSCHOICE system with bluVIEW lid, containing an amber emission filter within its viewing pane, and a base unit with integrated power supply and blue LED gel illuminator. The amber emission filter has been optimised for safe, green-fluorescence emitting stains, including SYBR Green and runSAFE, while an additional bluVIEW lid, which is optional, contains an orange emission filter for EtBr and other red-fluorescence emitting stains. Both lids benefit from built-in extractor fans powered by the base unit for condensation-free viewing of real-time electrophoresis.

Simple DNA recovery

To use runVIEW™ for gel-free DNA recovery is simple.

1. Cast a gel with two identical rows of wells using one of the matching pairs of 3mm combs supplied. Transfer to the tank, remove the combs, and add buffer just to cover the gel and fill the wells. Load DNA ('loading tier').
2. Replace the lid and apply the power. Turn on the blue LED and see the DNA samples migrate in real-time.
3. When the DNA bands of interest enter the second row of wells ('extraction tier'), stop the power, remove lid and harvest the DNA by pipette.

Track DNA without harmful UV

Blue light is safe and has none of the detrimental effects of UV transillumination, including mutagenesis which can compromise cloning efficiency, while runVIEW™'s capacity to provide real-time visualisation of electrophoresis enables DNA to be tracked as it migrates through the gel. This allows the user to judge precisely when the band of interest is ready for extraction.

Save on time-consuming gel elution techniques

Running DNA into a well containing buffer effectively purifies the DNA of agarose, eliminating the need for time-consuming gel excision and purification techniques that also result in sample loss. Once harvested, the DNA needs only to be cleaned by a straightforward ethanol precipitation when it is ready for further digestion or ligation.

No expensive commercial gels

runVIEW™ works with standard runSAFE, SYBR Green and EtBr gels cast within the 15x7, 15x10 or 15x15cm MSCHOICE gel trays, and therefore does not require expensive precast gels and accessories.

A self-contained system

The compact base unit, which houses the in-built power supply and blue LED transilluminator, is dual-voltage and portable, and allows electrophoresis, gel visualisation and extraction to be performed at the bench, without the inconvenience of having to transport gels to a darkroom elsewhere within the laboratory.

Other benefits offered by runVIEW™ include:

- Power supply integrated within the base unit – adjustable in 1V or 1mA increments; timer function to 999 minutes for extended runs.
- Specialist combs for specialist applications - four multichannel compatible 1mm 20-/28-sample combs for rapid screening of nucleic acids from 96-well thermal cycler blocks and microplates. 3mm preparatory combs supplied for enhanced DNA recovery.
- Get real-time - existing MSCHOICE users may customise their system by purchasing the base station and bluVIEW lid.
- Versatile - power supply and gel illuminator may be used with other gels and electrophoresis systems.

ORDERING INFORMATION

CSL-RVMSCHOICE7	runVIEW™ system complete with 15 x 7cm gel tray, 1 set of casting dams & 8 combs.		
CSL-RVMSCHOICE10	runVIEW™ system complete with 15 x 10cm gel tray, 1 set of casting dams & 8 combs.		
CSL-RVMSCHOICE15	runVIEW™ system complete with 15 x 15cm gel tray, 1 set of casting dams & 8 combs.		
CSL-RVMSCHOICETRIO	runVIEW™ system complete with 15 x 7, 15 x 10 and 15 x 15cm gel trays, 3 sets of casting dams & 8 combs.		
CSL-RVLID1	runVIEW™ bluVIEW lid - Orange (EtBr) optional	MS15-1/2-1	Comb 1 & 2 sample, 1mm thick
CSL-RVLID2	runVIEW™ bluVIEW lid - Amber (runSAFE) standard	MS15-4/10MC-1	Comb 4 & 10MC sample, 1mm thick
CSL-RVHOOD	runVIEW™ VIEWING HOOD	MS15-20/28MC-1	Comb 20 &28MC sample, 1mm thick
CSL-RVBSBVLID	runVIEW™ base station & bluVIEW lid (RVLid2)	MS15-4/2M-3	Comb 4 sample 2 Marker, 3mm thick
CSL-RVBLED-MOD	Replacement blue light module, includes: MMPCB-BLUE-LED-MTX-V3-1 (blue light LED) and PPL-20-SI-L37-5-2M (silicone heat dispersion pad)	MS15-6/2M-3	Comb 6 sample 2 Marker, 3mm thick

runDOC

Gel documentation for real-time horizontal electrophoresis

runDOC is a portable, lightweight gel documentation system designed exclusively for the runVIEW™ real-time horizontal electrophoresis system (Pg 28). runDOC comprises a darkroom hood and 12.1 megapixel digital camera to capture images of runVIEW™, and EtBr- and SYBR-stained gels. The runDOC darkroom is placed directly over the RVMSCHOICE gel tank located on the runVIEW™ base unit, which contains a blue LED gel illuminator. The blue LED illuminator provides the excitation source for the DNA gel located within the tank, and following excitation the light emitted is then visualised using either one of the bluVIEW lid options supplied with runVIEW™ or the runDOC filter slide. runDOC has a small footprint area, occupying minimal space within the laboratory.

FEATURES:

- Gel documentation system designed exclusively for runVIEW™
- Lightweight darkroom hood fits quickly and easily over gel tank and base unit, allowing gels to be imaged as the bands migrate in real-time or at the end of the electrophoresis run
- Extractor fans in the bluVIEW lid and runDOC darkroom hood keep the gel free of condensation when imaging both during and after electrophoresis
- High resolution 12.1 megapixel camera with 8GB memory card for storage of images in RAW and JPEG formats
- Interchangeable filter slide and bluVIEW filter options for full flexibility: amber filter for runSAFE, SYBR and green fluorescence; and orange filter for EtBr and red fluorescence
- runDOC may be also used like an ordinary gel documentation system by placing the gel tray directly on the runVIEW™ base station, which acts as a transilluminator
- Complete system with laptop and software available

TECHNICAL SPECIFICATION

Camera		Lens	
Type	5x optical / 4x digital zoom DIGIC-5 processor	Focal Length	6.1-30.5mm
Effective Pixels	12.1MP	Aperture	f/1.8(W)-f/2.9(T)
Image Resolution	640x480 up to 4000x3000	Shutter Speed	15-1/4000s
Sensor	1/1.7" type high sensitivity CMOS	Filters	
File Format	RAW, JPEG	runDOC filter slide	Orange filter for EtBr; Amber filter for SYBR and runSAFE
Computer Interface	USB 2.0 Hi-speed (mini-B-jack)	bluVIEW lid options*	bluVIEW-orange for EtBr
Video Out	NTSC / PAL		bluVIEW-amber for SYBR and runSAFE
General			
Storage Media	8GB SD Memory Card		
Weight / Dimensions (WxDxH)	0.8Kg / cm		
Power	Rechargeable Li-ion battery and plug-in charger Optional mains cable charger available		
Laptop requirements	1.8GHz Pentium® IV or equivalent AMD Athlon® processor; 512MB memory; operating system Windows® XP SP3 onwards; 1GB storage and CD-ROM drive; 1 USB port 2.0; video resolution: 1280 x 800		

Camera specification may change.

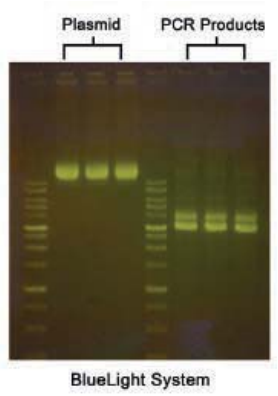
ORDERING INFORMATION

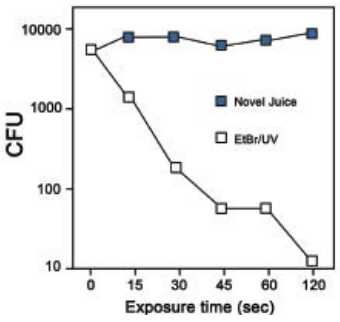
Code	Description
CSL-RVGELDOC	runVIEW™ gel Documentation hood with 12.1MP camera
CSL-RVGELDOCSYS	runVIEW™ gel Documentation hood with camera, Laptop & 1D Analysis Software
RVGELDOC-F1	Orange Filter for runDOC (Ethidium Bromide)
RVGELDOC-F2	Amber Filter for runDOC (runSAFE and SYBR stains)
CSL-CAMCHARGER	Optional mains charger cable for 12.1MP camera
CSL-RVSTATION	runSTATION complete with CSL-RVGELDOC & CSL-RVMSCHOICETRIO (Pg 28)
CSL-RVGDCOMPLETE	RVGDCOMPLETE includes RVGELDOCSYS and RVMSCHOICETRIO

FEATURES:

- Safe – all four runSAFE stains have ultra-low toxicity (LC>5000mg/kg) and lack cell permeability
- Convenient – each stain is supplied as a ready to use 6x Loading dye; simply add 1 part stain to 5 parts DNA, mix and load your gel
- Fast – no time-consuming post-staining or de-staining of gels is required.
- Sensitive – very low background staining of the gel; detects as little as 0.2ng DNA per band
- Improved cloning efficiency – does not damage or mutate DNA, and does not affect downstream cloning applications such as ligation
- Flexible – each stain may be used with Blue or UV light
- runVIEW™ compatible – all four stains are perfect for use with the runVIEW™ real-time horizontal gel electrophoresis system supplied with bluVIEW amber filter lid (page)

The runSAFE Range - Less DNA damage, improved cloning efficiency





Slower migrating species, indicative of a linear or relaxed circular vector, resulting from DNA nicking or strand breaks, are significantly reduced in DNA plasmid mixed with runSAFE and exposed to blue light. The concentration of nicked DNA plasmid increases significantly after 8′ of exposure to EtBR and UV irradiation.

The runSAFE Range

Four safe stains for real-time horizontal electrophoresis

The runSAFE Range comprises four non-mutagenic stains that produce instant visualisation of DNA bands upon irradiation with blue light or UV in agarose or polyacrylamide gels. Each stain is conveniently supplied in a 6x loading dye which is mixed with 5 parts double-stranded DNA before loading onto an agarose or polyacrylamide gel. The individual colour constituents within each loading dye track electrophoresis run progression, and indicate the extent of band separation and resolution by co-migrating with DNA bands of known molecular size, which varies according to the gel percentage. All four stains are non-toxic, safe for the environment and can be disposed of in the regular laboratory waste without using expensive decontamination methods. Each stain is sensitive and binds DNA to detect as little as 0.2ng DNA per band within a gel; while gel imaging is best performed using the amber emission filter found of the bluVIEW lid or runDOC filter slide. The runSAFE Range is comprised as follows:

- runSAFE – general purpose stain for DNA ranging from 50bp markers to large super-coiled plasmid
- runSAFE-PLUS500 – for DNA larger than 500bp in size;
- runSAFE-2000 – for DNA vectors and inserts ranging from 500-2000bp;
- runSAFE-500 – for small DNA fragments, PCR products, sequence tracts and primers less than 500bp.

ORDERING INFORMATION

Part Number	Description	Tracking Dyes	Size Range
CSL-RUNSAFE	runSAFE stain, 1ml	Bromophenol Blue, Xylene Cyanol FF, Orange G	50bp – 20Kb
CSL-RUNSAFE-PLUS500	runSAFE-PLUS500 stain, 1ml	Bromophenol Blue, Xylene Cyanol Blue	>500bp
CSL-RUNSAFE-2000	runSAFE- 2000, 1ml	Xylene Cyanol Blue, Orange G	500-2000bp
CSL-RUNSAFE-500	runSAFE-500, 1ml	Orange G	<500bp

ORDERING INFORMATION

runVIEW™ CONVERTER package (to convert standard MSMINI & MSMIDI units to real-time electrophoresis)			
CSL-RVBSBV-LID-MINI	runVIEW™ base station & bluVIEW lid for MS-MINI systems		
CSL-RVBSBV-LID-MIDI	runVIEW™ base station & bluVIEW lid for MS-MIDI systems		
runVIEW™ STANDARD package (for those users with their own power supply)			
CSL-RVMSMINI-S	CSL-RVBSBVLID-MINI plus MSMINIDUO tank with 7x7 & 7x10cm trays, 1 set of casting dams and 2x 8-sample combs		
CSL-RVMSMIDI-S	CSL-RVBSBVLID-MIDI plus MSMIDIDUO tank with 10x7 & 10x10cm trays, 1 set of casting dams and 2x 16-sample combs		
runVIEW™ COMPLETE package (complete real-time electrophoresis system with power supply)			
CSL-RVMSMINI-C	CSL-RVMSMINI-S plus NANOPAC-300 (Pg 86)		
CSL-RVMSMIDI-C	CSL-RVMSMIDI-S plus NANOPAC-300 (Pg 86)		
runVIEW™ COMPLETE KIT package (complete real-time electrophoresis system with power supply & chemicals)			
CSL-RVMSMINI-CK	CSL-RVMSMINI-C plus reagent kit for real-time electrophoresis (includes: CSL-RUNSAFE [1ml runSAFE stain, Pg 31], CSL-MDNA [1kb DNA ladder, Pg 140], CSL-AG100 [100g agarose, Pg 136], & CSL-TBEP [Powdered Tris-Borate-EDTA Running Buffer – 10 pouches, Pg 138])		
CSL-RVMSMIDI-CK	CSL-RVMSMIDI-C plus reagent kit for real-time electrophoresis (includes: CSL-RUNSAFE [1ml runSAFE stain, Pg 31], CSL-MDNA [1kb DNA ladder, Pg 140], CSL-AG100 [100g agarose, Pg 136], & CSL-TBEP [Powdered Tris-Borate-EDTA Running Buffer – 10 pouches, Pg 138])		
Accessories & Replacement Parts			
CSL-RVRTKIT	runVIEW™ real-time reagent kit (includes: CSL-RUNSAFE [1ml runSAFE stain, Pg 31], CSL-MDNA [1kb DNA ladder, Pg 140], CSL-AG100 [100g agarose, Pg 136], & CSL-TBEP [Powdered Tris-Borate-EDTA Running Buffer – 10 pouches, Pg 138])		
NANOPAC-300	nanoPAC-300 power supply (300V, 400mA, 60W), Pg 86		
MS7-UV7	7x7cm UV tray	MS7-UV10	7x10cm UV tray
MS7-UVDAM	MS7 casting dams, 1x set	MS7-8-1	Comb 8 sample, 1mm thick
MS10-UV7	10x7cm UV tray	MS10-UV10	10x10cm UV tray
MS10-UVDAM	MS10 casting dams, 1x set	MS10-16-1	Comb 16 sample, 1mm thick
CSL-RVLID2MINI	runVIEW™ bluVIEW lid - Amber (runSAFE) - MSMINI	CSL-RVLID-2MIDI	unVIEW bluVIEW lid - Amber (runSAFE) - MSMIDI

TECHNICAL SPECIFICATIONS

runVIEW™ Adjustable Viewing Dock for runVIEW™ MINI & MIDI			
Blue Light Wavelength	470nm	Dimensions (WxDxH)	
Operating Temperature	Ambient to 40°C	Rated Voltage	100-240V, 50/60Hz
runVIEW™ MINI Gel System			
Gel Dimensions (WxL)	7x7, 7x10cm	bluVIEW lid design	Amber spectral emission filter with built-in extractor fan powered by the base unit
Unit Dimensions (WxDxH)	9x2, 1x9cm	Included Combs*	2x 8-sample
Buffer Volume	225ml	Comb Thickness	1mm
runVIEW™ MIDI Gel System			
Gel Dimensions (WxL)	10x7, 10x10cm	bluVIEW lid design	Amber spectral emission filter with built-in extractor fan powered by the base unit
Unit Dimensions (WxDxH)	12.5x22x9cm	Included Combs*	2x 16-sample
Buffer Volume	300ml	Comb Thickness	1mm
nanoPAC-300 Power Supply option (supplied with runVIEW™-COMPLETE systems only)			
Voltage / Resolution	10-300V / 1V	Power	60W maximum
Current / Resolution	400mA / 1mA	Timer	1-999 minutes with alarm / Continuous
Operating Mode	Constant Voltage or Current	Rated Voltage	100-240V, 50/60Hz

*For other comb options for the runVIEW™ MINI & MIDI please see pages 8 and 10.

FEATURES:

- Complete versatility - 4 different types of runVIEW™ package are available in MINI and MIDI formats:
  - runVIEW™ CONVERTER package - with emission filter lid and blue light illuminator, to allow standard MSMINI and MSMINI units to be converted to real-time electrophoresis;
  - runVIEW™ STANDARD package – includes blue light illuminator, and runVIEW™ MINI or MIDI tank, for those users with their own power supply;
  - runVIEW™ COMPLETE – runVIEW™ BASIC package in MINI or MIDI format with nanoPAC-300 power supply;
  - runVIEW™ COMPLETE KIT – runVIEW™ COMPLETE MINI or MIDI package with electrophoresis reagent kit.
- Portable adjustable blue light illuminator for use with MSMINI and MSMIDI electrophoresis tanks
- Blue light is completely safe to both operator and DNA alike, and results in improved cloning efficiency compared to UV
- Emission filter lid with built-in extractor fan enables condensation-free viewing of blue-light fluorescent gels, containing SYBR Green, SYBR Safe and runSAFE stains
- runDOC-MINI enables visualisation of real-time electrophoresis of MSMINI and MSMIDI gels using adjustable blue light illuminator
- Electrophoresis kit available containing agarose, 10x Tris-borate electrophoresis buffer, 1kb DNA markers and runSAFE

RunVIEW™ MIDI & MINI Systems

Continuing from the success of the award-winning runVIEW™ system, the runVIEW™ MINI and MIDI are Cleaver Scientific's latest additions to its Safe Range of electrophoresis products. Both systems benefit from the blue light illumination of fluorescently stained 7- or 10-cm-wide agarose gels to allow users to view the size-fractionation of nucleic acids in real-time. An adjustable blue-light illuminator platform accommodates both the MSMINI and MSMIDI electrophoresis tanks, while band visualisation is achieved through the corresponding lid containing an amber spectral emission filter. Each lid remains free of condensation by a built-in extractor fan and may be connected either to the user's own power supply or to the optional, but recommended, nanoPAC-300.

TYPICAL APPLICATIONS

Quick checks of low to medium numbers of samples following PCR and cloning. Education

ORDERING INFORMATION

TGT6XMINI	Teaching gel tank to run 6x 7x7cm gel trays, includes: 12x 8-sample, multichannel compatible combs, 12x casting dams, loading guides and cables		
TGT6XMINI-NANO300	TGT6XMINI supplied with nanoPAC-300 power supply		
TGT6XMINI-NANO300KIT	TGT6XMINI supplied with nanoPAC-300 power supply and electrophoresis kit, including 1x CSL-RUNSAFE (1ml, runSAFE stain mixed with loading dye), 1x CSL-MDNA-1KB (1ml, 1kb DNA ladder), 1x CSL-AG100 (100g Agarose), CSL-TBEP (Powdered Tris-Borate-EDTA Running Buffer – 10 pouches)		
TGT4XMINI	Teaching gel tank to run 4x 7x7cm gel trays, includes: 8x 8-sample, multichannel compatible combs, 8x casting dams, loading guides and cables		
TGT4XMINI-NANO300	TGT4XMINI supplied with nanoPAC-300 power supply		
TGT4XMINI-NANO300KIT	TGT4XMINI supplied with nanoPAC-300 power supply and electrophoresis kit, including 1x CSL-RUNSAFE (1ml, runSAFE stain mixed with loading dye), 1x CSL-MDNA-1KB (1ml, 1kb DNA ladder), 1x CSL-AG100 (100g Agarose), CSL-TBEP (Powdered Tris-Borate-EDTA Running Buffer – 10 pouches)		
TGT6XMINI4-CS300	TGT6XMINI classroom workstation for 24 students, includes: 4x TGT6XMINI units and 1x CS-300V power supply		
TGT6XMINI4-CS300KIT	TGT6XMINI classroom workstation for 24 students, includes: 4x TGT6XMINI units and 1x CS-300V power supply and 4x electrophoresis kits with runSAFE, 1kb DNA ladder, agarose and running buffer		
TGT-UV7	7x7cm gel tray	MS20-WP	Viewing Platform, TGT6XMINI
MS7-UVDAM	Casting dams, pk/2	MSCHOICEBSB	Buffer Saver Blocks, pk/2, save 190ml buffer
MS15-PE	Positive electrode, TGT4XMINI	MSMAXIBSB	Buffer Saver Blocks, pk/2, save 450ml buffer
MS15-NE	Negative electrode, TGT4XMINI	MS7-UVS	7cm UV Gel Scoop
MS20-PE	Positive electrode, TGT6XMINI	CSL-CAB	Electrophoresis cable (black and red)
MS20-NE	Negative electrode, TGT6XMINI	MS15-WP	Viewing Platform, TGT4XMINI
MS15/20-FC	multiSUB Choice/Maxi Flexicaster	NANOPAC-300	nanoPAC-300 Mini Power Supply, 300V, 400mA, 60W – 100-240VAC (Pg 86)
MS7-LG	Adhesive Loading Guides	CS-300V	CS-300V Midi Power Supply, 300V, 700mA, 150W – 100-240VAC (Pg 87)

COMBS

Code	Description	Sample volume for a 5mm thick gel
MS7-1-1	Comb Prep 1, Marker 1, 1mm thick	203µl
MS7-2-1	Comb Prep 2, Marker 2, 1mm thick	90µl
MS7-4-1	Comb Prep 4, Marker 2, 1mm thick	48µl
MS7-8MC-1	Comb 8 sample MC, 1mm thick	11µl
MS7-8-1	Comb 8 sample, 1mm thick	25µl
MS7-10-1	Comb 10 sample, 1mm thick	18µl
MS7-12MC-1	Comb 12 sample MC, 1mm thick	14µl
MS7-16-1	Comb 16 sample, 1mm thick	10µl
MS7-1-1.5	Comb Prep 1, Marker 1, 1.5mm thick	304µl
MS7-2-1.5	Comb Prep 2, Marker 2, 1.5mm thick	135µl
MS7-4-1.5	Comb Prep 4, Marker 2, 1.5mm thick	72µl
MS7-8MC-1.5	Comb 8 sample MC, 1.5mm thick	17µl
MS7-8-1.5	Comb 8 sample, 1.5mm thick	37µl
MS7-10-1.5	Comb 10 sample, 1.5mm thick	27µl
MS7-12MC-1.5	Comb 12 sample MC, 1.5mm thick	20µl
MS7-16-1.5	Comb 16 sample, 1.5mm thick	15µl
MS7-1-2	Comb Prep 1, Marker 1, 2mm thick	405µl
MS7-2-2	Comb Prep 2, Marker 2, 2mm thick	180µl
MS7-4-2	Comb Prep 4, Marker 2, 2mm thick	96µl
MS7-8MC-2	Comb 8 sample MC, 2mm thick	23µl
MS7-8-2	Comb 8 sample, 2mm thick	50µl
MS7-10-2	Comb 10 sample, 2mm thick	36µl
MS7-12MC-2	Comb 12 sample MC, 2mm thick	27µl
MS7-16-2	Comb 16 sample, 2mm thick	20µl

TECHNICAL SPECIFICATIONS

	TGT4XMINI	TGT6XMINI
Unit Dimensions (WxLxH)	17.5x26.5x9cm	23x39.5x9cm
Gel Dimensions (WxL)	7x7cm	7x7cm
Maximum Gel Throughput	4x 7x7cm mini gels	6x 7x7cm mini gels
Standard Combs	8x 8-sample, 1-mm-thick multichannel compatible (2 combs per gel)	12x 8-sample, 1-mm-thick multichannel compatible (2 combs per gel)
Maximum Sample Capacity	64 samples with standard comb option; 128 samples using optional 16-sample combs	96 samples with standard comb option; 192 samples using optional 16-sample combs
Buffer Volume	500ml	1200ml
Combs available:	1, 2, 4, 8MC, 8, 10, 12MC, 16	1, 2, 4, 8MC, 8, 10, 12MC, 16
Number of samples	0.75, 1, 1.5, 2mm	0.75, 1, 1.5, 2mm

FEATURES:

- Two new Teaching Gel Tanks for demonstration of horizontal gel electrophoresis to groups of students: the TGT6XMINI with six 7x7cm gel trays and TGT4XMINI with four 7x7cm gel trays
- A teacher may demonstrate to up to 6 students at a time using only one TGT6XMINI with power supply option, and 4 students with the TGT4XMINI with power supply option
- Two combs supplied per gel tray provide maximum throughput of 96 samples for the TGT6XMINI, and 64 samples with TGT4XMINI
- One set of leak-free plug-and-go casting dams per gel tray
- UV-transparent gel trays provide safe transport of fragile gels from the tank to the transilluminator for nucleic acid band visualisation, minimising risk of exposure to harmful ethidium bromide
- Mutagenic ethidium bromide may be substituted by non-toxic runSAFE supplied with chemical kits
- Compact gel tank design with small buffer volumes enables a maximum of 96 samples to be run comfortably within the time of a typical university practical class
- Units may be supplied with electrophoresis chemicals and nanoPAC-300 power supply (p. X) for maximum convenience and cost-effectiveness
- Complete class room kit available with CS-300V power supply (p. X) and four TGT6XMINI units to demonstrate electrophoresis to up to 24 students at a time

Teaching Gel Tanks

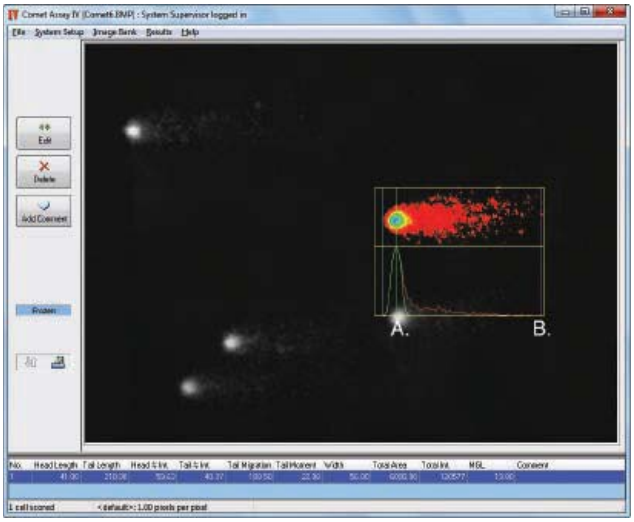
The Teaching Gel Tank Range is Cleaver Scientific's latest contribution to electrophoresis in education. By manufacturing two compact units capable of running up to four and six 7x7cm mini gels respectively, a teacher may demonstrate horizontal gel electrophoresis to as many students using just a single gel tank and power supply, to save on bench space, time and cost. The Teaching Gel Tank Range also benefits from all of the high quality features of MultiSUB™ gel tanks, including: leak-free plug-and-go casting dams; UV-transparent gel trays; height-adjustable combs; and easy-to-replace yet hard-to-break colour-coded cassette electrodes.

Each gel tank is manufactured in a robust injection moulded design, and may be supplied with an optional power supply, either with or without DNA electrophoresis chemicals and markers.

TYPICAL APPLICATIONS

Education – demonstrate the technique of horizontal nucleic acid gel electrophoresis to student classes

High throughput electrophoresis of mini gels



Full Screen Shot of a Comet Profile
A. The Comet 'Head' comprising largely intact genomic DNA.
B. The Comet 'Tail' of mobile damaged or fragmented DNA.

TECHNICAL SPECIFICATION

	CSL-COM10	CSL-COM20	CSL-COM40
Slide Capacity	10	20	40
Unit Dimensions (w x l x h)	17x34x9cm	31x34x9cm	33x59x9cm
Volume	550ml	1000ml	2100ml
Recommended Running Conditions	25V/300mA for 1h		

ORDERING INFORMATION

CSL-COM10	Comet Assay Tank for 10 Slides
CSL-COM20	Comet Assay Tank for 20 Slides
CSL-COM40	Comet Assay Tank for 40 Slides
CSL-CHILLER	Chiller unit for active slide temperature control

The Comet Assay

Background: First introduced in 1981 to quantify double-stranded DNA breakages in single cells exposed to -irradiation, the Comet Assay (or SCGE) has since been adapted to analyse specific DNA lesions and repair processes to analyse the potential for DNA damage of new drugs and environmental conditions.

Overview: Following genotoxic insult, such as ionizing radiation, the resultant strand breakage of supercoiled duplex DNA reduces the size of the large genomic DNA from which these strands are separated or drawn out by electrophoresis. The genomic DNA then takes on the appearance of a 'comet' as its negatively charged broken ends and fragments migrate towards the anode during electrophoresis.

Method: After exposure to a genotoxic insult cells are suspended within low melting point agarose and embedded within a thin layer of agarose on a microscope slide. Cellular protein is then removed by lysis in detergent, when DNA is allowed to unwind in alkaline conditions before electrophoresis. The DNA is electrophoresed, stained and then analysed using software.

Results: Microscopy imaging is used to measure DNA fluorescence upon staining. In DNA damaged cells the resultant image resembles a 'comet' with the cellular DNA separated into a head and tail. The head is mainly composed of intact genomic DNA, whereas any fragmented or damaged DNA is concentrated within and towards the tail.

CSL Chiller

The CSL-CHILLER (see page 81 for full details) is available ready assembled with the thermostat mounted on the refrigerator and supplied with insulated tubing and clips to form a system ready to use. Supported by an industry leading 3 year warranty emphasising our confidence in the reliability of our product.
The system comprises of the following:

- 5 litre tank with drain tap
- relay control for refrigeration on/off
- cooling power 140W @ 0°C
- temperature range -20 to 100°C

FEATURES:

- For Single Cell Gel Electrophoresis
- Minimise exposure to light and reduce background DNA damage
- High efficiency cooling for enhanced resolution

Comet Assay Tanks

Cleaver Scientific COMET assay tanks are available in four slide formats to study Single Cell Gel Electrophoresis (SCGE), a technique made popular by drug toxicology and carcinogenesis studies for the detection and quantitation of DNA damage in cells.

Each tank's robust construction from ebony acrylic ensures that cells remain free of exposure to background light and DNA damage during electrophoresis, while a cooled central platform provides a convenient surface for slide preparation and control of slide temperature during the assay.

Following electrophoresis DNA damage may be measured using Comet Assay scoring software.

TYPICAL APPLICATIONS

Quantifying DNA damage and repair in drug development application.
Reproductive science.

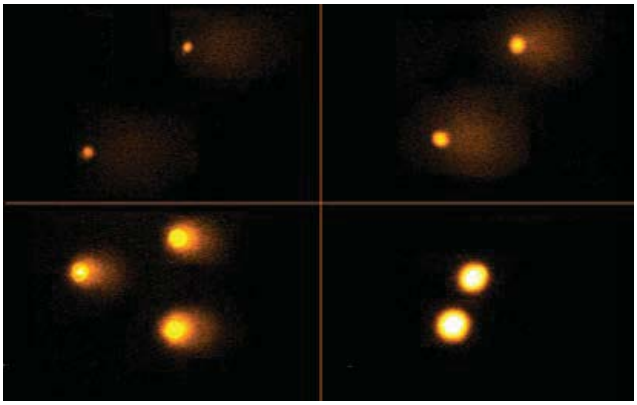
ORDERING INFORMATION

COMPAC-50	High Throughput Comet system for 50 slides, includes 2x 25-slidecarriers, 4x staining dishes, tank with ceramic cooling platform and cool pack, lid and power cables
COMPAC50-CS300	COMPAC-50 and CS-300V Power Supply 300V, 700mA, 150W
COMRAC-25	Vertical slide carrier for 25 slides, pk/1
STAINDISH	Ebony acrylic stain dish, pk/1
STAINDISH4X	Ebony acrylic stain dish, pk/4
COMPAC-50-PE	Positive electrode
COMPAC-50-NE	Negative electrode
CSL-CAB	Electrophoresis cables (black and red)
Related products	
CS-300V	CS-300V Power Supply 30V, 700mA, 150 W (Pg 87)
CV2	Cleaver Pipette - Volume; 0.2 - 2µl (Pg 112)
CV10	Cleaver Pipette - Volume; 0.5 - 10µl (Pg 112)
CV20	Cleaver Pipette - Volume; 2 - 20µl (Pg 112)
CV100	Cleaver Pipette - Volume; 10 - 100µl (Pg 112)
CS-NRK	Rocking Shaker with 30 x 30cm platform and flat non slip rubber mat (Pg 132)
CSL-NHY-BRIDBASIC	Incubator only with 2 stainless steel shelves - 110/230 (Pg 127)
CSL-LMA50	Agarose 50g, Low melting point (Pg 136)

COMPAC-50 vertical slide carrier & Staining dish

TECHNICAL SPECIFICATION

COMPAC-50	
Unit Dimensions (WxLxH)	26.5 x 15 x 15cm
Total Slide Capacity	50 slides 25 x 75mm
Slide Capacity per Rack	25
Volume	550 ml
Recommended Running Conditions	27V/450mA for 20 minutes
Recommended Power Supply	CS-300V 300V, 700mA, 150W MIDI



Typical Result

Repair of UVB-induced DNA damage in human keratinocytes, using enzyme-modified comet assay. HaCaT cells were irradiated with 1 J/cm2 UVB, then allowed to repair in fresh medium and DNA damage analysed at different time points (A) 0 h, (B) 1 h,(C) 6 h, (D) unirradiated (courtesy of Karbaschi, M. University of Leicester, Leicester, UK).

COMPAC-50 – Experimental Procedure

Overview of a typical comet assay procedure. A single-cell suspension of the cells under investigation is mixed with low melting point agarose. The cell/agarose mix is layered on glass microscope slides, pre-coated with agarose, and the agarose allowed to set. The cells are lysed under high pH before washing with pure water. The presence of strand breaks and high pH allows the cellular DNA to unwind. Electrophoresis draws the DNA out of the nucleoid body forming a 'tail'. The amount of migration (the amount of DNA in the tail versus the head) is proportional to the initial amount of DNA damage. The slides are then drained, neutralised and washed with pure water before drying overnight. Following further washing in pure water the slides are stained, washed and finally scored and analysed, typically using fluorescent microscopy and image analysis software. Advantageously, the use of a slide-holder assembly, which maintains multiple slides in laminar arrangement, also permits batch processing of these slides through pre-electrophoresis and post electrophoresis steps, thus eliminating the need for individual manipulation of samples

FEATURES:

- Unique patent pending design employs two carriers, each capable of accommodating 25 slides in a vertical laminar orientation
- Slide carriers facilitate batch-processing of multiple slides simultaneously, thus eliminating the need for manual handling of individual slides, during pre- and post-electrophoresis steps of the Comet Assay, to maximise processing speed
- Ten staining dishes supplied for batch-treatment of slides during the lysis, neutralisation, staining and washing steps
- Ebony acrylic construction of tank and staining dishes ensures that nuclei remain free of exposure to background light and potential DNA damage
- Highly compact design optimises electrophoresis efficiency during Comet Assay, compared to other manufacturers' systems
- Enhanced cooling is provided by a ceramic cooling platform with spring loaded platform that accommodates low-cost pre-frozen cool packs to maintain optimal buffer temperature
- 50 slides may be run within 20 minutes using CS-300V power supply (p. 87)
- Maximum 50 slide throughput with higher throughput systems to be launched soon
- Supported by a comprehensive publication record, and the technical expertise of our academic partner: the Oxidative Stress Group in the Department of Cancer Studies and Molecular Studies within the University of Leicester

COMPAC-50™ High Throughput Comet Electrophoresis System

Developed in collaboration with the Oxidative Stress Group in the Department of Cancer Studies and Molecular Medicine within the University of Leicester, the COMPAC-50 is a high throughput electrophoresis system, available exclusively through Cleaver Scientific, to perform the Comet Assay, otherwise known as Single Cell Gel Electrophoresis. A unique patent pending design employs two carriers to hold a total of 50 slides (25 per carrier) vertically. This provides two distinct advantages over conventional Comet Assay systems that utilise a horizontal platform for manual mounting of multiple individual slides. Firstly to produce a highly compact system which saves 75% of Lab space. Secondly by holding 25 slides in a rack this allows slides to be processed together in one batch saving on handling assay time by up to 90%. Consequently, this is not only beneficial for electrophoresis but also in the lysis, neutralisation, staining and washing steps of the Comet Assay, when each batch of slides may be treated during each step respectively using the four ebony acrylic staining dishes supplied. In addition, the COMPAC-50 benefits from a high performance ceramic cooling base with sliding drawer to accommodate a cool pack, which is frozen before use, to maintain optimal buffer temperature.

The COMPAC-50 marks the first of a new range of innovative systems designed specifically for rapid high throughput single cell gel electrophoresis.

A product developed in partnership with

University of Leicester

TYPICAL APPLICATIONS

DNA repair, mutagenesis and oxidative stress research. Drug toxicology studies. Food safety testing

ORDERING INFORMATION

CSL-CELLAS	Horizontal Unit for Cellulose Acetate Electrophoresis
nanoPAC-300	300V Power supply, 400mA, 60W (Pg 86)

Code	Size (w x l)	Description
CSLGEL2.514250	2.5x14cm	CellasGEL 250µm, standard thickness, 100/pack
CSLGEL2.514200	2.5x14cm	CellasGEL 200µm, standard thickness, 100/pack
CSLGEL2.514190	2.5x14cm	CellasGEL 190µm, high resolution, 100/pack
CSLGEL5.714500	5.7x14cm	CellasGEL 500µm, high volume, 25/pack
CSLGEL5.714250	5.7x14cm	CellasGEL 250µm, standard thickness, 25/pack
CSLGEL5.714200	5.7x14cm	CellasGEL 200µm,standard thickness, 25/pack
CSLGEL5.714190	5.7x14cm	CellasGEL 190µm, high resolution, 25/pack
CSLGEL2.517200	2.5x17cm	CellasGEL 200 micron, 25/pack

Using CellasGEL

1. Equilibrate a CellasGEL for 10' in electrophoresis buffer using an agitating platform (e.g. 3D Shaker, Pg 119).
2. Dry surplus buffer from the CellasGEL before securing it to a Bridge located within a pre-prepared Cellas tank.
3. Apply samples to the CellasGEL using the appropriate Applicator, and electrophorese at 200V for 30-90' (see Power Supplies, Pg 86).
4. Remove the CellasGEL from the tank, and use the required Clinical Test Kit for staining and destaining and clearing.
5. Place the CellasGELon a suitably sized mylar sheet or glass plate and dry in an oven for 10' at 80°C (e.g. CSL-NHYBRIDBASIC, Pg 127)
6. Quantify bands using Scanner and Densitometer Software.

Cleaver Scientific also provides a comprehensive range of 'wet' cellulose acetate gels, consumables and diagnostic kits. These include:

CellasGEL – 'wet' cellulose acetate gels

CellasGEL 'wet' cellulose acetate gel strips are ready to use and overcome many of limitations of traditional 'dry' cellulose acetate membranes. CellasGEL's advantages over dry cellulose acetate membranes are as follows:

1. Wet state – unlike dry membranes, CellasGEL is a cellulose acetate film produced in a wet form to facilitate buffer adsorption, but without the entrapment of air bubbles that inhibit electrophoresis
2. Greater thickness – CellasGEL's greater thickness (190-500µm) compared to dry membranes (160-190µm) allows application of larger sample volumes to enhance detection of poor quality specimens low in protein content
3. High resolution – samples may be applied to CellasGEL as wider but finer bands, without risk of diffusion, to make band quantitation more reproducible; this is further enhanced by extended migration distances (60-70mm) that improve band separation
4. Amphiphilic – CellasGEL's lipophilic and hydrophilic properties make it the perfect separation medium for many different biological molecules, ranging from lipoproteins to haemoglobins

CellasGEL is supplied either as individual packs of 25 or 100 strips or within clinical test kits for the following applications:

- Immunofixation Electrophoresis (IFE): Monoclonal Gammopathies of Undetermined Significance (MGUS); Multiple Myeloma (MM)
- Serum Protein Analysis: Dysproteinaemia; Incipient Gammopathies
- Haemoglobin Analysis: Haemoglobinopathies such as Thalassaemias and Sickle Cell Disorders
- Lipoprotein Analysis: Hyperlipidaemias; High-density (HDL), Low-density (LDL) and Very-low-density (VLDL) lipoprotein evaluation

Other gels, membranes, strips, bridges & applicators available – PLEASE ENQUIRE

FEATURES:

- Compact high resolution system for clinical electrophoresis
- Accommodates strips and gels up to 24x20cm
- Complete range of cellulose acetate gels and kits
- Densitometer software and scanner available

Clinical Electrophoresis

Cellulose acetate electrophoresis is an important technique in clinical diagnostics. Cleaver Scientific's CellasGEL range is a complete solution for research and clinical cellulose acetate electrophoresis applications. The CellasGEL range includes both equipment and consumables to assist in the research and diagnosis of specific disease states.

Cellas Electrophoresis System

The ideal tank for standard 'dry' membrane and 'wet' gel cellulose acetate techniques, the Cellas electrophoresis system is designed and built to our high quality standard to address both routine clinical and research requirements. Two adjustable supports, which can be positioned anywhere within the tank, readily accommodate different lengths of dry cellulose acetate membrane to a maximum 20cm.

TYPICAL APPLICATIONS

Qualitative identification and quantification of Hb variants. Finding abnormalities of Hb synthesis like sickle cell disorders, thalassaemias etc.

CSLAPPS4

Various Bridges

ORDERING INFORMATION

CellasGEL Applications Packages equipped with bridges, applicator and clinical test kit

Clinical Test Kit		Accessories Required		Package (Kit + Accessories)	Diagnostic Application
Code	Description	Applicator	Bridges	Code	
CSLKITCU	**CellasKIT: 1-patient test for serum and concentrated urine IFE** 2x semi-micro tests (1x serum and 1x urine) for 1 patient performed on 6x CellasGEL strips (2.5x14cm; 190µm) on 3x bridges in 1x CSL-CELLAS*. **Kit content, sufficient for 5 patients (10x semi-micro tests):** 30 CellasGEL strips & TGS buffer; Coomassie stain, clearing & saline solutions; volumetric distributors & antisera (anti- IgG, IgA, IgM, Ig & Ig); blotting paper & mylar film. Excludes: Destain.	1x CSLAPPS22 (semi-micro)	3x CSLBDG8.5S	**CSLKITCU-ABS** Includes: 1x CSLKITCU 1x CSLAPPS22, 3x CSLBDG8.5S	MGUS, MM
CSLKITI2432	**CellasKIT: 6-patient test for serum IFE** 6x semi-micro or 8x micro tests (1/patient) on 6x CellasGEL strips (5.7x14 cm; 190µm), performed on 6x bridges in 2x CSL-CELLAS units**. **Kit content, sufficient for 24 patients (semi-micro) & 32 (micro):** 24 CellasGEL strips & Tris- Hippurate buffer; Amidoblack stain, saline & clearing solutions; volumetric distributors & antisera (anti- IgG, IgA, IgM, Ig & Ig); blotting paper & mylar film. Excludes: Destain.	1x CSLAPPS6 (semi-micro)	6x CSLBDG8.5S	**CSLKITI2432-ABS** Includes: 1x CSLKITI2432, 1x CSLAPPS6, 6x CSLBDG8.5S	MGUS, MM
		1x CSLAPPM8 (micro)	6x CSLBDG8.5S	CSLKITI2432-ABM Includes: 1x CSLKITI2432, 1x CSLAPP8M 6x CSLBDG8.5S	
CSLKITSP100200	**CellasKIT: serum proteins** 4x semi-micro or 8x micro tests for each CellasGEL strip (5.7x14cm; 200µm); 3 strips / CSL-CELLAS* performed on 3x bridges. **Kit content, sufficient for 100x semi-micro or 200x micro tests:** 25 CellasGEL strips & Tris-Hippurate buffer; Ponceau S stain, destain & clearing solutions; blotting paper & mylar film.	1x CSLAPPS4SP (semi-micro)	3x CSLBDG8.5S	CSLKITSP-ABS Includes: 1x CSLKITSP100200 1x CSLAPPS4, 3x CSLBDG8.5S	Dysproteinaemia; Albumin, Alpha-1, Alpha-2, Transferrin, C3 & Gamma Globulin Quantitation
		1x CSLAPPM8 (micro)	3x CSLBDG8.5S	CSLKITSP-ABM Includes: 1x CSLKITSP100200 1x CSLAPPM8, 3x CSLBDG8.5S	
CSLKITSP150200	**CellasKIT: serum proteins (high resolution)** 6x semi-micro or 8x micro tests for each CellasGEL strip (5.7x14cm; 190µm); 3 strips / CSL-CELLAS* performed on 3x bridges. **Kit content, sufficient for 150x semi-micro or 200x micro tests:** 25 CellasGEL strips & TGS buffer; Coomassie stain, citric acid & clearing solutions; blotting paper & mylar film. Excludes: Destain.	1x CSLAPPS6 (semi-micro)	3x CSLBDG8.5S	CSLKITSPHR-ABS Includes: 1x CSLKITSP150200 1x CSLAPPS4, 3x CSLBDG8.5S	Incipient Gammopathies
		1x CSLAPPM8 (micro)	3x CSLBDG8.5S	CSLKITSPHR-ABM Includes: 1x CSLKITSP150200 1x CSLAPPM8, 3x CSLBDG8.5S	
CSLKITHG100	**CellasKIT: haemoglobin** 4x semi-micro tests for each CellasGEL strip (5.7x14cm; 250µm); 3 strips / CSL-CELLAS* performed on 3x bridges. **Kit content, sufficient for 100x semi-micro tests:** 25 CellasGEL strips & Tris-Glycine buffer; Ponceau S stain, destain & clearing solutions; blotting paper & mylar film.	1x CSLAPPS4 (semi-micro)	3x CSLBDG8.5S	CSLKITHG100-ABS Includes: 1x CSLKITHG100, 1x CSLAPPS4 3x CSLBDG8.5S	Haemo-globinopathies
CSLKITLP100	**CellasKIT: lipoproteins** 4x semi-micro tests for each CellasGEL strip (5.7x14cm; 250µm); 3 strips / CSL-CELLAS* performed on 3x bridges. **Kit content, sufficient for 100x semi-micro tests:** 25 Cellogel strips & Tris- Hippurate buffer; Sudan Black stain & clearing solution; blotting paper & mylar film.	1x CSLAPPS4 (semi-micro)	3x CSLBDG8.5S	CSLKITLP100-ABS Includes: 1x CSLKITLP100 1x CSLAPPS4 3x CSLBDG8.5S	Hyper-lipidaemias

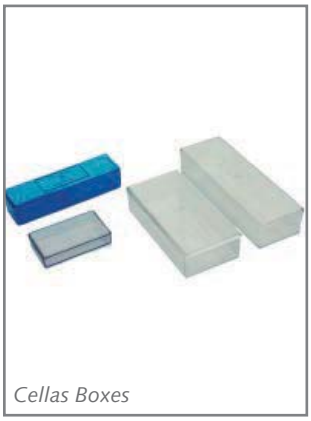

CSLAPPS22


CSLAPPS4SP


CSLAPPS4


CSLAPPS6


CSLAPPM8


Cellas Boxes


Paper Wicks


Bridges

CellasGEL Wet Membranes

Applicators

Unlike dry cellulose acetate strips that are restricted to low volume micro tests, CellasGEL's greater thickness allows tests to be performed on semi-micro and macro scales using a wide range of specialist applicators. Consequently greater sample-volumes may be loaded as larger, but finer bands over a wider front. This reduces sample saturation and aids densitometric band quantitation, thereby improving resolution.

Bridges

A universal bridge (CSLBDG8.5S) supports each 2.5x14cm and 5.7x14cm CellasGEL during sample application by serving as a convenient loading template for the required applicator. Up to three universal bridges may be then placed into each Cellas tank for electrophoresis.

Densitometer

A universal densitometer scanner with software capable of reading 144 tests per minute is available for band quantitation following post-electrophoretic staining. Ordering Information - CellasGEL Applications Packages equipped with bridges, applicator and clinical test kit

ORDERING INFORMATION

CellasGEL Wet Membrane Applicators			
Code	Description	Volume applied/ sample band width	Compatible Strip Size
CSLAPPS22	1x 2-specimen semi-micro applicator	0.7µl / 7mm	2.5x14cm
CSLAPPS4SP	1x 4-specimen semi-micro applicator	0.9µl / 9mm	5.7x14cm
CSLAPPS4	1x 4-specimen semi-micro applicator	1.2µl / 9mm	5.7x14cm
CSLAPPS6	1x 6-specimen semi-micro applicator	0.7µl / 7mm	5.7x14cm
CSLAPPM8	1x 8-sample micro applicator	0.3µl / 5mm	5.7x14cm
CellasGEL Wet Membrane Bridges and Densitometer			
CSLBDG8.5S	1x 8.5cm bridge for 1x 5.7x14cm or 2x 2.5x14cm CellasGEL strips		
CSLDENS	TurboScan Software Densitometer (excludes computer and scanner)		
CSLSCAN	Flatbed scanner for TurboScan software		

CellasMEM Dry Membranes

Although CellasGEL cellulose acetate gels have a number of advantages over traditional dry cellulose acetate membranes, many manual systems and modern robotic platforms still use dry cellulose acetate membranes, which are usually supported on a plastic backing. Consequently, in order to address this demand, Cleaver Scientific has developed CellasMEM – a range of dry cellulose acetate membranes supported on a Mylar film.

Each CellasMEM dry cellulose acetate membrane is available in 25x76mm (CSLMEM257650), 60x76mm (CSLMEM607625) and 94x76mm (CSLMEM947625) plate sizes, and is compatible with the manual and automated platforms of many leading and emerging brands within the clinical electrophoresis market, including: Helena Laboratories, Interlab and Seleo.

CellasMEM is supplied either as individual packs of 25 or 50 strips to perform manual assays for Serum Protein (Dysproteinaemia; Incipient Gammopathies) and Haemoglobin Analyses (Haemoglobinopathies such as Thalassaemias and Sickle Cell Disorders). Please see page 45 for Ordering Information.

Applicators

The CellasMEM CSLMEMAPPM8 is an 8-sample micro applicator designed for use with 60x76mm (CSLMEM607625) and 25x76mm (CSLMEM257650) CellasMEM dry plates. The applicator dispenses each sample deposit as a thin band 5-mm-wide that is equivalent to 0.25µl in volume; and may load either one 60x76mm strip or two 25x76mm strips (4 samples per strip) at a time. By loading each sample as a tighter, but finer, band over a wider front, the sample diffusion and saturation typical of standard syringe loading methods is significantly reduced, resulting in improved band quantitation. A CSLMEMAPPS6 semi-micro applicator is also available to load 6 samples, each sample deposit 7-mm-wide and corresponding to 0.5µl in volume.

Bridges

Adjustable bridges within the CELLAS tank render specialist bridges unnecessary. Both CELLAS bridges may be positioned either side of the central buffer partition within the tank to produce the 76mm gap necessary to support Helena-type membranes, while the 24cm width of the tank accommodates either three 60x76mm or six 25x76mm CellasMEM membranes per run. A dedicated bridge adaptor (CSLMEMBA) is available for those users of non-Cleaver cellulose acetate electrophoresis tanks that do not have adjustable bridges.

ORDERING INFORMATION

Code	Description
CellasMEM Dry Membrane Applicators	
CSLMEMAPPM8	CellasMEM 8-sample micro applicator
CSLMEMAPPS6	CellasMEM 6-sample semi-micro applicator
CellasMEM Dry Membrane Bridge	
CSLMEMBA	CellasMEM bridge adaptor for non-Cleaver tanks

FEATURES:

- CellasMEM dry cellulose acetate membranes available in popular 25x76, 60x76 and 94x76mm sizes
- Ideal for use within the CSL-CELLAS system (Pg. 41)
- Robust Mylar film backing allow CellasMEM membranes to be used on automated platforms
- Infinite shelf life
- Compatible with manual and automated systems from leading clinical electrophoresis brands, such as Helena Laboratories, Interlab and Seleo.
- Most popular 60x76 and 25x76mm membranes may be used with the tank, kit and accessories of the manual Helena Titan 3 system; dedicated 8-sample micro-applicator available (CSLMEMAPPM8)
- 30x76 & 60x76mm membranes available for Genio Interlab small-and standard-sized automated platforms; 70x62mm punched membranes available for Interlab Microtech 648 automated platorm; and 70x60mm punched membranes for the Seleo Adalya, Exprime and Giant automated platforms.
- Other sizes available for older automated systems still in use
- Densitometer software and scanner compatible

Paper Wicks

Supplied in packs of 100 and available in 190x60mm and 220x40mm (WxL) sizes, CellasMEM disposable paper wicks may be used respectively with standard Cellas MEM dry plates and CellasMEM dry plates for Helena applications. To set up the Cellas tank for use with dry plates, simply insert each paper wick lengthwise within the tank pre-filled with buffer, so that the buffer will become absorbed. Once absorbed, fold over the top of each wick to make a support bridge, ensuring the bottom edge of the wick is immersed within buffer and in contact with the bottom of the tank, while the top edge rests along the adjustable bridge. Repeat for the other bridge.

CellasMEM Membranes

CellasMEM membrane plates are available in many different sizes and quantities ranging from the market-leading Helen Titan 3 manual system to punched dry membrane plates compatible with the strip-holders of automated systems from Genio Interlab and SELEO. Also listed are CellasMEM membranes for older systems - some of which are obsolescent - that are still in use today.

CellasMEM Package Deals

Cleaver Scientific package deals provide a quick and convenient solution for those users wishing to perform the more popular Helena-type applications. The most basic kit includes 25x76 and 60x76mm CellasMEM membranes, 8-sample micro applicator, and paper wicks, while the complete version also contains a Cellas tank and new nanoPAC-500 power supply.

ORDERING INFORMATION

Code	Description
Paper Wicks	
CSLMEMWICK	CellasMEM paper wicks 190x60mm, pack of 100
CSLMEMWICKH	CellasMEM paper wicks 220x40mm, pack of 100; suitable for Helena-type cellulose applications with CSLMEM257650, CSLMEM607625, CSLMEM577625, CSLMEM947625, CSLMEM9413525 membranes
CellasMEM Package Deals	
CSLMEMHKIT	CellasMEM Helena-Type Kit, includes 25x76mm (CSLMEM257650) & 60x76mm (CSLMEM607625) membranes; CSLMEMAPPM8 8-sample micro applicator & CSLMEMWICKH 220x40mm paper wicks.
CSLMEMH COMPLETE	CellasMEM Helena-Type Workstation, includes CSLMEMHKIT, CSL-CELLAS tanks & NANOPAC-500 (500V, 400mA, 120W) power supply (Pg 86)

CELLASMEM ORDERING INFORMATION (DRY MEMBRANES)

Code	Size (WxL)	Description	Compatible Manual System / Automated Platform
CSLMEM257650	25x76mm	CellasMEM manual assay membrane, 50/pack	Helena Titan 3 system
CSLMEM607625	60x76mm	CellasMEM manual assay membrane, 25/pack	Helena Titan 3 system
CSLMEM577625	57x76mm	CellasMEM manual assay membrane, 25/pack	Helena Titan 3 system
CSLMEM947625	94x76mm	CellasMEM manual assay membrane, 25/pack	Helena Titan 3 system
CSLMEM9413525	94x135mm	CellasMEM manual assay membrane, 25/pack	Helena Titan 3 system
CSLMEM7660P25	76x60mm, punched	CellasMEM assay membrane 25/pack	SELEO AdaLya 24, Selvet 24, Thera 72, Exprime , Giant
CSLMEM307625	30x76mm	CellasMEM assay membrane, 25/pack	Genio Interlab - small
CSLMEM607624	60x76mm	CellasMEM assay membrane, 24/pack	Genio Interlab - standard
CSLMEM7662P25	76x62mm, punched	CellasMEM assay membrane, 25/pack	Interlab 648 ISO, 648 PC
CSLMEM7413625	74x136mm	CellasMEM assay membrane, 25/pack	SAE - NT
CSLMEM7822725	78x227mm	CellasMEM assay membrane, 25/pack	SAE 500/600
CSLMEM8012525	80x125mm	CellasMEM assay membrane, 25/pack	Diafero Standard
CSLMEM2508025	280x80mm	CellasMEM assay membrane, 25/pack	Diafero Extra
CSLMEM8022525	80x225mm	CellasMEM assay membrane, 25/pack	Cliniphor
CSLMEM762325	76x23mm	CellasMEM assay membrane, 25/pack	Saechem
CSLMEM678930	67x89mm	CellasMEM assay membrane, 30/pack	Smart
CSLMEM7618025	76x180mm	CellasMEM assay membrane, 25/pack	Pragma
CSLMEM7621025	76x210mm	CellasMEM assay membrane, 25/pack	Megaphore

THE OMNIPAGE RANGE AND WAVE MAXI – KEY FEATURES

The omniPAGE mini, mini wide and new VS20WAVE systems have been designed by scientists with the laboratory scientist in mind. Each system comprises a modular tank design with optional dedicated inserts available for PAGE, blotting and capillary gel isoelectric focusing (IEF), potentially allowing the user to perform up to three techniques in a day.

TANK AND LID DESIGN

High quality injection moulded construction and durable leak-proof design for complete safety and longevity.

Corrosion-resistant, 99.99% pure platinum electrodes.

Electrical safety – lid removal immediately disconnects power to the running insert and lower buffer chamber to allow entirely safe access to the gel.

Elongated thumb locators – colour-coded to prevent polarity reversal and facilitate 'easy-off' lid removal.

COMBS AND SPACERS

Combs and spacers are injection moulded for consistency and 'clean' well formation, and are available in 4 thicknesses and colour-coded:

- White – 1mm supplied as standard
- Black – 0.75mm for tightly resolved bands
- Red – 1.5mm to maximise sample volume
- Blue – 2mm to maximise sample volume

Black and white combs recommended for high resolution publication quality data; red and blue to scale-up volumes for preparatory techniques.

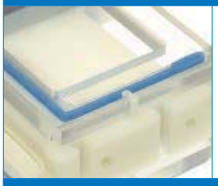
Reversible combs also serve as loading indicators to aid pipette-well alignment, preventing sample loading errors – simply invert the comb prior to loading to reveal a loading template that sits conveniently above the newly formed sample wells

CASTING AND RUNNING

Dual purpose PAGE inserts eliminate time-consuming transfer of glass plates between separate casting and running modules.

Cam-Pin caster locks PAGE insert onto the ultra-soft silicone mat within casting base to provide a leak-free seal.

OMNIPAGE MINI



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.

Gel release tool quickly releases glass plates from PAGE insert.

WAVE

Resting slots allow gel clamps to sit conveniently out of the way for hindrance-free loading of gel cassettes.

Novel vertical screw-clamp technology utilises only 4 screws for faster set up compared to traditional large-format systems.

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

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

2-D AND BLOTTING OPTIONS (Available as standalone add-ons or as part of fully integrated electrophoresis systems for multiple electrophoresis techniques –e.g. CVS10CBS [PAGE & blotting], CVS10C2DS [IEF & PAGE], CVS10CES [IEF, PAGE, blotting])

Modular blotting inserts for omniPAGE MINI, MINI WIDE and WAVE systems use the tank and lid of the corresponding PAGE system to perform fast, high-quality blotting of a maximum 4 gels; high-intensity plate electrode option available for the omniPAGE MINI and WAVE.

Capillary tube gel inserts utilise the same tank and lid of corresponding PAGE system for reproducible 2-D electrophoresis; isoelectric focusing (IEF) of up to 10 capillary tube gels may be completed in as little as 3.5 hours. Optional IPG converter kits modify PAGE gels to accommodate commercial IPG strips.

ACCESSORIES

Robust scientific grade glass plates: 2mm thick omniPAGE MINI; 4mm thick omniPAGE MINI WIDE and WAVE.

Notched glass plates with bonded spacer option may be used with standard plain glass plate with 1mm bonded spacer and notched glass plates to double gel capacity of the PAGE insert, allowing a maximum of 4 gels to be run (supplied as standard with CVS10TET-RAD systems).

Cool packs – simple to use cooling pack systems ensure enhanced resolution without costly and time-consuming additional equipment. Simply pre-chill in a freezer and place within the gel tank; cool packs also reduce buffer volume.

Power cables with 4mm connectors compatible with most modern low-to-medium voltage power supplies; CE compliant. High voltage cables with 2mm connectors and adaptors available for complete power supply compatibility

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.

Gradient mixers and multicasters available to cast multiple mini vertical gradient gels.

Glass plate racks for safe drying and storage of glass plates.

VERTICAL GEL SYSTEMS

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 throughputs.

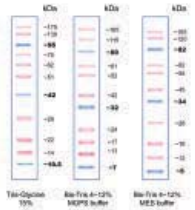
RELATED PRODUCTS

POWER SUPPLIES
PAGES 82-89

GEL DOCUMENTATION
PAGES 90-109

THERMAL CYCLERS
PAGE 123

BUFFERS AND MARKERS
PAGE 142



Selection Guide

	OMNIPAGE MINI SYSTEM	OCTIPAGE MINI SYSTEM
Advantages	Run 1-4 handcast gels, and up to 2 precast gels in mini format Sliding clamp assembly ensures fast set up times and leak-free operation Insert for both gel casting and running eliminating time-consuming transfer of fragile gels Small compact unit offering ultimate economy in buffer and reagent consumption Modular design for rapid turnaround of data, allowing PAGE, 2-D and blotting to be completed within a working day Ideal for discovery projects and evaluation of sample preparation conditions	Run 1-8 handcast gels and up to 4 precast gels Sliding clamp assembly ensures fast set up times and leak-free operation Insert for both gel casting and running eliminating time-consuming transfer of fragile gels Small compact unit offering ultimate economy in buffer and reagent consumption Modular design for rapid turnaround of data, allowing PAGE, 2-D and blotting to be completed within a working day Ideal for discovery projects and evaluation of sample preparation conditions
Compatible Gel Formats		
Precast	Commercial 10x10cm and 10x8cm (W x H) precast gels: e.g. IDGel™, SERVA, Thermo and Invitrogen, etc.	Commercial 10x10cm and 10x8cm (W x H) precast gels: e.g. IDGel™, SERVA, Thermo and Invitrogen
Handcast	OmniPAGE VS10 glass plates with or without bonded spacers for handcast gels	OmniPAGE VS10 glass plates with or without bonded spacers for handcast gels
Electrophoresis Systems		
Standard	2-gel systems	4-gel system
Precast (tank, lid and running insert only)	CVS10PRE (Pg 50)	CVS10OCTIPAGE-PRE (Pg 52)
Tapecast (includes glass plates)	CVS10D (Pg 50)	
Handcast (with glass plates and caster)	CVS10DSYS (Pg 50)	CVS10OCTIPAGE1 (Pg 52)
(with extra casting stand and plates to run 2 gels in tank, while casting 2 simultaneously)	CVS10DSYS-CU (Pg 50)	
Combination Package	Vertical system and optional power supply combination	
	2-gel	8-gel
Precast	CVS10PRE-CS300 (Pg 66)	CVS10OCTIPAGE-PRENANO500
Handcast	CVS10DSYS-CS300 (Pg 66)	CVS10OCTIPAGE-CS300
Handcast with blotting insert	CVS10CBS-CS300 (Pg 66)	CVS10OCTIPAGECBS-CS300
Tetrad Packages	Vertical system and optional power supply combination	
	4-gel	8-gel
Handcast	CVS10TETRAD1 (Pg 66)	CVS10OCTIPAGE1
(with blotting option)	CVS10TETRAD1CBS (Pg 66)	CVS10OCTIPAGE1CBS
(with power supply)	CVS10TETRAD1-CS300 (Pg 66)	CVS10OCTIPAGE1-CS300
(with power supply and blotting option	CVS10TETRAD1CBS-CS300 (Pg 66)	CVS10OCTIPAGE1CBS-CS300
(with high specification power supply)	CVS10TETRAD1-CS3AMP (Pg 66)	CVS10OCTIPAGE1-NANO500
(with high current power supply and blotting option)	CVS10TETRAD1CBS-CS3AMP (Pg 66)	CVS10OCTIPAGE1CBS-CS3AMP
Active Gel Dimensions (w x h)	8 x 8.5cm	8 x 8.5cm
Available Gel Thicknesses	0.5, 0.75, 1, 1.5 & 2mm	
Compatible Electroblotting Transfer Systems Systems Integrated modular	OmniPAGE Mini CVS10CBS (PAGE & Blotting, Pg 74) and CVS10CES (PAGE, Blotting & 2-D, Pg 58)	
Standalone Wet/tank transfer	SB10 and EBM10 4- and 5-blot transfer systems (Pg 78)	
Semi-dry	SD10 10x10cm and SD20 20x20cm for 1x and 4x blots (Pg 80)	SD10 10x10cm and SD20 20x20cm for 1x and 4x blots (Pg 80)

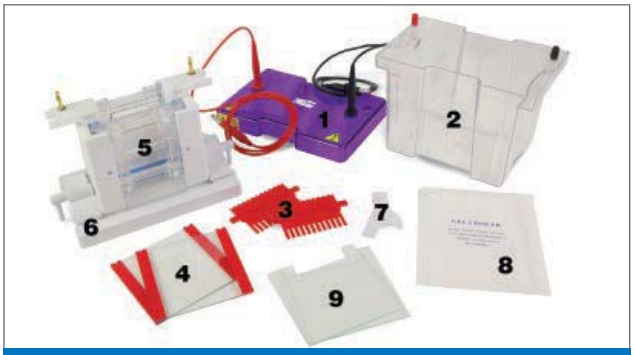
	OMNIPAGE MINI WIDE SYSTEM	NEW VS20WAVE MAXI SYSTEM
Advantages	Mini wide format effectively allows 2 mini gels to be compared within a single gel for gel-to-gel reproducibility Run 1-2 handcast gels; perfect for users with >20 samples to compare and resolve Screw assembly and moveable gel stops prevent gel leakage Even pressure screw system 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 Ability to perform three techniques in a day: IEF, PAGE and blotting	Runs 1-4 large format gels at maximum resolution Fewer screws compared to traditional formats resulting in rapid set up times 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 Optional blotting insert supplied with additional tank and lid for a dedicated 4-gel blotting system; rapid transfer plate electrodes available Detachable cooling core for fast, smile-free electrophoresis Seamless injection moulded construction free of potential leakage-prone glue joins Capacity to run 1-4 18cm capillary tube gels or IPG strips in second dimension; optional 2-D module
Compatible Gel Formats		
Handcast	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 (tank, lid and running insert only) Tapecast (includes glass plates) Handcast (with glass plates and caster) (with extra casting stand and plates to run 2 gels in tank, while casting 2 simultaneously)	VS10WD (Pg 55) VS10WDSYS (Pg 55) VS10WDSYS-CU (Pg 55)	VS20WAVESYS (Pg 57) VS20WAVESYS-CU (Pg 57)
Combination Package	2-gel vertical system and optional power supply combination	
Handcast Handcast with blotting insert	VS10WDSYS-CS300 (Pg 67) VS10WCBS-CS300 (Pg 67)	
Tetrad Packages	4-gel vertical system and optional power supply combination	
Handcast (with blotting option) (with power supply) (with power supply and blotting option (with high current power supply) (with high current power supply and blotting option)		WAVETETRAD1 WAVETETRAD1CBS WAVETETRAD1-CS500 WAVETETRAD1CBS-CS500 WAVETETRAD1-CS3AMP WAVETETRAD1CBS-CS3AMP
Active Gel Dimensions (w x h)	18 x 8cm	16 x 17.5cm
Available Gel Thicknesses	0.5, 0.75, 1, 1.5 & 2mm	
Compatible Electroblotting Transfer Systems Integrated modular Standalone Wet/tank transfer Semi-dry	OmniPAGE Mini Wide VS10WCBS (PAGE & Blotting, Pg 75) and VS10WCES (PAGE, Blotting & 2-D, Pg 58) SB10W and EBM20 3- and 5-blot transfer systems (Pg 78) SD20 20x20cm for 2x blots (Pg 80)	VS20CBS (PAGE & Blotting, Pg 76) SB20 and EBM20 3- and 5-blot transfer systems (Pg 78) SD20 20x20cm, SD33 33x45cm, and SD50 20x50cm for 1-3 blots (Pg 80)

ORDERING INFORMATION

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
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
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
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

SPECIFICATIONS

Number of gels	1-4	Total buffer Volume for 2 gels	Min: 250mL Max: 1200mL
Precast gel compatibility	IDGel™, Novex®, SERVAGel™, Thermo Precise Pierce Protein Gel	Total buffer volume for 4 gels	Min: 250mL Max: 1200mL
Handcast gels	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 86); NanoPAC-500 (Pg 86); CS-300V (Pg 87); CS-3AMP for blotting (Pg 88)
Gel Dimensions (w x h)	8x8.5cm	Unit Dimensions (w x d x h) Weight	19x13x15cm 1.8Kg



OMNIPAGE MINI VERTICAL COMPONENT PARTS

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

For further details see the OmniPAGE™ Key Features Section on page 46.

COMB SPECIFICATIONS

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

FEATURES:

High Throughput Capability

- Double gel capacity and run a maximum of 4 gels within an hour, using a combination of plain and notched glass plates with bonded spacers in between that correspond to your chosen gel thickness

Rapid Casting

- PAGE insert, used for both gel casting and running, eliminates time-consuming transfer of potentially fragile glass plates between separate casting and running modules
- Cast and run in 4 easy steps using unique sliding clamp technology…

Innovative Loading

- Reversible combs also serving as loading indicators aid pipette-well alignment to prevent sample loading errors

Dedicated Modules for Different Applications

- Interchangeable modular inserts for slab gels, 2-D electrophoresis and electroblotting allow the user to switch quickly and easily between electrophoresis techniques, using the same, single universal buffer tank and lid.
  Our modular system configurations are as follows: -
  - Electroblotting of 1 to 4 PAGE gels (Pg 74)
  - 2-D Electrophoresis using capillary tube gel isoelectric focusing & PAGE (Pg 60)
  - Complete – combine electroblotting and 2-D electrophoresis (Pg 58)

Cast and run in 4 easy steps

Check out video at www.cleaverscientific.com for more details..

omniPAGE Mini

Cleaver Scientific Mini Vertical systems are used primarily for protein but also nucleic acid electrophoresis techniques.

By combining both functionality and ease of use, the 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.

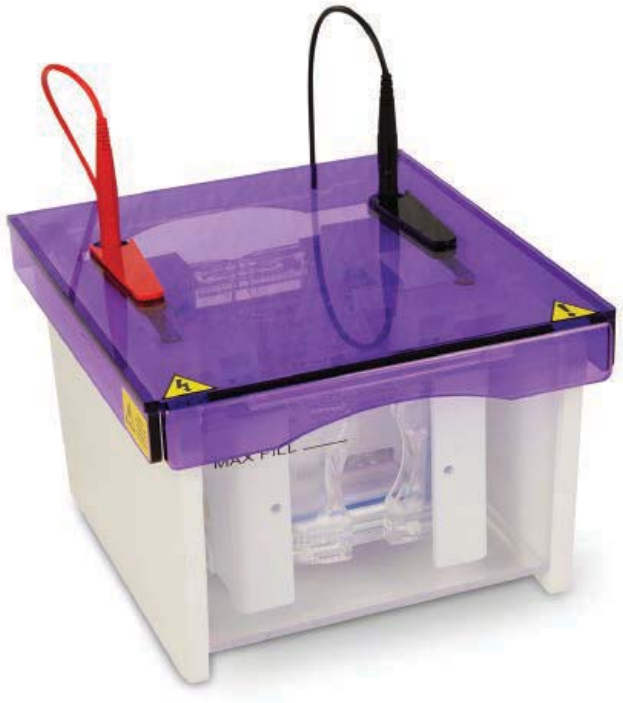
The omniPAGE Mini blotting insert is available in traditional wire electrode format or with rapid high-intensity plate electrodes (Pg 79) to transfer up to 4 and 2 gels respectively

The omniPAGE Mini capillary tube gel insert may be used for IEF of up to 10 capillary tube gels in as little as 3.5 hours (Pg 60)

TYPICAL APPLICATIONS

Ideal for the separation of proteins in poly acrilamide gels.

- Ideal for discovery projects and evaluation of sample preparation conditions.
- PAGE, 2-D electrophoresis and blotting
- Gel purification of low molecular weight nucleic acid fragments
- To learn more, please visit www.cleaverscientific.com to see our technical video



Octi-Page

Octi-Page is Cleaver Scientific's solution for high throughput electrophoresis of 10x10cm mini-gels. Based on the 4-gel capacity of the CVS10TETRAD system, the Octi-Page takes electrophoresis one step further by allowing eight single gels to be run within two individual CVS10DIRM running inserts. By using the standard CVS10 mini-vertical plain glass plate with bonded spacer (VS10PGS1) and notched glass plate (VS10NG) configuration, the researcher not only benefits from being able to compare data between single gels run within the same tank but is also free of the complications that sometimes occur when opening and processing double-gel cassettes or triple-plate sandwiches.

Two casting bases are supplied to cast up to 8 gels within two CVS10DIRM running inserts which are then transferred to the tank for electrophoresis. While electrophoresis is underway, time may be then spent casting another 8 gels using the two casting upstands (CVS10EXCAST) in tandem with the casting bases. Once the first electrophoresis run is completed, the CVS10 mini-vertical's unique sliding clamp technology allows the newly cast gels to be switched quickly and easily from the casting upstands to the running inserts, keeping the tank permanently in use for maximum throughput.

FEATURES:

- Compare data from up to eight independent gels run within two PAGE inserts
- Unique sliding clamp technology facilitates rapid interchange between casting and running inserts
- Run eight gels in the tank whilst casting another eight gels simultaneously, to keep the tank in permanent use and maximise throughput
- Run eight, Blot eight! - optional blotting insert has double the transfer capacity of the market leader, eliminating bottlenecks between PAGE and blotting
- Suitable for precast gels, and available in a selection of customised packages with optional blotting insert and specialist power supply

The optional VS10BI blotting insert also fits comfortably within the tank to blot all eight PAGE gels, while two reusable freezer packs provide enhanced low-cost cooling to maintain protein stability, particularly during native transfers. The Octi-Page may be supplied pre-configured for commercial precast gels, or as a complete package with power supply and blotting insert.

TECHNICAL SPECIFICATION

Gel dimensions (w x l)	10 x 8cm
Unit dimensions (w x l x h)	15 x 15 x 4cm
Max. samplecapacity	40 samples
Buffer volume	50ml
Combs available: No. of samples Thicknesses	 1, 4, 8, 12, 16, 20 1, 1.5mm

TYPICAL APPLICATIONS

Polyacrylamide gel electrophoresis (PAGE or SDS-PAGE) and electroblotting. 2-D gel electrophoresis (requires VS10DCI tube gel insert). Rapid screening of new samples, and evaluation of sample preparation conditions

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.

FEATURES:

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

ORDERING INFORMATION

CSL-6CAST	6 gel caster for 8 x 10cm or 10 x 10cm gels
CSL-12CAST	12 gel caster for 8 x 10cm or 10 x 10cm gels
CSL-24CAST	24 gel caster for 8 x 10cm or 10 x 10cm gels

ORDERING INFORMATION

CVS10OCTI-PAGE-PRE	Octi-Page Mini-Protein Electrophoresis Package for commercial precast gels, includes 2x CVS10DIRM, 1x VS10DP, tank, lid and power cables
CVS10OCTI-PAGE-PRENA-NO500	Octi-Page Mini-Protein Electrophoresis Package for commercial precast gels, includes CVS10OCTI-PAGE-PRE and nanoPAC-500 power supply
CVS10OCTI-PAGE1	Octi-Page Mini-Protein Electrophoresis Package for 1mm self-cast gels, includes: 2x CVS10DIRM, 1x VS-10DP, 4x VS10-12-1, 4x VS10PGS1, 4x VS10NG, 4x VS10NGS1, 2x CVS10EXCASTER and 2x VS10DCAST
CVS10OCTI-PAGE1CBS	Octi-Page Mini-Protein Electrophoresis Package for 1mm self-cast gels with interchangeable 4-blot insert, includes: CVS10OCTIPAGE1 plus VS10BI blotting insert
CVS10OCTI-PAGE1-NANO500	Octi-Page Mini-Protein Electrophoresis Package for 1mm self-cast gels with Mini power supply, includes: CVS10OCTIPAGE1 plus nanoPAC-500 power supply
CVS10OCTI-PAGE1-CS300	Octi-Page with standard Midi power supply option, includes: CVS10OCTIPAGE1 plus CS-300V power supply
CVS10OCTI-PAGE1CBS-CS300	Octi-Page with Midi power supply and interchangeable 4-blot module, includes: CVS10OCTIPAGE1CBS and CS-300V
CVS10OCTI-PAGE1-CS3AMP	Octi-Page with programmable high current Maxi power supply option, includes CVS10OCTIPAGE1 and CS3AMP
CVS10OCPAGE-1CBSCS3AMP	Octi-Page with programmable high current Maxi power supply and interchangeable 4-blot module, includes: CVS10OCTIPAGE1CBS and CS-3AMP

Change 1 for your required spacer and comb thickness i.e. 1.5mm

TYPICAL APPLICATIONS

Casting of multiple 10 x 10cm gels up to 24.
Casting Gradient gels

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	VS10W External Casting Upstand - No Casting Base
VS20DCAST	20 x 10cm Casting Base
VS20DCASTM	Replacement Silicone Mat for 20 x 10cm Casting Base
VS10WDIRM	Inner Running Module
VS20-x -LG	Loading guides for omniPAGE mini combs, x = comb well number
VS10WNG	20 x 10cm Notched Glass Plates 4mm thick (pk/2)
VS10WPG	20 x 10cm Plain Glass Plates 4mm thick (pk/2)
VS10WNGS0.75	20 x 10cm Notched Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS10WPGSO.75	20 x 10cm Plain Glass Plates with 0.75mm Bonded Spacers (pk/2)
VS10WNGS1	20 x 10cm Notched Glass Plates with 1mm Bonded Spacers (pk/2)
VS10WPGS1	20 x 10cm Plain Glass Plates with 1mm Bonded Spacers (pk/2)
VS10WPGS1.5	20 x 10cm Plain Glass Plates with 1.5mm Bonded Spacers (pk/2)
VS10WPGS2	20 x 10cm Plain Glass Plates with 2mm Bonded Spacers (pk/2)
VS10WDP	Dummy Plate, 20 x 10cm
RPW-0.2	Replacement Platinum Wire - 0.2mm, 50cm
VS20ICB	Maxi Cooling PackVS10WEXCASTER

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	Inner Chamber: 250ml Outer Tank: Min. 600ml – Max. 2800ml
Combs available: No. of samples Thicknesses	 1, 5, 10, 18MC, 24, 30, 36MC, 48 0.75, 1, 1.5, 2mm

FEATURES:

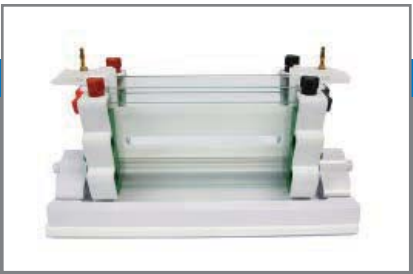
- Offers the capacity of two mini gels on a single gel
- Rapid gel casting and loading
- Optional low or high buffer volumes
- Rapid set up cooling

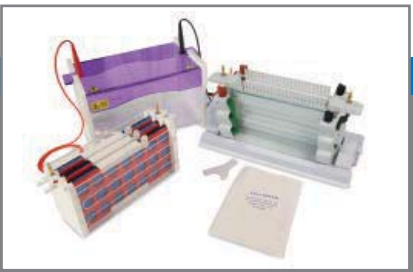
omniPage mini wide

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.





TYPICAL APPLICATIONS

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

ORDERING INFORMATION

VS20WAVESYS	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
VS20WAVESYS-CU	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
VS20WAVE-EC	VS20WAVE External Casting Stand - No Casting Base
VS20DCAST	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	

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 Without Cooling With Cooling	 4-5 hours 3-4 hours
Standard Spacer Dimensions (w x h)	2x20cm	Recommended power supplies	EV233 for IEF (Pg 89); CS-500V for PAGE (Pg 88); CS-3AMP for blotting (Pg 88)
IPG Spacer Dimensions (w x h)	0.6x20cm	Unit Dimensions (w x d x h) Weight	30x18x27cm 2.5Kg

COMB SPECIFICATIONS

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

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

The VS20WAVE Maxi Vertical Electrophoresis System

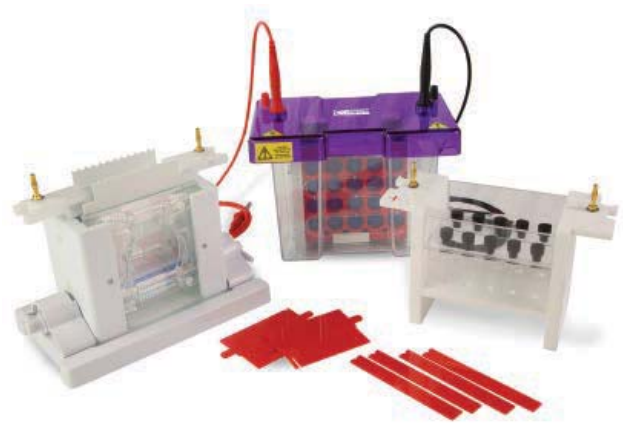
The new VS20WAVE Maxi System is Cleaver Scientific's latest product innovation for large-format vertical gel electrophoresis. Designed to perform a variety of separations, including first- and second-dimension SDS-PAGE, native, preparative, gradient and high-resolution nucleic acid electrophoresis, plus capillary tube gel IEF and electroblotting, the VS20WAVE 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 VS20WAVE 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.

TYPICAL APPLICATIONS

Large format separations of proteins and nucleic acids



Modular Systems

Mini, Mini Wide and VS20WAVE 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 SPECIFICATION

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 - 4 blots
Max. sample, Maxi Capacity	Slab 192 samples, 48 samples /gel Tube - 10 tubes; Blot - 4 blots
Buffer volume	Mini: Min 250ml; Max 1200ml Mini Wide: Min 600ml; Max 2800ml Maxi: Min 1200ml; Max 5600ml

FEATURES:

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

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.
VS10WCES	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.

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.

TECHNICAL SPECIFICATION

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 89)

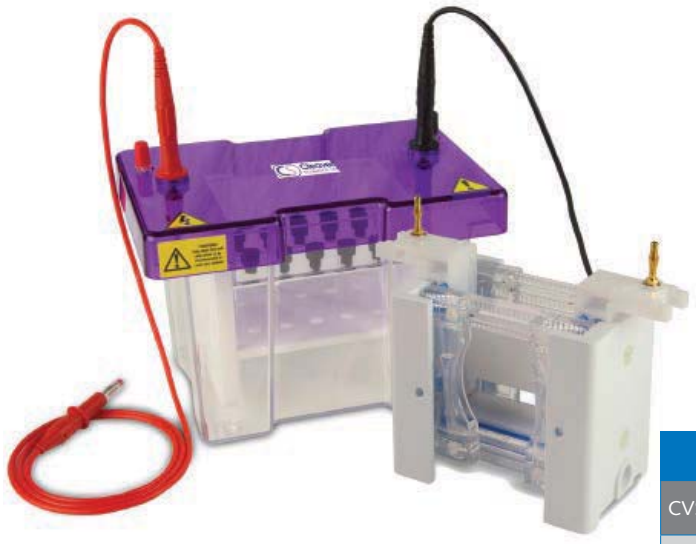
The VS20WAVE Complete Electrophoresis System

The VS20WAVE 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

TYPICAL APPLICATIONS

Maxi SDS PAGE protein separations, western blotting and 2-D tube gel electrophoresis.



omniPAGE 2D Systems

Mini, Mini Wide and Wave 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 Wave 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.

FEATURES:

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

ORDERING INFORMATION

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.

ORDERING INFORMATION

Tube Gel Units, Inserts and Accessories	
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 Wide Tube Gel Unit, 20x10cm with tank and lid, glass capillary tubes, blanking ports & cooling pack
VS10WDCI	omniPAGE Mini Wide Tube Gel Insert - includes glass tubes and blanking ports
MCT10	Mini Capillary Tubes, pk/100
VS20DCI	omniPAGE Maxi Tube Gel Insert - includes glass tubes and blanking ports
MCT20	Maxi Capillary Tubes, pk/100
MCBP	Mini and Maxi Capillary Blanking ports
MCT101.5	Mini Capillary Tubes, 1.5mm, pk/100
MCT201.5	Maxi Capillary Tubes, 1.5mm, pk/100

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

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 89)

The VS20WAVE 2D Tube Gel System

The VS20WAVE 2-D tube gel system provides all necessary components for 2-D electrophoresis using capillary ampholyte tube gels.

- 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 63)
- Two 24-sample 1mm combs included for routine SDS-PAGE techniques

TYPICAL APPLICATIONS

Full evaluation of protein samples.

ORDERING INFORMATION

CSL-IEF	Flatbed IEF system for IPG strips and gels, with focusing and rehydration trays
CSL-CHILLER	Chiller for electrophoresis systems
CSL-IEF-KIT	1-D Combination Package, includes CSL-IEF, CSL-CHILLER and EV233
CSL-IEFPOS	Replacement positive electrode
CSL-IEFNEG	Replacement negative electrode
CSL-IEFPLT	Replacement glass platform
EV233	Consort 3000V, 300mA, 300W power supply
CSL-IEFFRME	Replacement electrode frame
CSL-RHDTRAY	Rehydration Tray and lid
CSL-FOCUSTRAY	Focusing Tray
CSL-FTELECPOS	Focusing Tray Adjustable Electrode Positive
CSL-FTELECNEG	Focusing Tray Adjustable Electrode Negative

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

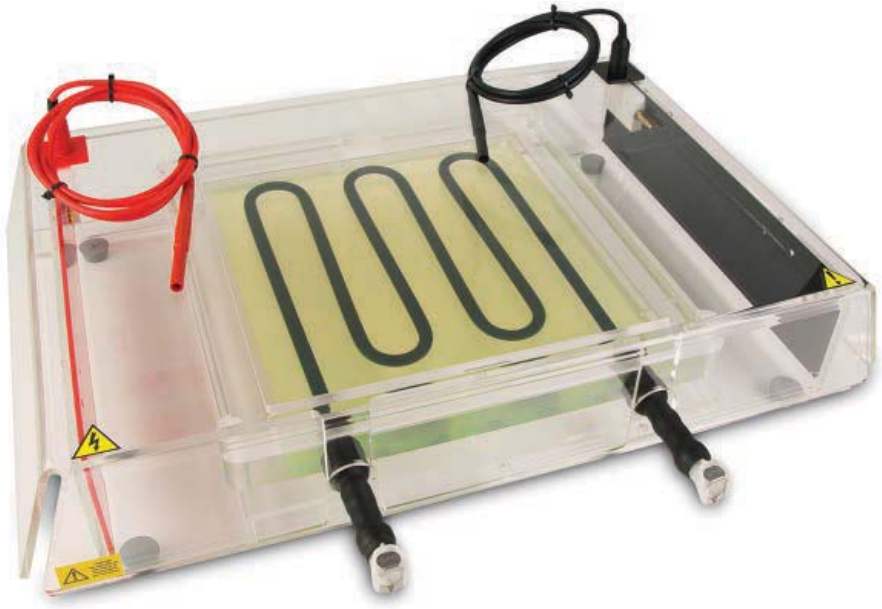
*11cm strips available from other suppliers

CSL-IEF 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	-	

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



FEATURES:

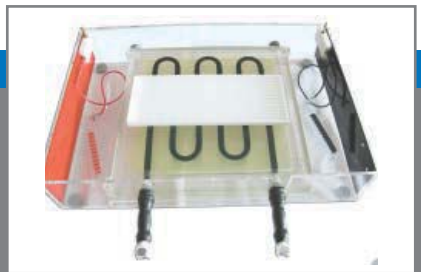
- For IPG strips and IEF gels
- Large cooling platform area
- 'Pick-and-Place' adjustable electrodes
- Focusing tray for a maximum twelve IPG strips

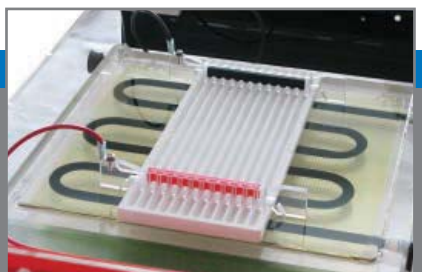
Isoelectric Focusing

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 130) 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





TYPICAL APPLICATIONS

1st dimension of 2-D electrophoresis separation of proteins according to their PI

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.

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.

FEATURES:

- 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 SPECIFICATIONS

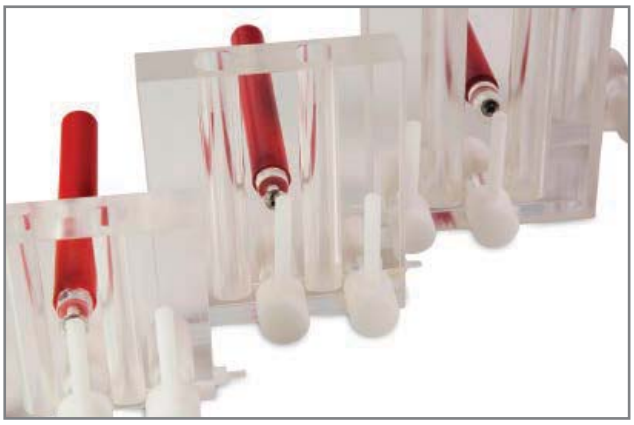
Unit dimensions (w x h x d)	36x33x18cm
Plate dimensions (w x h)	30x22cm
Gel dimensions (w x h)	28x20cm
Max. sample capacity	300 samples per run; 75 per gel
Buffer volume	1800-8400ml
Comb options	
No. of teeth	1, 2, 4, 28MC, 56MC, 75
Thicknesses	0.25, 0.35, 0.5, 1, 1.5, 2

TYPICAL APPLICATIONS

Larger gel size. Running IPG strips

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



ACCESSORIES

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

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-GM15	15ml Gradient Mixer
CSL-GM25	25ml Gradient Mixer
CSL-GM50	50ml Gradient Mixer
CSL-GM100	100ml Gradient Mixer
CSL-GM500	500ml Gradient Mixer

TYPICAL APPLICATIONS

Making gel, caesium and sucrose gradients

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.

ORDERING INFORMATION

CVS10TETRAD
Run 4 gels in the tank while casting another 4 externally

1OmniPAGE 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 51)
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	

CVS10TETRAD1CBS
With interchangeable 4-blot module

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 74)
For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75CBS, CVS10TETRAD1.5CBS and CVS10TETRAD2CBS respectively	

CVS10TETRAD1-CS300
With standard midi power supply option

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 87)
For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75-CS300, CVS10TETRAD1.5-CS300 and CVS10TETRAD2-CS300 respectively	

CVS10TETRAD1CBS-CS300
with standard midi power supply option and interchangeable 4-blot module

OmniPAGE TETRAD with Midi power supply and interchangeable 4-blot module, includes:	
CVS10TETRAD-1CBS	OmniPAGE TETRAD Mini-Protein Electrophoresis Package for 1mm self-cast gels with blotting module
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)
For 0.75, 1.5 and 2mm versions use CVS10TETRAD0.75CBS-CS300, CVS10TETRAD1.5CBS-CS300 and CVS10TETRAD2CBS-CS300 respectively	

CVS10PRE-CS300
Pre-cast gel mini-vertical package

Pre-cast gel mini-vertical electrophoresis package includes:	
CVS10PRE	omniPAGE Mini-Protein system (Pg 51)
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)

CVS10DSYS-CS300
Self cast and pre cast mini vertical package

Pre-cast and hand cast gel mini-vertical electrophoresis package includes:	
CVS10DSYS	omniPAGE Mini-Protein system with casting base (Pg 51)
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)

ORDERING INFORMATION

CVS10CBS-CS300
Mini vertical, power supply and blotting package

CVS10CBS	omniPAGE Mini-Protein system with casting base and blotting insert (Pg 74)
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)

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

VS10WDSYS-CS300
Wide mini vertical self cast package

Self-cast gel mini-wide vertical electrophoresis package includes

VS10WDSYS	omniPAGE Mini Wide Protein system with casting base (Pg 55)
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)

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

VS10WCBS-CS300
Wide mini vertical power supply and blotting package

VS10WCBS	omniPAGE Mini Wide Protein system with casting base and blotting insert
CS-300V	300V, 700mA, 150W midi power supply (Pg 87)

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

WAVETETRAD1
Standard 4-gel maxi vertical package

4-gel electrophoresis package: run 4 gels in the tank and cast another 4 externally includes:

VS20WAVESYS-CU	VS20WAVE 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
VS20NGS1	2 packs of 2x notched glass plates with 1mm bonded spacers
VS20-24-1	2 additional 1mm 24-sample combs

WAVETETRAD1CBS
Standard 4-gel maxi vertical package

With interchangeable 4-blot running module includes:

WAVETETRAD1	4-gel electrophoresis package
VS20BI	1x WAVE Standard Electroblotting Module for 4 cassettes (Pg 78)

WAVETETRAD1-CS500
Single Workstation 4-gel Maxi Vertical package, complete with general purpose or specialist power

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 (Pg 88)

ORDERING INFORMATION

CSQ20	Large Format Vertical, 20cm wide, glass plates, 0.35mm spacers, 48 sample comb
CSQ20-NG	Glass plates, pk/2 Notched
CSQ20-PG	Glass plates, pk/2 Plain
CSQ20-S0.25	Spacer set 0.25mm
CSQ33	Large Format Vertical, 33cm wide, glass plates, 0.35mm spacers, 48 sample comb
CSQ33-NG	Glass plates, pk/2 Notched
CSQ33-PG	Glass plates, pk/2 Plain
CSQ33-S0.25	Spacer set 0.25mm
CSL-FHS*	Fan heater sensor kit for large format vertical units CSQ20 and CSQ33 220V
CSQ20-S0.35	Spacer set 0.35mm
CSQ20-S1	Spacer set 1mm
CSQ20-S1.5	Spacer set 1.5mm
CSQ33-S0.35	Spacer set 0.35mm
CSQ33-S1	Spacer set 1mm
CSQ33-S1.5	Spacer set 1.5mm
CSQ-FC	Flexi caster for csq20 & csq33
CSL-MGR	Mini Glass Plate Rack for 20x 2mm Plates
CSL-LGR	Large Glass Plate Rack for 10x 5mm Plates

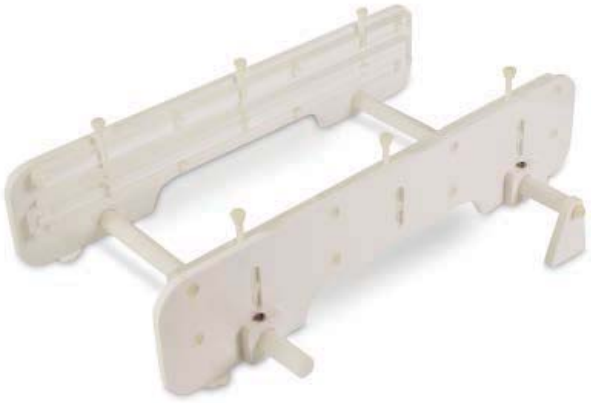
*100V add $ to stock code when ordering

COMB SPECIFICATIONS

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

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



FEATURES:

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

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.

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.

TYPICAL APPLICATIONS

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

TECHNICAL SPECIFICATION

WAVE ELECTROPHORESIS INSERT AND TANK	
Max. Number of Gels	2 per run
Plate Dimensions (WxH)	20x20cm
Active Gel Dimensions (WxH)	16x17.5cm
Spacer Thicknesses	0.75, 1, 1.5 and 2mm
Max. Sample Capacity	96 samples; 48 per gel
Standard Combs	2x 1mm 24-sample
Available Combs	1, 5, 10, 18MC, 24, 36MC, 48; as per VS20WAVE unit (pg 34 & 30)
Max. Buffer Volume	8.5L
Unit Dimensions (w x d x h)	40.5 x 17 x 44cm
Weight	8kg
RECOMMENDED POWER SUPPLY	
Voltage	500V
Current	800mA/500mA
Power	300W/150W
TEMPERATURE CONTROL UNIT	
Temperature Control	PID
Operating Temperature Range	Ambient-100°C
Working Temperature Range (DGGE)	45-70°C
Buffer Recirculation Mechanism	Stirring
Temperature Uniformity/Stability at 37°C	±0.05/0.02°C
Setting/Display Resolution	0.1°C
Safety	Fluid-level float switch; isolated; IEC 1010 / CE
Stored Temperature Values	4
Heater Power at 230V/110VAC	1.4/1.3kW
Electrical Power at 230V/100VAC	1.5/1.4kW (50-60Hz)
GRADIENT MIXER	
Total Volume	100ml
Volume of Reservoir & Mixing Chambers	50ml
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

VS20WAVE-DGGE - APPLICATIONS

DGGE

Description	Benefits
i. Determines the denaturing conditions required to identify unknown mutations	i. GM100 gradient mixer and optional MU-D01 peristaltic pump simplify casting of denaturing gradient gels
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	ii. New VS20WAVE electrophoresis insert and cam caster for leak free casting
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	iii. Temperature control unit provides consistent run temperatures between 45-70°C
iv. Results in partial melting of DNA to produce a branched molecule identified by its reduced mobility within the gel	iv. High resolution 20x20cm format

CDGE

Description	Benefits
i. Rapid screening method for multiple samples containing an identified mutation	i. Uses constant denaturant gels cast with new VS20WAVE electrophoresis insert and cam caster for leak free casting
ii. Requires DGGE beforehand to establish optimal denaturing conditions to identify a specific mutation	ii. Temperature control unit provides constant run temperature during electrophoresis
iii. No denaturant gradient required as multiple samples are screened in a constant denaturant gel	iii. Maximum 96-sample throughput (48 samples per gel)
iv. Increases throughput and alleviates bottlenecks	

HA

Description	Benefits
i. Used when it is difficult to detect a homoduplex mutation by DGGE	i. New VS20WAVE electrophoresis insert and cam caster for leak free casting
ii. Requires denaturation and re-annealing of wild-type and mutant DNA mixed together, usually within a PCR reaction	ii. Gradient mixer simplifies DGGE option
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	iii. Optional temperature control for reproducibility
iv. Requires parallel DGGE, or may be performed overnight in a TBE gel made from special high-resolution acrylamide	iv. High resolution 20x20cm format

FEATURES:

- 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 ±0.02°C

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.

Supplied with the VS20WAVE-DGGE are:

The GM100 Gradient Mixer

- Forms efficient gradients by mixing and delivering high- and low-density denaturant solutions.
- The flat-base design and support handle of the GM100 allows it to be secured to a retort stand and mounted on a magnetic stirring plate (e.g. CSL-STIR, Pg 124).
- The mixing chamber accommodates a magnetic stirrer to form a linear gradient.
- Optional MUD01 peristaltic pump recommended.

The VS20WAVEDIRM PAGE Insert and Casting Base

- Employs innovative vertical screw clamp technology to assemble two vertical gels.
- Four-screw set up makes casting assembly faster.
- A built-in inner buffer chamber eliminates the need for heavy top tanks or buffer chambers.
- Its dual purpose PAGE insert makes plate transfer unnecessary, and is used with a cam casting base to guarantee efficient leak free casting
- Utilises all of the combs, glass plates and accessories of existing VS20WAVE units, providing full flexibility.
- Two 1mm 28-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.

The VS20WAVE-DGGETC Temperature Controller

- Combines buffer recirculation with a heat sensor and 1.4kW heating element to facilitate precise temperature control to within ±0.02°C.
- Allows the gel temperature to be set to the melting temperature (Tm) of the amplified DNA polymorphism or mutation of interest.
- Features include: 4-digit 16mm LED panel; 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.

TYPICAL APPLICATIONS

Detecting mutations in genetics and cancer studies.

BLOTTING SYSTEM SELECTION GUIDE

Use the selection guide below to identify the Cleaver Scientific blotting system best suited to your electrophoresis application.

			Blotting Area (WxL)	Transfer Parameters					Gel Capacity				
									omniPAGE Gels (WxH) / blotting cassette				
				Number of blotting Cassettes	Required Buffer Volume	Electrode Distance	Typical Transfer Time	Cooling	CVS10 Mini 8x8.5cm	VS10W Mini Wide 16x8.5cm	VS20 WAVE 16x17.5cm	VS30 Maxi Plus 26x20cm	Type of Blotting w = western n = northern s = southern
CVS10CBS			10x10cm	4 with wire / 2 with plate electrodes	1.2L	8cm wire / 2cm plate	1-2h / <1h	Cool pack	1	–	–	–	w
VS10WCBS			20x10cm	3	2.8L	6cm	1-2h		2	1	–	–	w
VS20CBS			20x20cm	4 with wire / 1 with plate electrodes	6.4L	8cm wire / 4cm plate	5-20h / 1-5h	Coil					w
Tank Transfer	SB10		10x10cm	4 with wire / 2 with plate electrodes	1.2L	8cm	1-2h / <1h	Cool pack	1	–	–	–	w
	SB10W		20x10cm	3	2.8L	6cm	1-2h		2	1	–	–	w
	SB20		20x20cm	4 with wire / 1 with plate electrodes	6.4L	8cm wire / 4cm plate	5-20h / 1-5h	Coil	4	2	1	–	w
	EBM10		10x10cm	5	1.5L	12cm	1-2h	Cool pack	1	–	–	–	w
	EBM20		20x20cm	5	1.6L	15cm	5-20h		4	2	1	–	w
SD10			10x10cm	–	5ml	As per sandwich thickness	15-30 min	–	1	–	–	–	w,s,n
SD20			20x10cm	–	20ml		15-30 min	–	4	2	1	–	w,s,n
SD33			33x45cm	–	75ml		15-30 min	–	20	10	5	2	w,s,n
SD50			20x50cm	–	50ml		15-30 min	–	13	6	2	1	w,s,n

MICROFILTRATION (DOT AND SLOT BLOTTING) SELECTION GUIDE

Cleaver Scientific Microfiltration Manifolds do not require the resolving power of electrophoresis before transfer, with nucleic acid, protein and antibody samples being simply drawn onto a membrane under the power of vacuum.

		Membrane Size Required	Blot Parameters			Microtitre Plate Compatibility / Capacity			
			Configuration	Size of Well in Loading Template	Vacuum Required	24-well	48-well	96-well	Type of Blotting w = western n = northern s = southern
CSL-D48		12.1x4.4cm	3x16-well Dot Array	6mm diameter, 12mm deep	600mg Hg 0.8 BAR with cold trap	Yes / 2x plates	Yes / 1x plate	–	w,s,n
CSL-D96		11x7.4cm	8x12-well Dot Array			Yes / 4x plates	Yes / 2x plates	Yes / 1x plate	w,s,n
CSL-S24		12.1x4.4cm	2x12-well Slot Array	6x0.5mm Slot, 12mm deep		Yes / 1x plate	–	–	w,s,n
CSL-S48		12.1x4.4cm	3x16-well Slot Array			Yes / 2x plates	Yes / 1x plate	–	w,s,n

BLOTTING SYSTEMS

BLOT TRANSFER SYSTEMS OVERVIEW:

Cleaver Scientific offers four types of system:

- **MODULAR ELECTROBLOTTERS** – combine PAGE and transfer techniques within the same tank (see Pg 74-75).
- **TANK TRANSFER SYSTEMS** – available with either plate or wire electrodes, support efficient, quantitative transfers over a wide molecular weight range. Plate electrode systems are faster through greater field strength; wire electrodes are more economical, consuming less current and generating less heat (see Pg. 77).
- **SEMI-DRY TRANSFER SYSTEMS** – perfect for rapid, high-intensity transfers of mid-range proteins, 10-100kD in size (see Pg. 80).
- **MICROFILTRATION (DOT AND SLOT BLOTTING)** – does not require electrophoresis and is used to determine the working conditions for a new blotting assay, antibody titres and antibody-antigen specificity. Also suitable for nucleic acids (see Pg. 81).

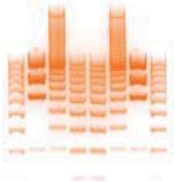
Blotting, a technique that entails immobilisation of proteins or nucleic acids on a solid membrane support and then detection using a specific antibody or probe of complementary nucleic acid sequence, significantly increases the potential for identification and characterisation of proteins and nucleic acids. Upon transfer to a membrane support proteins and nucleic acids become far more accessible to detection by antibodies and probes than they would otherwise be within a gel. Separating out DNA, RNA or Protein samples of different sizes by electrophoresis followed by blotting is an excellent way to identify specific molecules within a mixed population of nucleic or protein molecules, and the two techniques are often used in tandem.

RELATED PRODUCTS

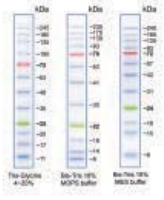
POWER SUPPLIES PAGES 82-89

VACUUBRAND GEL PUMP PAGE 131

BLOTTING MEMBRANES PAGE 144



PROTEIN MARKERS PAGE 142



omniPAGE Mini Complete Electroblotting System

The omniPAGE Mini electroblotting system allows PAGE and blotting to be performed using the same universal tank and lid. Interchangeable modules dedicated to PAGE or blotting facilitate simultaneous transfer of up to four 10x10cm gels. Features include:

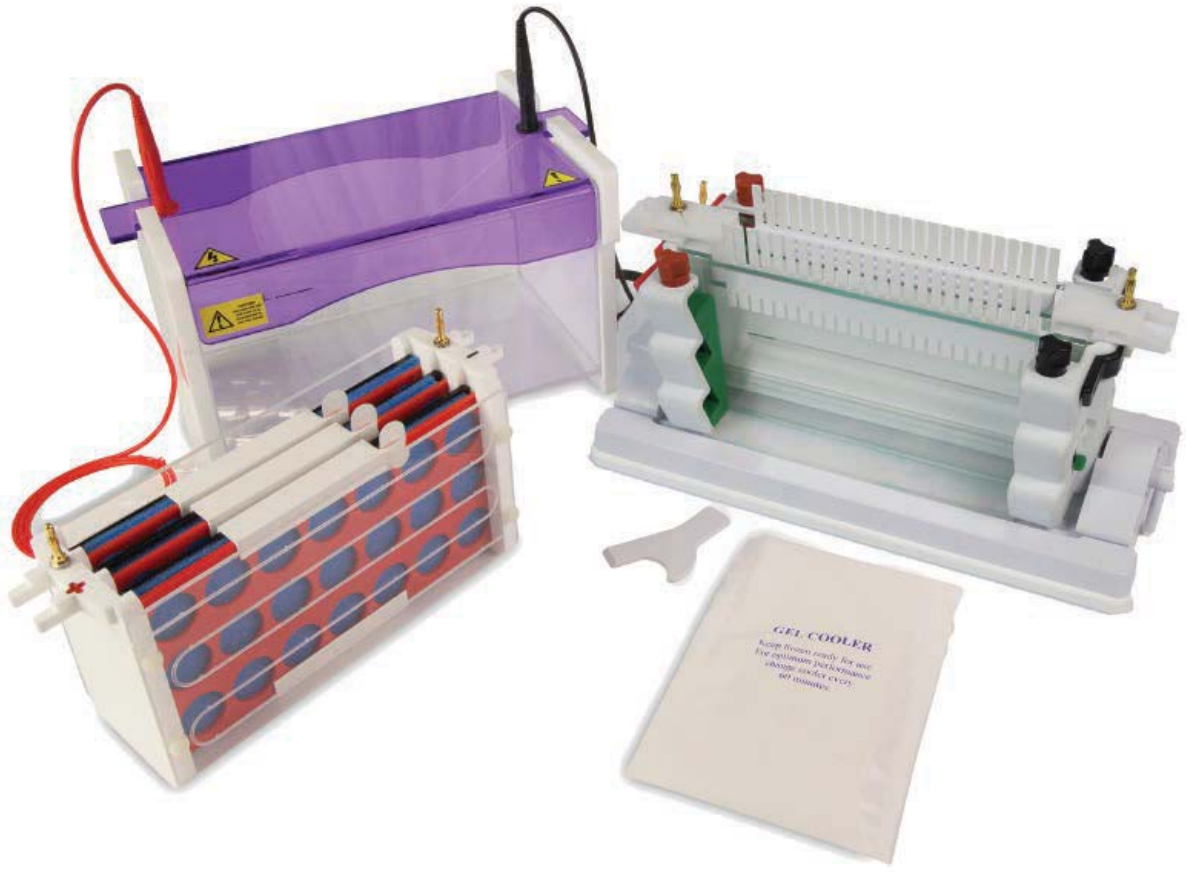
- Transfer capability for up to four 10x10cm gels in as little as an hour; low-intensity transfers may also be performed overnight
- Platinum-wire electrodes 8cm apart generate a powerful electric field for efficient transfer;
  an optional plate-electrode insert is available for rapid 2-gel transfers
- Cool pack which, when frozen an hour before use, slots conveniently into the tank to provide a low-cost, efficient heat sink during fast high-intensity transfers
- Open design, rigid cassettes maximise current transfer and eliminate 'shadow band' formation; colour-coded to ensure proper orientation within the blotting system.

ORDERING INFORMATION

CVS10CBS	Complete Mini System for electrophoresis and blotting, comprising:
	1x Mini Vertical Unit which includes: PAGE insert, 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 Mini Standard Electroblotting Module which includes: Mini Platinum Wire Blotting Insert, 4x 10x10cm compression cassettes and 16x fibre pads
CVS10CBS-HI	Complete Mini System for electrophoresis and high intensity blotting, comprising:
	1x Mini Vertical Unit which includes: PAGE insert, 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 Mini Standard Electroblotting Module which includes: Mini Plate-electrode Blotting Insert, 2x 10x10cm compression cassettes and 8x fibre pads
VS10BI	1x Mini Blotting Insert, 4x compression cassettes and 16x fibre pads
VS10BI-HI	1x Mini High Intensity Blotting Insert, 2x compression cassettes and 8x fibre pads

TECHNICAL SPECIFICATIONS

	Mini
Maximum Gel Size	8x8.5cm (active gel dimensions)
Gel Capacity	4x CVS10 Mini Gels; 2 with plate-electrode insert
Buffer volume	1.2L Max.
Running conditions	35V overnight to 100V high-intensity, <1-2 hours
Recommended power supply	CS-3AMP; CS-300V also recommended (Pg 87-88)



omniPage Mini Wide Complete Electroblotting System

The omniPAGE Mini Wide electroblotting system shares the same features as the omniPAGE Mini, to facilitate simultaneous transfer of up to three 20x10cm Mini Wide gels.

ORDERING INFORMATION

VS10WCBS	Complete Mini Wide System for electrophoresis and blotting, comprising:
	1x Mini Wide 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 Mini Standard Electroblotting Module which includes: Mini Platinum Wire Blotting Insert, 4x 20x10cm compression cassettes and 16x fibre pads

TECHNICAL SPECIFICATIONS

	Mini Wide
Maximum Gel Size	17.5x8.5cm (active)
Gel Capacity	6x Mini, 4x Mini Wide
Buffer Volume	2.8L Max.
Running conditions	35V overnight to 100V high-intensity 1-2 hours
Recommended power supply	CS-3AMP; CS-300V & CS-500V (Pg 87-88)

TYPICAL APPLICATIONS

Cast, Run and Blot up to 4 gels in the one system.

The VS20WAVE Electroblotting System

The VS20WAVE complete electroblotting system provides all necessary components for performing transfers from vertical slab gels.

- Interchangeable modular inserts combine vertical PAGE with electro-transfer using the same universal tank and lid
- Multi-transfer capability for up to 4 WAVE Maxi gels, 8 omniPAGE Mini Wide and 16 omniPAGE Mini gels
- Complete flexibility with power settings as experimental needs dictate: perform overnight transfer at voltages as low as 35V; and rapid, high-intensity transfers at 200V in 1-2 hours
- Standard insert with platinum wire electrodes 8cm apart for increased capacity; and a high-intensity insert with plate electrodes 4cm apart for transfer rapidity
- Detachable cooling coil, which connects to the laboratory water supply or a recirculating chiller, prevents buffer depletion to allow overnight transfers and fast high-intensity blots, and maintains the low temperatures important for protein stability during native transfers
- Open design, rigid cassettes maximise current transfer and eliminate 'shadow band' formation
- Colour-coded cassettes prevent polarity reversal

ORDERING INFORMATION

VS20CBS	Complete WAVE Maxi System for 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 pack; plus: 1x WAVE Standard Electroblotting Module which includes: WAVE Maxi Platinum Wire Blotting Insert, 4x compression cassettes and 18x fibre pads
VS20CBS-HI	Complete WAVE Maxi System for high intensity 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 pack; plus: 1x WAVE High Intensity Electroblotting Module which includes: WAVE Maxi Plate Electrode Blotting Insert, 1x compression cassettes and 6x fibre pads
VS20BI	WAVE Maxi Platinum Wire Blotting Insert, 4x compression cassettes and18x fibre pads – standard
VS20BI-HI	WAVE Maxi Plate Electrode Blotting Insert, 1x compression cassette and 6x fibre pads – high-intensity

TECHNICAL SPECIFICATIONS

Maximum Gel Size	17.5x18cm (active gel dimensions)	
Gel Capacity	Standard Blotting Insert	4x WAVE Maxi Gels
	High-intensity Blotting Insert	1x WAVE Maxi Gels
Electrode types	Standard Blotting Insert	Platinum wire
	High-intensity Blotting Insert	Platinum-coated titanium & stainless steel
Outer Tank Buffer Volume	5.3L working volume to 6.4L max.	
Running conditions	35V overnight to 200V high-intensity 1-2 hours	
Recommended power supply	CS-3AMP (300 Volts, 3,000 mAmps, 300 Watts) (Pg 88)	

TYPICAL APPLICATIONS

Combine PAGE and transfer Techniques within the same tank.

Tank Sub Electroblotters

Designed primarily for wet electroblotting of proteins, TankSub Electroblotters offer a combination of increased capacity with economy saving features. Both units, Mini 10 x 10cm and Maxi 20 x 20cm, have increased capacity over standard systems with up to five gel blot cassettes utilised at any one time. This is especially useful in high throughput laboratories.

A uniform electric field is provided by a high intensity coiled electrode and ensures uniform transfer across the blot surface. The cassette's open architecture ensures the maximum blot area allows direct transfer of current. Its rigid construction ensures contact between the gel and membrane is retained throughout the blot and an even pressure is maintained. These units are compatible with magnetic stirrers to aid heat dispersal and prevent pH drifts in the buffer due to incomplete buffer mixing. Each system includes a cooling pack to further enhance transfer efficiency by removing excess heat. This also saves on buffer for added economy.

FEATURES:

- Ideal for wet electroblotting of proteins - Western blotting
- Up to five gel blot cassettes utilised at any one time
- Hinged cassettes for added convenience
- Accommodates gel thicknesses from 0.25 up to 3mm

ORDERING INFORMATION

EBM10	Electro Blot Mini, 10 x 10cm System for five cassettes, with tank and lid, 5x cassettes, 24x fibre pads and cooling pack		
SB10C	Tank Blot Mini Cassette	SB10F	Fibre pads - pk/8
EBM20	Electro Blot Maxi, 20 x 20cm System for five cassettes, with tank and lid, 5x cassettes, 24x fibre pads and cooling pack		
SB20C	Tank Blot Maxi Cassette	SB20F	Fibre pads - pk/6

TECHNICAL SPECIFICATIONS

Unit dimensions (w x h x d)	Mini	19 x 13 x 19cm
	Maxi	24 x 16 x 26cm
Max. sample, capacity	Mini	5 Blots, 10 x 10cm
	Maxi	5 Blots, 20 x 20cm
		20 Blots, 10 x 10cm
Buffer volume	Mini	Min 1000ml; Max 1500ml
	Maxi	Min 4300ml; Max 6000ml

omniPage Sub Blot System

Available in Mini, Mini Wide and Maxi formats, omniPAGE Sub Blot systems are complete stand-alone units for western blotting. Each unit comprises an omniPAGE tank and lid, electroblotting insert, cassettes and fibre pads. The versatile design of the omniPAGE tank and lid allows the unit to be easily adapted for vertical PAGE or IEF with capillary tube gels, using the relevant optional insert.

FEATURES:

- Multi-transfer capability for up to 4 Maxi gels, 8 Mini Wide and 16 Mini gels in the Maxi System; 4 Mini Wide and 8 Mini gels in the Mini Wide system; and 4 Mini gels in the Mini system
- Complete run-time flexibility from overnight to as short as a couple of hours
- Cool pack for environmentally friendly low-cost cooling during high-intensity transfers
- Open design, rigid cassettes maximise current transfer and eliminate 'shadow band' formation
- Cassettes colour-coded prevent polarity reversal to ensure transfer in the correct orientation

ORDERING INFORMATION

SB10		SB10W		SB20	
omniPAGE Blot Mini, 10 x 10cm System including blotting insert, tank and lid, 4 cassettes, 16 fibre pads,cooling pack		omniPAGE Blot Mini Wide,20 x 10cm System including tank and lid, 4 cassettes, 16 fibre pads, cooling pack		omniPAGE Blot MaxiWAVE, 20 x 20cmSystem including tank and lid, 4 cassettes, 16 fibre pads, cooling coil	
ACCESSORIES					
VS10BI	omniPAGE Blot Mini Insert –includes 4 cassettes and 16 fibre pads	VS10WBI	omniPAGE Blot Mini Wide Insert –includes 4 cassettes and 16 fibre pads	VS20BI	omniPAGE Blot Maxi WAVE Insert –includes 4 cassettes and 16 fibrepads
SB10C	omniPAGE Blot Mini Cassette	SB10WC	omniPAGE Blot Mini Wide Cassette	SB20C	omniPAGE Blot Maxi Cassette
SB10F	Fibre Pads – pk/8	SB10WF	Fibre Pads – pk/8	SB20F	Fibre Pads – pk/8

TECHNICAL SPECIFICATIONS

	SB10 Mini	SB10W Mini Wide	SB20 MaxiWAVE
Max. Gel Size	8x8.5cm	16x8.5cm (active)	16x17.5cm (active)
Max. Blot Size	10x10cm	20x10cm	20x20cm
Gel Capacity	4x Mini	6x Mini, 3x Mini Wide 12x Mini	16x Mini 8x Mini Wide & 4x Maxi
Buffer Volume	1.2L Max.	2.8L Max.	6.4L Max
Running conditions	100V 1-2h	100V 1-2h	100V 5-20h
Recommended power supply	CS-3AMP & CS-300V	CS-3AMP, CS-300V & CS-500V	CS-3AMP

TYPICAL APPLICATIONS

Wet Western Electroblotting

Sub Blot Mini and WAVE High Intensity Transfer Systems

The Sub Blot Mini and WAVE high intensity transfer systems combine the cooling capacity of wet submarine blotting units with the speed of semi-dry transfer systems. Both systems utilise plate electrodes to create a higher strength electric field and greater current density than conventional wire-electrode systems. This allows transfer of broad range molecular weight proteins to be achieved typically within an hour in the Sub Blot Mini, and in 1-2 hours using the WAVE Sub Blot System. Features offered by the Sub Blot Mini and WAVE are as follows:

- Plate-electrodes 2cm apart in the Sub Blot Mini facilitate fast transfer of two stacked 8x8.5cm mini gels; and 4cm apart in WAVE Sub Blot system for transfer of one Maxi gel
- Multi-transfer capability in the WAVE also allows transfer of 4 omniPAGE Mini and 2 omniPAGE Mini Wide gels arranged side-by-side
- Two cooling options: a cool pack supplied with the Sub Blot Mini for environmentally friendly low-cost cooling; and active cooling in the Sub Blot WAVE by a detachable cooling coil connected to a recirculating chiller (Pg 130)
- Magnetic stirring bars fit conveniently beneath the cooling coil within the WAVE tank to maximise buffer circulation and heat dissipation, while preventing ion gradient formation; both tanks sit comfortably on most stirring plates
- Open design, rigid cassettes maximise gel-to-membrane compression for efficient current transfer; colour-coded to prevent polarity reversal

ORDERING INFORMATION

SB10-HI	omniPAGE Blot Mini, 10 x 10cm, High Intensity System including tank and lid, 2 cassettes, 8 fibre pads, cooling pack
VS10BI-HI	omniPAGE Blot Mini Insert – includes 2 cassettes and 8 fibre pads
SB10C	omniPAGE Blot Mini Cassette
SB10F	Fibre Pads – pk/8
SB20-HI	WAVE Sub Blot, 20 x 20cm, High Intensity System including tank and lid, 1 cassettes, 6 fibre pads, cooling coil
VS20BI	omniPAGE Blot Maxi WAVE Insert –includes 4 cassettes and 16 fibrepads
SB20C	omniPAGE Blot Maxi Cassette
SB20F	Fibre Pads – pk/8

TECHNICAL SPECIFICATIONS

	SB10-HI	SB20-HI
Max. Gel Size	10x10cm	20x20cm
Gel Capacity	2x Mini	4x Mini, 2x Mini Wide & 1x Maxi
Buffer Volume	1.3L Max.	7L
Running conditions	100-200V 1-2h	100-200V 1-2h
Cooling	Cool Pack	Cooling Coil
Recommended power supply	CS-3AMP	CS-3AMP

TYPICAL APPLICATIONS

High Speed Wet Western Electroblotting

Semi Dry Blotters

These Semi Dry Blotters offer rapid transfer times for DNA, RNA and protein blotting – typically 15 to 30 minutes. All units can be used for all types of blotting: western, Southern and northern via uncomplicated buffer and set up procedures and are compatible with gel thicknesses from 0.25 up to 10mm without the need for additional equipment. Each unit is compatible with their respective omniPAGE vertical gel system.

Semi Dry Blotting has the added benefit of economic transfers due to very low buffer volumes – typically only a few millilitres of buffer are required per transfer. These Semi-Dry Blotters utilise a screw down lid, which secures the blot sandwich and allows complete control of pressure ensuring even transfer. The electrodes, comprising platinum coated anode and stainless steel cathode, will exhibit practically no corrosion and so provide many years of trouble free use.

Uniform heat dispersion across the blot sandwich ensures stable transfer times and no heat induced sample loss or transfer distortions. Being translucent, it allows viewing of the blot sandwich to ensure correct positioning and transfer is occurring correctly. Electrode plates are fully separated to prevent arcing or damage.

FEATURES:

- Rapid transfer times
- Western, Southern and Northern Blots
- Economic Transfers due to very low buffer volumes
- Screw down lid – gels from 0.25 up to 10mm thick can be blotted
- Uniform heat dispersion
- Long life electrodes

ORDERING INFORMATION

SD10	Semi Dry Mini, 10 x 10cm System
SD20	Semi Dry Maxi, 20 x 20cm System
SD33	Semi Dry Maxi Plus, 33 x 45cm System
SD50	Semi Dry Maxi Long, 20 x 50cm System
SD10-CS3AMP	D10 and CS-3amp power supply
SD20-CS3AMP	SD20 and CS-3amp power supply

TECHNICAL SPECIFICATIONS

Unit	Mini	16 x 16 x 7cm
	Maxi	26 x 26 x 7cm
	Maxi Plus	33 x 45 x 7cm
	Maxi Long	26 x 56 x 7cm
Max. sample capacity	Mini	1 Blot, 8 x 8.5cm
	Maxi	4 Blots, 8 x 8.5cm, 2 Blots, 16 x 8.5cm
		1 Blot, 16 x 17.5cm
	Maxi Plus	20 Blots, 8 x 8.5cm, 2 Blots, 26 x 20cm
		10 Blots, 16 x 8.5m, 1 Blot, 33 x 45cm
		5 Blots, 16 x 17.5cm
	Maxi Long	13 Blots, 8 x 8.5cm, 2 Blots, 26 x 20cm
		6 Blots, 16 x 8.5cm, 1 Blot, 20 x 50cm
		2 Blots, 16 x 17.5cm
Buffer volume	Mini	5ml
	Maxi	20ml
	Maxi Plus	75ml
	Maxi Long	50ml

TYPICAL APPLICATIONS

Rapid transfer of DNA, RNA or proteins from gels onto membranes. Termed Southern, Northern and Western blotting.

FEATURES:

- Low cost
- Simple construction
- Easy assembly
- Four sample configurations
- Alpha-numeric sample identification

Dot and Slot Blotters

Four different sample number size and style of Hybridisation Manifold are offered:- two types of dot blotter and two types of slot blotter.

Typical applications include clone screening with DNA / RNA probes in Southern/northern blots and immunological screening with antibodies in western blots.

The units incorporate precision lapped surfaces to ensure uniform blotting membrane contact and a leak proof gasket. These prevent lateral transfer of samples – smudging – by ensuring that a complete vacuum is formed. Six thumbscrews ensure even and tight sealing for fast sample suck down. Dot blotters are available in 48 and 96 well versions and slot blotters in 24 and 48 well.

ORDERING INFORMATION

CSL-D48	48-well Dot Blot Manifold, 3 x 16 array	CSL-S24	24-well Slot Blot Manifold, 2 x 12 array
CSL-D96	96-well Dot Blot Manifold, 8 x 12 array	CSL-S48	48-well Slot Blot Manifold, 3 x 16 array

MODEL

	CSL-D48	CSL-D96	CSL-S24	CSL-S48
Configuration	3 x 16	8 x 16	2 x 16	3 x 16
Size of well	6mm diameter 12mm deep	6mm diameter 12mm deep	6mm diameter 12mm deep	6mm diameter 12mm deep
Vacuum required	----- 600mg Hg 0.8 BAR with cold trap -----			
Unit dimensions	60 x 95 x 100cm	60 x 105 x 140cm	60 x 74 x 83cm	60 x 95 x 100cm
Membranes size required	12.1 x 4.4cm	11 x 7.4cm	12.1 x 4.4cm	12.1 x 4.4cm

TYPICAL APPLICATIONS

Direct transfer of Nucleic acid or protein samples onto membranes for hybridisation or antibody screenings

OMNIPAC POWER SUPPLY SPECIFICATIONS

	MINI		MIDI CS-300V	MAXI CS-500V	MAXI CS-3AMP
	nanoPAC-300	nanoPAC-500			
					
Output range Volts Current Power Resolution	10-300V 10-400mA 60W max. 1V / 1mA	10-500V 10-400mA 120W max. 1V / 1mA	2-300V 1-700mA 150W 1V / 1mA	5-500V 1-800mA 300W 1V / 1mA / 1W	5-300V 10-3000mA 300W 1V / 1mA / 1W
Type of output	Constant voltage or constant current		Constant voltage or constant current	Constant voltage, constant current or constant power	
Automatic crossover	–		✔	✔	✔
Timer	1-999 min. with alarm; Continuous		1-999 min. with alarm;- Continuous	Constant mode: 1-9999 min. with alarm; continuous.Programmable mode: 1-999 min. with alarm; continuous.	
Pause/resume function	–		✔	✔	✔
Display	3-digit LED		3-digit LED	2.6" LCD, 2-line	2.6" LCD, 2-line
Programmable Methods	–			Up to 30 programmable files, each with 6 steps	
Automatic recovery after power failure	–	✔	✔	✔	✔
Safety features	No-load detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets		No-load detection; sudden load change detection; overload detection; ground-leak detection; over- voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets		
Operating conditions	Ambient-40°C; ≤95% humidity		Ambient-40°C; ≤95% humidity	Ambient-40°C; ≤95% humidity	Ambient-40°C; ≤95% humidity
Stackable	–		✔	✔	✔
Number of output jacks	2 sets in parallel		4 sets in parallel	4 sets in parallel	4 sets in parallel
Regulatory conformity	EN-61010-1; CE		EN-61010-1; CE	EN-61010-1; CE	EN-61010-1; CE
Dual voltage	✔ 100-240 VAC		✔ 100-240 VAC	✔ 100-240 VAC	✔ 100-240 VAC
Construction	Polycarbonate housing with aluminium base		Flame retardant ABS-plate design with aluminium base		
Dimensions (WxDxH)	140x191x84mm		190x305x95mm	190x305x95mm	190x305x95mm
Weight	1Kg	1Kg	2.5Kg	2.5Kg	2.5Kg

POWER SUPPLIES

Whether you require a power supply for routine horizontal DNA agarose gel electrophoresis or techniques as technically demanding as SSCP analysis within a large format vertical, or first dimension IEF using IPG strips, Cleaver Scientific can meet your requirements with its comprehensive range of power supplies. Each power supply benefits from a small footprint area and compact design, while explanatory self-prompting menus facilitate easy set-up. Furthermore, these power supplies adhere to IEC 61010 – one of the world's most stringent electrical safety standards.

RELATED PRODUCTS

HORIZONTAL GEL TANKS
PAGES 4-45

VERTICAL GEL TANKS
PAGES 48-71

BLOTTING SYSTEMS
PAGES 72-81

2-D ELECTROPHORESIS
PAGES 63-64

Power Supply Selection Guide

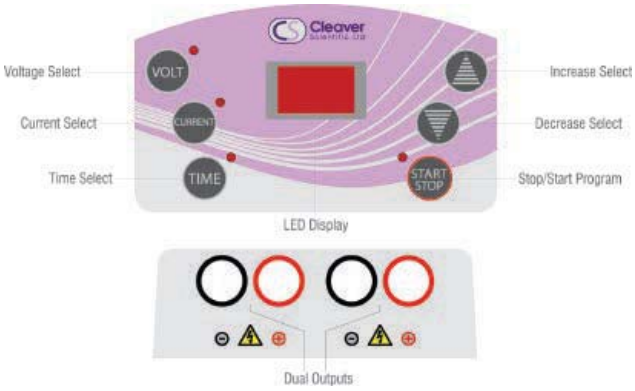
ELECTROPHORESIS POWER SUPPLIES

Please use the selection menu below to choose the power supply most suitable for your electrophoresis application. The typical running conditions shown serve as guidelines only.

Technique & Apparatus Format	Gel or Tube Size*, Quantity (Width x Length x Thickness)	Typical Running Conditions†						Run Time	omniPAC (Consort) Power Supply
		At start			End				
		Power (W)	Voltage (V)	Current (mA)	Power (W)	Voltage (V)	Current (mA)		
SDS-PAGE, second-dimension 2-D									
VS30DSYS	280 x 200 x 1mm, 2 gels	–	100	35 (Constant)	–	350	35 (Constant)	5½-6h Max	CS-500V
VS20WAVE	160 x 175 x 1mm, 2-4 gels	–	100	35 (Constant)	–	350	35 (Constant)	5h Max	CS-500V or nanoPAC-500
VS10WDSYS	160 x 85 x 1mm, 2 gels	–	200 (Constant)	200	–	200 (Constant)	80	60-80 min	CS-300V, nan PAC-300 or -500
CVS10DSYS, CVS10TETRAD, CVS10TETPRO	80 x 85 x 1mm, 2-4 gels	–	200 (Constant)	120-240	–	200 (Constant)	120	40-60 min	CS-300V, nanoPAC-300 or -500
IEF, first-dimension 2-D									
Flat-bed e.g. CSL-IEF	3 x 240 x 1mm, max. 12 strips	–	300 (Constant)	3	–	300 (Constant)	<1	16h Max	EV233
Maxi Tube Gel – e.g. VS20DC, WAVEC2DS	180 x 1/1.5mm tubes, 10 max.	–	800 (Constant)	4	–	800 (Constant)	<1	8h Max	EV215
Mini-Wide TubeGel - e.g. VS10WDC, VS10WC2DS	80 x 1/1.5mm tubes	–	700-800 (Constant)	1	–	700-800 (Constant)	<1	4h Max	EV215
Mini Tube Gel - e.g. VS10DC, CVS10C2DS	80 x 1/1.5mm tubes	–	700-800 (Constant)	1	–	700-800 (Constant)	<1	4h Max	EV215
DNA Restriction Analysis (Horizontal)									
MSMINIDUO	70 x 100 x 5mm, max.	–	80 (Constant)	40	–	80 (Constant)	45	45-60 min	nanoPAC-300, -500 or CS-300V
MSMIDIDUO	100 x 100 x 5mm, max.	–	90 (Constant)	50	–	95 (Constant)	55	45-60 min	nanoPAC-300, -500 or CS-300V
FMMS10	100 x 80 x 5mm	–	50 (Constant)	25	–	50 (Constant)	35	30-60 min	nanoPAC-300, -500 or CS-300V
MSCHOICE-TRIO	150 x 150 x 5mm, max.	–	90-150 (Constant)	50-80	–	90-150 (Constant)	55-90	60-90 min	nanoPAC-300, -500 or CS-300V
MSMAXIDUO	200 x 200 x 5mm, max.	–	100-150 (Constant)	50-80	–	100-150 (Constant)	55-90	60-90 min	nanoPAC-300, -500 or CS-300V

*Sizes shown are those most commonly used in the corresponding apparatus. See product manuals for running conditions for additional sizes.
†(Constant) the parameter set as a constant value on the power supply. Typical conditions are to serve as guidelines only, and will vary according to the buffer and overall quality of the sample and reagents. a Uses 2xTAE.

Technique & Apparatus Format	Gel or Tube Size*, Quantity (Width x Length x Thickness)	Typical Running Conditions†						Run Time	omniPAC (Consort) Power Supply
		At start			End				
		Power (W)	Voltage (V)	Current (mA)	Power (W)	Voltage (V)	Current (mA)		
High Throughput DNA Electrophoresis (Horizontal)									
MSMIDI96	100 x 120 x 5mm	–	70 (Constant)	40	–	80 (Constant)	45	30-45 min	nanoPAC-300, -500 or CS-300V
MSMIDI96ST	100 x 240 x 5mm	–	90 (Constant)	50	–	95 (Constant)	55	60-90 min	nanoPAC-300, -500 or CS-300V
MULTISUB4	80 x 240 x 5mm, max.	–	90 (Constant)	50	–	95 (Constant)	55	60-90 min	nanoPAC-300, -500 or CS-300V
MSCHOICEST	150 x 250 x 5mm, max.	–	90-150 (Constant)	50-80	–	90-150 (Constant)	55-90	60-90 min	nanoPAC-300, -500 or CS-300V
MSSCREEN-TRIO	260 x 320 x 5mm, max.	–	100-150 (Constant)	50-80	–	100-150 (Constant)	55-90	90-120 min	nanoPAC-300, -500 or CS-300V
Comet Assay, SCGE (Horizontal)									
CSL-COM10 CSL-COM20 CSL-COM40 COMPAC-50™	25 x 75mm, 10, 20, 40 & 50 slides respectively	–	25V (Constant) 21V (Constant)	300 max. 450 max	–	25V (Constant 21V (Constant)	300 max.	1 h 20 mins	nanoPAC-300, -500 or CS-300V CS-300
Clinical Electrophoresis (Horizontal)									
CSL-CELLAS	25 x 140mm–170 x 170mm, Cellasgel strips max. 250µM thickness; or CellasMEM membranes (all types)	–	200V (Constant)	7.5	–	200V (Constant)	7.5 max.	30-90 min	nanoPAC-300, -500 or CS-300V
DNA Sequencing, SSCP Analysis & Microsatellite Mapping (Large Format Vertical)									
CSQ20	160 x 500 x 0.35mm	45-55 (Constant)	1500 max.	20-30	45-55 (Constant)	1500	20-30	4-5h	EV233
CSQ33	290 x 410 x 0.35mm	45-55 (Constant)	1500 max.	20-30	45-55 (Constant)	1500	20-30	4-5h	EV233
Mutation Detection									
VS20-DGGE	160 x 175 x 1mm, 2 gels	–	120-150 (Constant)	–	–	120-150 (Constant)	–	2-2.5h	CS-500V
Western Blotting									
omniBLOT Mini – e.g. SB10	80 x 85 x 1mm, 4 gels	–	100 (Constant)	250	–	100 (Constant)	400	1-2h	CS-300V or CS-3AMP
Modular System - e.g. CVS10CBS	80 x 85 x 1mm, 4 gels	–	100 (Constant)	250/550 Wire/Plate Electrodes	–	100 (Constant)	400/1500 Wire/Plate Electrodes	2h / ½-1h Wire/Plate Electrodes	CS-300V/ CS-3AMP Wire/Plate Electrode
Standalone – e.g. EBM10	80 x 85 x 1mm, 4 gels	–	100 (Constant)	250	–	100 (Constant)	400	1-2h	CS-300V or CS-3AMP
omniBLOT Mini Wide – e.g. SB10W	160 x 85 x 1mm, 3 gels	–	100 (Constant)	250	–	100 (Constant)	250	1-2h	CS-300V, CS-500V or CS-3AMP
Modular System - e.g. VS10WCBS	160 x 85 x 1mm, 3 gels	–	100 (Constant)	250	–	100 (Constant)	250	1-2h	CS-300V, CS-500V or CS-3AMP
WAVE Maxi – e.g. VS20CBS	160 x 175 x 1mm, 4 gels	–	50/100 Wire/Plate Electrodes (Constant)	150-250/1000-1600	–	50/100 Wire/Plate Electrodes (Constant)	150-250/1000-1600	5-20h/ 1-5h	CS-3AMP
omniBLOTMaxi – e.g. SB20	160 x 175 x 1mm, 3 gels	–	50 (Constant)	250	–	50 (Constant)	250	5-20h max.	CS-3AMP
Semi-Dry Blotting (Protein / Nucleic Acids)									
SD10 Mini	100 x 100 x 2/5mm, 1 gel	–	75 (Constant)	550	–	75 (Constant)	550	15-30 min	CS-3AMP
SD20 Maxi	200 x 200 x 2/5mm, 1gel; 4x Mini Gels	–	75 (Constant)	1200	–	75 (Constant)	1200	15-30 min	CS-3AMP
SD33 Maxi-Plus	330 x 450 x 2/5mm, 1gel; 14x Mini Gels; 3x Maxi Gels	–	75 (Constant)	2000	–	75 (Constant)	2000	15-30 min	CS-3AMP
SD50 Maxi-Long	200 x 500 x 2/5mm, 1 gel; 10x Mini Gels; 2x Maxi Gels	–	75 (Constant)	2000	–	75 (Constant)	2000	15-30 min	CS-3AMP



nanoPAC-300 & 500 Power Supplies

The nanoPAC Mini Power supplies are an ultra compact and economic unit ideal for use with DNA (Horizontal) and Protein (Vertical) electrophoresis systems.

With enhanced features, such as a maximum constant voltage up to 300 or 500V and maximum constant current output of 400mA the nanoPAC's are capable of running all Cleaver Scientific horizontal multiSUB™ systems and vertical omniPAGE™ mini. The nanoPAC-500 is also capable of running the VS10W & VS20WAVE vertical units, as well as horizontal and vertical gel tanks from other manufacturers, These can be set on a continuous run or timed setting up to 999 minutes. The nanoPAC's user-friendly interface is easily adjustable in 1V and 1mA increments, making it perfect for separations where precise settings are required. Its ultra compact size and two pairs of parallel power terminals, which can run two electrophoresis units simultaneously, save time and bench space.

FEATURES:

- Highly visible LED display
- 300Volts, 400mAmps, 60 Watts For DNA & Protein
- 500Volts, 400mAmps, 120 Watts For DNA & Protein
- Electrophoresis Enhanced in-built safety features Alarm function
- Easy maintenance and cleaning

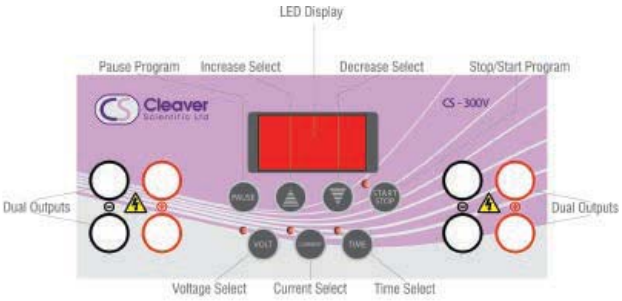
ORDERING INFORMATION

nanoPAC-300	Mini Power supply, 300V, 400mA, 60W - 100-240VAC
nanoPAC-500	Mini Power supply, 500V, 400mA, 120W - 100-240VAC

OUTPUT SPECIFICATIONS

Order No.	nanoPAC-300	nanoPAC-500
Output Voltage / Inc.	0-300V /1V	10 - 500V / 1V
Output Current / Inc.	10 - 400mA / 1mA	
Output Power	60W	120W
Output Type	Constant voltage or constant current	
Control	Microprocessor controller	
Terminal Pairs	2 Pairs	
Timer	1~999 minutes with alarm or continuous	
Safety Device	No load detection; shrouded plugs and sockets	
Unit Dimension (W x L x H)	140 x 191 x 84mm	
Weight	Approx. 1 kg	
Rated Voltage	Universal, 100 - 240V	

omniPAC Midi CS-300V



With nearly twice the current and power of the market leader's equivalent unit, at 700mA and 150W, the CS-300V offers a specification comparable to any midi power supply presently available on the market. The CS-300V is perfectly suited to use with all Cleaver Scientific horizontal multiSUB™ systems and omniPAGE mini vertical gel units, and may also be adapted for specialist techniques including the Comet Assay, and clinical and high throughput horizontal electrophoresis. Microprocessor control with four sets of power terminals allow simultaneous operation of as many electrophoresis units either at a constant voltage or current setting, while the timer function may be set continuously or up to a maximum 999 minutes when an alarm sounds to signify termination of the run. A user-friendly interface houses a conspicuous 3-digit LED to aid set up, as well as a convenient 'pause/resume' key, a particularly useful feature during extended runs when it is necessary to access the gel tank to monitor buffer levels and sample migration. Given its high specification and remarkable versatility the CS-300V is relatively inexpensive, and benefits from additional features such as:

- a stackable design;
- rigorous in-built safety mechansims;
- automatic crossover;
- dual voltage compatibility.

ORDERING INFORMATION

CS-300V	omniPAC MIDI Power Supply, 300V, 700mA, 150W – 100-240VAC

OUTPUT SPECIFICATIONS

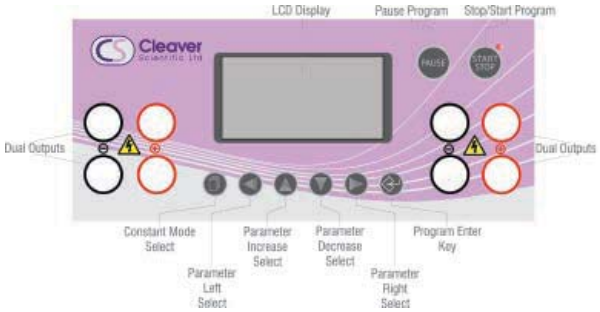
Voltage	2-300V
Current	1-700mA
Power	150W max.

TYPICAL APPLICATIONS

General Laboratory power supply ideal for DNA gels and mini protein electrophoresis and blotting.

omniPAC Maxi CS-500V

With a maximum 500V, 800mA and 300W voltage, current and power output, the omniPAC CS-500V MAXI is an excellent general purpose power supply that fits the broadest range of electrophoresis applications, and can run as many as four units under a constant or programmable setting. Its capacity to store up to 30 programmed files, each with 6 steps, makes the CS-500V perfect for techniques that benefit from subtle and gradual stepwise changes in the electrical parameters as the run progresses, such as DGGE and large format vertical PAGE using Cleaver Scientific's VS20-DGGE and WAVE systems. A large 2.6" LCD screen shows within 2 lines the real-time values of the electrical parameters during the run, along with the program file and individual step in operation, enabling the user to appraise the entire run at a single glance. The CS-500V MAXI is also equipped as standard with many features associated with the omniPAC MIDI, including timer and alarm, 'pause / resume' functionality, a stackable design and enhanced in-built safety features.



omniPAC Maxi CS-3AMP

At 300V, 3000mA, 300W, the omniPAC MAXI CS-3AMP is designed for virtually all high current electrophoresis applications. The CS-3AMP's higher current output capability is perfect for electroblotting units with high-intensity plate electrodes, particularly Cleaver Scientific's omniBLOT maxi, VS20 WAVE and semi dry blotting systems. Electrotransfers may be performed as timed runs in constant or programmable mode to prevent overheating and buffer depletion, although a run time extendable to a maximum 9999 minutes in constant mode also favours overnight transfers undertaken at constant low current in wire electrode systems. The two-line 2.6" LCD screen allows the experimental parameters, program file and step to be viewed within a single screen during each run, while the CS-3AMP's four power terminals and robust current and power outputs make it suitable for high throughput SDS-PAGE using multiple vertical systems. The CS-3AMP shares the same standard features as the omniPAGE MAXI CS-500V.

ORDERING INFORMATION

CS-500V	omniPAC MAXI Power Supply, 500V, 800mA, 300W – 100-240VAC
CS-3AMP	omniPAC MAXI Power Supply, 300V, 300mA, 300W – 100-240VAC

OUTPUT SPECIFICATIONS

	CS-500V	CS-3AMP
Voltage	5-500V	5-300V
Current	1-800mA	10-3000mA
Power	300W max.	300W max.

TYPICAL APPLICATIONS

More advanced programmable power supplies with increased voltage, power and current

Consort Power Supplies

All Consort Maxi Series (EV200) power supplies have four output terminals for up to four simultaneous runs. Powerful microprocessor control allows complex programming, while manual mode permits the setting of voltage, current, power and time for routine electrophoretic runs. The parameters may also be changed temporarily without interrupting the run.

Programming – up to 9 different programs, each with 9 steps, can be stored in the non-volatile memory for future recall.

Timer – can be set to automatically terminate the run and sound an alarm when the allocated time or volt hours has elapsed.

Automatic cross-over – each model has constant voltage, constant current and constant power capabilities with automatic cross-over while showing which parameter is kept constant.

Automatic recovery after mains failure – after restoration of power, the instrument will automatically continue the run for the remaining time.

Data Transfer – optional data acquisition/control software for PC is available to visualise and examine the stored run details, store and program the methods, add notes to the run, identify the unit, copy or delete programs in the unit's memory.

Safety precautions – the AC line is automatically disconnected from the high voltage transformer when a ground leakage path is detected protecting the user from potential shock. Other safety features include protection against any overload including accidental short circuit of the output and voltage increases smoothly.

TECHNICAL SPECIFICATIONS

	Consort Maxi	Consort Mini
Timer	0-99.59 hours	0-99.59 hours
Programs	9 of 9 sets each	EV222: 1 set EV243: 9 of 9 sets each
Outputs	4 in parallel, 4mm sockets	3 in parallel, 4mm sockets
Resolution	1V, 1mA, 1W	1V, 1mA, 1W
Dimensions	31 x 26 x 15cm (w x l x h)	24 x 20 x 13cm (w x l x h)
Weight	10kg max.	3kg max.

Consort Mini EV245

The Consort Mini EV245 power supply is ideally suited for use with small electrophoresis systems. It occupies little space within the laboratory, is portable and has several other features:-

Manual Set-up – voltage, current and power settings can be adjusted during the run.

Voltage ramp – this allows a linear voltage gradient for any step to be programmed at any step.

Automatic recovery after power failure.

3 output terminals.

The EV245 also benefits from 9 different programs, each with 9 steps; data-logging and data transfer to a PC, and PC remote control.

ORDERING INFORMATION

EV245	Consort Power Supply	400 V	300 mA	50 watts
EV231	Consort Power Supply	300 V	1000 mA	150 watts
EV202	Consort Power Supply	300 V	2000 mA	300 watts
EV265	Consort Power Supply	600 V	500 mA	150 watts
EV261	Consort Power Supply	600 V	1000 mA	300 watts
EV215	Consort Power Supply	1200 V	500 mA	300 watts
EV233	Consort Power Supply	3000 V	300 mA	300 watts
EV262	Consort Power Supply	6000 V	150 mA	300 watts

For 110V add $ to stock code.

TYPICAL APPLICATIONS

Suitable for powering different gel tanks depending on size

GEL DOCUMENTATION OVERVIEW

Gel documentation is usually performed in molecular biology laboratories whereby nucleic acid and protein gels are imaged and then documented and the DNA, RNA or protein bands are identified, quantitated and the results analysed. This is an important step in many molecular biology techniques and studies including cloning, mutation analysis, protein identification, quantitation and expression. Such techniques are important stages in studies in infectious diseases and cancer, drug development, human genome analysis, cell structure and function and studies on food and the environment.

Originally Universities and research institutes had a dark room within their departments with a UV light source for ethidium bromide stained DNA gels or with white light boxes for Coomasie stained protein gels and a simple Polaroid camera set up to take pictures and produce a photo of the gels to be stuck into lab books.

Gel documentation technology has since been revolutionised with much more sensitive camera systems with independent dark room cabinets and computer gel analysis software to document the results and allow in-depth analysis of the bands or spots on the gels. These also allow the simple generation of publication quality images for sharing of results in scientific journals.

Consequently, gel documentation is now applicable to routine horizontal DNA agarose gels, fluorescent sequencing gels, preparative gels, colorimetric protein gels, and chemiluminescent blots. By using modern imaging and excitation technologies gel documentation systems are now more reliable, accurate and quantitative than ever before and can be adapted for almost any stain, dye, probe, antibody or fluorescent protein.

Cleaver Scientific provides a comprehensive range of gel documentation and imaging systems to suit any application or budget. Our range starts with the popular microDOC™. Low cost systems which are ideal to image routine horizontal DNA or protein gels.

The new omniDOC systems contain a highly sensitive camera and have convenient features such as quick light source switching for DNA and protein gels and wireless downloading of images to PC, Laptop or smart device.

We offer the full range of UVItec systems which include high specification models dedicated to Gel documentation, chemiluminescence and fluorescence.

Finally we offer a full range of accessory products including scanners, light sources, crosslinkers and one and two dimension gel software.

GEL DOCUMENTATION

RELATED PRODUCTS

HORIZONTAL GEL SYSTEMS
PAGES 4-45

VERTICAL GEL SYSTEMS
PAGES 46-71

BLOTTERS
PAGES 72-81

2-D ELECTROPHORESIS
PAGE 63

Gel Documentation Systems Selection Guide

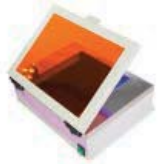
BASIC	VERSATILE YET AFFORDABLE	STRICTLY PROTEIN	ADVANCED
			
The microDOC™ and micro-DOC-BASIC are for entry-level and basic application use. Both systems are ideal for nucleic acid agarose gels stained with ethdium bromide, or runSAFE or SYBR green, and may be used with a white light converter or box for 1D colorimetric protein gel imaging. Although functional in design to address modest budgets, the microDOC™ and microDOC-BASIC do not lack in specification or performance. Both systems are manually operated and supplied with a high resolution colour digital camera. The microDOC-BASIC comprises a fully enclosed ebony acrylic dark room that may be placed directly on a UV transilluminator or white light box; whereas the microDOC™ includes an epoxy-coated dark room with front door panel and safety interlock switches that disconnect the optional UV transilluminator upon opening, while a large front TFT screen aids visualisation of the gel. Optional 1D analysis software is available.	The omniDOC and omniDOC-i offer high performance gel documentation and analysis at a relatively low cost. By providing many of the features used by leading gel documentation brands, each omniDOC system presents a simple but sophisticated imaging solution for most laboratories. A high resolution 5 mega pixel camera with slide-out UV transilluminator, and optional blue epi-illumination module and white light table, makes both systems suitable for imaging most fluorescent and colorimetric gels. In the omniDOC a USB port connects the dark room assembly to an external PC for control, whereas for the omniDOC-i a front panel touchscreen may be used for image acquisition and auto exposure. Complimentary acquisition and analysis software is supplied on a disc for the omniDOC, or as an App downloadable to a tablet or laptop for remote image analysis from the omniDOC-i. Both systems benefit from a pre-focused camera that requires little or no manual adjustment and four filter options for different fluorescent applications.	The microSCAN is an affordable low-cost gel documentation system for scanning colorimetric 1-D and 2-D protein gels, as well as blots and TLC plates. Control software allows rapid generation of high quality images that may be then imported into analysis software, such as TotalLab Quant or Phoretix 1D. Users may choose between transmittance and reflectance modes in colour and greyscale, and select their required resolution to a maximum 2400 dpi.	The advanced gel documentation systems of Uvitec cover a much broader range of imaging applications to complement the existing gel imaging capabilities offered by the Cleaver Scientific range. Each Uvitec gel documentation system features a high performance CCD camera with remarkable sensitivity to generate high resolution images of even the faintest gels or blots, while optional dedicated epi-illumination modules provide the excitation for near infrared (NIR), red, green and blue (RGB) imaging applications. 'One-touch' image acquisition software simplifies the gel documentation process by fully automating lens positioning, filter selection and exposure to allow quantitative results to be obtained quickly and easily. In addition to 1-D and 2-D nucleic acid and protein gel imaging, Uvitec systems may be supplied to perform chemiluminescence, coloured fluorescence, multi-plex, and biofluorescence and thin layer chromatography applications.

AUXILIARY PRODUCTS

DUOVIEW UV/BLUE LIGHT TRANSILLUMINATOR

The duoVIEW transilluminator combines blue light epi-illumination with UV transillumination. Blue light excitation eliminates concerns over user safety and minimises damage to nucleic acid samples, which compromises cloning efficiency. The duoVIEW's parallel configuration of two powerful LED arrays produces more uniform excitation than conventional transilluminators, thus enabling gels containing SYBR Safe, SYBR Green and our own proprietary runSAFE stains to be viewed at greater intensity. The duoVIEW also allows the user to switch between two UV wavelengths, at high or low intensity, to view UV fluorescent gels; and may be used as a blue light transilluminator for the microDOC™.

SAFEVIEW TRANSILLUMINATORS



Like the duoVIEW, the safeVIEW blue light transilluminator also has a parallel configuration of two powerful LED arrays to produce more uniform excitation than standard transilluminators. This enables gels containing blue-light fluorescent stains to be viewed at greater intensity. The safeVIEW may be used either as a standalone blue light transilluminator or with the microDOC™ as part of a complete gel documentation system.

SINGLE/DUAL WAVELENGTH TRANSILLUMINATORS

Available in single and dual wavelength formats and in 21x21cm or 21x26cm sizes, Cleaver Scientific transilluminators may be supplied individually or with the microDOC™ as part of a complete gel documentation system to visualise UV fluorescent gels.

UV-TO-WHITE LIGHT CONVERTER PLATES

For use with UV transilluminators, allow visualisation of colorimetric protein gels, blots developed on X-ray film, and microbial colonies.

ANALYSIS SOFTWARE

OmniDOC Software – complimentary basic image analysis software supplied with all omniDOC systems for molecular weight or size determination in 1-D gels

TotalLab 1D for 1-D gel analysis of nucleic acid and protein gels; TotalLab Quant includes an additional colony counting module. Phoretix 1D, which includes TotalLab Quant, is a more sophisticated option for band-pattern matching within individual gels, while Phoretix 1D Pro has added database functionality to generate and manipulate large lane comparison datasets from multiple gels.

UVI 1D supplied with each Uvitec system includes molecular weight and volume calculation, and Rf and colony counting functionalities. Uviband is fully automated and more sophisticated, with modules for 1-D molecular weight and optical density; 1-D lanes / free form optical density; array optical density and colony counting.

SDS-PAGE, second-dimension 2-D

APPLICATION GUIDE	microDOC-BASIC	microDOC™	omniDOC	microSCAN	UVITEC
Fluorescence, UV	✔ (Option A)	✔ (Option A)	✔ (OMNIDOC/-I)	–	✔ (FIREREADER, PLATINUM, ALLIANCE)
Visible Stain, White Light	✔ (Option B)	✔ (Option B)	✔ (OMNIDOC³/-I³)	(Option E)	✔ (FIREREADER, PLATINUM, ALLIANCE)
Fluorescence, Blue Light	✔ (Option C)	✔ (Option C)	✔ (OMNIDOC²/-I²)	–	✔ (FIREREADER, PLATINUM, ALLIANCE)
Colony Plate	✔ (Option D)	✔ (Option D)	✔ (OMNIDOC³/-I³ + Option E)	–	✔ (FIREREADER, PLATINUM, ALLIANCE)
Dot Blots & Gel Blots, X-ray film	✔ (Option D)	✔ (Option D)	✔ (OMNIDOC³/-I³	✔ (Option E)	✔ (FIREREADER, PLATINUM, ALLIANCE)
Fluorescence, RGB Colour	–	–	–	–	✔ (ALLIANCE CHROMA)
Fluorescence, NIR	–	–	–	–	✔ (ALLIANCE CHROMA)
Proteomics, 2-D	–	–	–	✔ (Option F)	✔ (PLATINUM, CHROMA)
Chemiluminescence	–	–	–	–	✔ (ALLIANCE)

Option A: requires UV transilluminator + TotalLab1D Software

Option B: requires UV transilluminator + UV-to-white light converter plate + TotalLab1D Software

Option C: requires blue light / DUOVIEW transilluminator + TotalLab1D Software

Option D: requires UV transilluminator + UV-to-white light converter plate + TotalLab Quant software

Option E: requires TotalLab Quant software

Option F: requires Phoretix 1D software

Options (A-D) include the required transilluminator for gel imaging and recommended analysis software option; Options E&F show recommended analysis software only.

TECHNICAL SPECIFICATIONS

Camera	
Type	1/1.7 type CMOS sensor with DIGI6 processor
Zoom	5x optical / 4x digital
Effective Pixels	12.1 megapixels
Max. Aperture	f/2.8 (W) - f/4.5 (H)
Shutter Speed	250 - 1/4000s. (total range)
Filters	+3 Close up and EtBr; optional SYBR green
Storage Media	4GB memory cardwith built in Wi-Fi
Computer Interface	Hi-Speed USB (Mini-B compatible)
Video Out	NTSC/PAL
Darkroom:	
Multi-Power Source	For camera, inner white LED, TFT screen
Inner White Light	2x3W LED
Safety Device	Safety door switch
Weight	6.1kg
Dimensions	29x22x32cm
Voltage Rating	110~220V
Screen	
Type	8" TFT
Resolution	600x800 Pixels
Brightness	350 cd/mm2
Constant Ratio	300 : 1
Display Mode	NTSC / PAL / SECAM mode, auto switching

Camera specification may change.

ORDERING INFORMATION

Gel Documentation Systems	System only	Including TotalLab 1D Analysis Software
Compact Gel documentation system	CSL-MICRODOC	CSL-MICRODOC1D
microDOC™ System with UV Transilluminator (UVT312)	CSL-MDOCUV312	CSL-MDOCUV3121D
microDOC™ System with UV Transilluminator (UVT254)	CSL-MDOCUV254	CSL-MDOCUV2541D
microDOC™ System with UV Transilluminator (UVT365)	CSL-MDOCUV365	CSL-MDOCUV3651D
microDOC™ System with UV Transilluminator (UVT254/312)	CSL-MDOCUV254 /312	CSL-MDOCUV254 /3121D
microDOC™ System with UV Transilluminator (UVT254/365)	CSL-MDOCUV254 /365	CSL-MDOCUV254 /3651D
microDOC™ System with UV Transilluminator (UVT312/365)	CSL-MDOCUV312 /365	CSL-MDOCUV312 /3651D
microDOC™ Basic System with lift-off dark room hood and camera only	CSL-MDOCBASIC	CSL-MDOCBASIC1D
microDOC™ System for protein gels	CSL-MDOCWLB	CSL-MDOCWLB1D
microDOC™ Basic System for protein gels	CSL-MDOCBASICWLB	CSL-MDOCBASICWLB1D
microDOC™ System for Colony Counting (includes Totalab Quant software)	CSL-MDOCCOL	
microDOC™ Basic System for Colony Counting (includes Totalab Quant software)	CSL-MDOCBASICCOL	
Accessories		
Mitsubishi Thermal Printer for use with MicroDOC™ - 110 - 240V	CSL-PRINT	
MicroDOC™ ethidium bromide filter	CSL-MDOCEB	
MicroDOC™ SYBR filter	CSL-MDOCSBRG	
Replacement printer paper	CSL-PRTPAP	
UV to white light conversion screen for transilluminator for protein gels	CSL-UVSCRN	
White light box for Micro doc for protein gels	CSL-MDOCWLB	
Optional 4GB wireless memory card	CSL-MDOC-WIFI	

FEATURES:

- 12.1 Megapixel digital camera with improved high-sensitivity CMOS sensor and processor*
- Image visualised within a large 8" TFT colour monitor
- Light weight compact hood with easy access door and built-in inner lights
- Safety switches disconnect the UV source when the easy access door is opened
- Computer-free operation
- Available on its own with camera and darkroom, or as a complete gel documentation system with transilluminator, either with or without software
- Transilluminators supplied in single and dual wavelength formats - see page 102
- Optional TotalLab™ 1D analysis software and wireless memory card

Gel Documentation microDOC™

Now upgraded with a new 12.1 megapixel digital camera*, with improved high-sensitivity CMOS sensor and the latest image processor to guarantee superb resolution, the microDOC™ is the researcher's choice for a simple ultra-compact gel documentation system that meets constraints in both budget and space within the laboratory.
A large 8" TFT screen enables images, including agarose and fluorescent gels, colorimetric gels, autoradiography film and blotting membrane, to be captured in colour, clearly and easily. The system is computer-free and supplied with a 8GB storage card and 55mm ethidium bromide filter as standard, while an optional SYBR filter is also available. Files are saved onto the 8GB storage card in RAW, and JPEG formats and may be transferred to computer for analysis with the highly recommended TotalLab™ 1D software (Pg 107).

** At the time of publication.*

Printer

The Mitsubishi P93 is a high speed, high resolution thermal printer that is perfectly suited to printing images directly from the microDOC™. Connected to the microDOC™ by a BNC cable, the Mitsubishi P93 prints 325dpi images, up to 133 x 99mm in size. Thermal printer paper is also available.

Wireless transfer

The new microDOC™ system includes convenient wireless transfer of images to a PC or smart device – no cable connection required.

microDOC™ BASIC

The microDOC™ BASIC is a simple low-cost system comprising a lift-off dark room hood and 12.1 megapixel digital camera, through which the gel is viewed directly. This system can be supplied with optional TotalLab™ 1D Analysis Software and any one of the 21x21cm transilluminators listed on Pg 102-103.

TYPICAL APPLICATIONS

Imaging, documentation and analysis of DNA, RNA and Protein gels.

CSL-MDOCBASIC

CSL-MICRODOC

OMNIDOC FEATURES:

- Pre-focused 5 mega pixel camera with auto-exposure for almost instantaneous high resolution gel imaging; CMOS sensor for improved light sensitivity
- 6mm lens, F1.2 aperture size, with manual adjustment
- Interchangeable filter slide with 620nm ethidium bromide filter as standard; 520, 560 and 580nm filter options available for runSAFE, SYBR stain and other fluorescence applications
- Viewing pane with universal amber filter for gel inspection, which may be covered by a spring-loaded panel during documentation
- Internal white LED – aids gel positioning and focusing
- Slide-out 312nm transilluminator; uses optional plug-in white light table for coomassie, silver-stain and other colorimetric gels
- Large 21x26cm filter area

omniDOC and omniDOCi

Two new systems for affordable, high performance gel documentation and analysis

omniDOC

The omniDOC is the first of two new systems from Cleaver Scientific offering high performance gel documentation and analysis at a relatively low cost. By providing many of the features used by leading gel documentation brands, but without the added price premium, each omniDOC system presents a simple but sophisticated imaging solution for most laboratories. A high resolution 5 mega pixel camera with slide-out UV transilluminator, and optional blue epi-illumination module and white light table, makes the omniDOC suitable for imaging most fluorescent and colorimetric gels, while a USB port requires a cable to connect the dark room assembly to an external PC for control. Imaging applications are made easy by a pre-focused camera that requires little or no manual adjustment, while simple one-click image acquisition and analysis software guides the user through every step of the gel documentation process. A front LED indicator panel reveals at a glance the light source in use, whereas a viewing screen with universal filter and spring-loaded cover facilitates safe and convenient gel inspection.

omniDOCi
3.5" 64K colour TFT display shows at a glance the excitation source in use, and provides full manual touchscreen control of the excitation source, UV intensity and exposure time.

omniDOCi wireless remote control possible through multiple portable devices

OMNIDOCi FEATURES:

- Accessory white light table and blue lights allow easy switching between ethidium bromide, safe stained and protein gels
- Dark room assembly with corrosion resistant ABS construction
- Safety switch – prevents accidental UV exposure when opening front door panel
- Power on-off switch
- USB port for PC connectivity in omniDOC, and used for maintenance and installation of updates in omniDOCi
- Wi-Fi connection for wireless remote control and image transfer to complimentary image acquisition and analysis software downloadable as an App (in omniDOCi models only) or supplied on disc for installation onto a laptop or PC (omniDOC and omniDOCi)

omniDOCi

The omniDOCi shares all of the same features of the standard omniDOC, but with the added benefit of wireless connectivity to a remote laptop or tablet. Simply install the omniDOC image acquisition and analysis software on a laptop or tablet, place the gel on the transilluminator or white light table within the darkroom, and then begin image capture, using your preferred excitation source and filter, either by 'pressing' the tabs on the omniDOC's front panel colour touchscreen, or by following the prompts within the software on your laptop or tablet. Once image acquisition is complete the gel may be analysed immediately using the complimentary analysis software included, or saved for later to perform analysis at a more convenient time and place. The software is downloadable as an app to iPAD, and Windows and Samsung Android tablets to provide full touchscreen remote control, making the omniDOCi probably the most portable and versatile imaging system on the market.

TYPICAL APPLICATIONS

Documentation and analysis of DNA, Safe Stained and Protein gels

OMNIDOC AND OMNIDOC-i APPLICATIONS

				Dot-blots – use the omniDOC software to acquire and analyse nucleic acid dot blots
DNA – use the slide-out UV transilluminator to capture images of DNA gels stained with EtBr and SYBR dyes	Blue light – LED epi-illumination module allows visualisation of some stains with better clarity and without DNA damage – e.g. runSAFE	White light table – use plug-in white light table to view coomassie blue and silver stain protein gels; may also be used to view tissue slides and autoradiographs	Autoradiographs – high resolution 5MP camera captures images in high detail, especially when scrutinising separation between closely located bands or spots	

OMNIDOC IMAGE CAPTURE AND ANALYSIS SOFTWARE

Use the complimentary omniDOC software supplied to…

Acquire, store and manipulate images	Analyse, document and quantify gels
Use intuitive touchscreen control for image acquisition in a few simple steps	Following image acquisition use the intuitive touchscreen control software for analysis
Adjust the exposure time, altering the UV intensity or manipulating the iris on the camera if required	Load the newly acquired image, or select one stored previously in TIFF, JPEG, BMP or GIF image format
Select your light source: UV, blue or white light	Select the gel or dot blot type from one of four options
Use Toolbox function to change default settings for excitation source & exposure time, or apply advanced features like saturation detection & date stamp	'Tap and drag' rectangular boxes on your tablet to define the sample lanes to be analysed
Image Freeze – minimise UV damage nucleic acid gels by 'freezing' the gel image and switching off the transilluminator ahead of image capture or printing	Set the level of sensitivity and define the base line for subtraction
Acquire and save image for…	Perform density analysis…
Analysis.	And then molecular weight analysis; use software to save as an image file format of your choosing or export into Microsoft Excel as a CSV file for further data analysis

ORDERING INFORMATION

OMNIDOC	Omnidoc Gel Documentation System with 620nm (EtBr) emission filter & 312nm UV transilluminator*
OMNIDOCSAFE	OMNIDOC plus Blue LED Epi-illumination Module (OMNIDOC-BL), and 520, 560 & 580nm filters (OMNIDOC-SYBR, -AF560 & -AF580)*
OMNIDOCPRO	OMNIDOC plus White Light Table (OMNIDOC-WLT)*
OMNIDOC-PROSAFE	OMNIDOC plus Blue LED Epi-illumination Module (OMNIDOC-BL), and 520, 560 & 580nm filters (OMNIDOC-SYBR, -AF560 & -AF580); and White Light Table (OMNIDOC-WLT)*
	*Requires a PC or laptop with USB cable
OMNIDOCi	Omnidoc-i Gel Documentation System with 620nm (EtBr) emission filter & 312nm UV transilluminator†
OMNIDOCiSAFE	OMNIDOC-i plus Blue LED Epi-illumination Module (OMNIDOC-BL), and 520, 560 & 580nm filters (OMNIDOC-SYBR, -AF560 & -AF580)†
OMNIDOCiPRO	OMNIDOC-i plus White Light Table (OMNIDOC-WLT)†
OMNIDOCiP-ROSAFE	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)†
	†Requires a PC, laptop or tablet with Wi-Fi connection
ACCESSORIES for OMNIDOC & OMNIDOC-i	
OMNIDOC-WLT	Optional White Light Table
OMNIDOC-BL	Blue LED Epi-illumination Module
OMNIDOC-EB	Replacement EtBr filter, 620nm (supplied as standard)
OMNI-DOC-SYBR	YBR Filter (520nm)
OMNI-DOC-AF580	Orange Filter (580nm)
OMNI-DOC-AF560	Yellow Filter (560nm)
OMNIDOC-F1	Replacement viewing window, Yellow Filter, 560nm (supplied as standard)

TECHNICAL SPECIFICATIONS

	OMNIDOC	OMNIDOC-i
UV Transilluminator	312nm, 21x26cm (WxL); 6x8W tubes	
Resolution	5 mega pixels (2592x1944 pixels maximum)	
Sensor	CMOS, 1/2.5"	
Lens	5mm focal length; aperture F1.2	
Image Bit-Depth Sensor	12-bit (0-4095 grey levels)	
Filter Camera	620nm EtBr (standard); optional 520, 560, 580nm filters	
Image Storage	PC or Laptop	Laptop, PC or iPAD, and Windows® and Samsung Android tablets
Connection to Operating Device	USB to PC	Wi-Fi to PC or tablet
Operating System Requirements for Software	Windows® 7 (64bit & 32bit) / XP / Vista	
Dark Room Assembly Dimensions	410 x 405 x 570mm (W x D x H)	
Front Panel Display	LED	3.5" 64K colour TFT display; touchscreen
Viewing Window	560nm universal orange filter	
White Light	6x1W LED (standard) for gel positioning	
White Light Table (optional)	21x26cm filter; connects internally to dark room	
Blue LED Epi-illumination Module (optional)	excitation wavelength 470nm; connects internally to dark room	
Safety	Safety interlock switch on front door panel; disconnects UV transilluminator on opening; complies with CE, FCC standards	
USB Port	For PC connection	For updates and maintenance
Wi-Fi Format	-	Wireless N, wireless G
Power Rating	Dual voltage: 110-230VAC	
Weight	25kg	

Camera

- High resolution 5MP camera with CMOS sensor for enhanced light sensitivity
- Lens: focal length 6mm; aperture size F1.2; autofocusing
- Filter slide with four filter options to perform an extensive range of fluorescence applications

Filter

Filter slide with four interchangeable filter options:

- 620nm filter (standard) – EtBr, Gel Red & SafeView Classic
- 520nm filter (SYBR) – Gel Green, Midori Green, runSAFE, SYBR Green I & II, SYBR Gold & SYBR Safe
- 560nm filter (yellow) – as per 520nm filter but also including SYPRO Orange
- 580nm filter (orange) – EtBr, Gel Green & Red, SafeView Classic; SYBR Green I & II, SYBR Gold & Safe; SYPRO Orange & Ruby

Uvitec Gel Documentation Systems

Cleaver Scientific is delighted to announce a privileged UK partnership with Uvitec Ltd. Based in Cambridge, Uvitec has served the molecular biology market since 1996 by manufacturing high quality fluorescence and chemiluminescence imaging systems, and analysis software. A synopsis of the Uvitec range is offered below .Products may be supplied either as standalone fully integrated systems to address all imaging applications or customised to meet specific individual application and budgetary requirements. For further information, or to receive a Uvitec catalogue or a quotation, please do not hesitate to contact us.

• BENEFITS INCLUDE

- Nearly 20 years' experience in the manufacture of high quality imaging systems and software
- Total versatility: systems may be supplied as fully-integrated imaging solutions or to suit any budget or application
- Full technical support and comprehensive warranty

UVITEC PRODUCT SYNOPSIS

Product Category		Application	Solution
ADVANCED SYSTEMS – Chemiluminescence & Fluorescence Imaging		Chemiluminescence & multi-wavelength fluorescence imaging	ALLIANCE CHROMA
		Complete chemiluminescence & UV fluorescence imaging	ALLIANCE 7
		Chemiluminscence & optional UV fluorescence imaging	ALLIANCE LD
		Dedicated low-cost chemiluminescence	ALLIANCE MINI
GEL DOCUMENTATION – Fluorescence & Colorimetric samples		Highest specification PC-controlled CCD fluorescence imaging	PLATINUM HD7
		PC-controlled gel documentation and quantification	FIREREADER V4
		Low-cost PC-controlled rapid image capture and printing	ESSENTIAL V4
		Standalone fluorescence and colorimetric gel documentation; no PC required	UVIDOC HD5
		Basic low-cost gel imaging; no PC required; suitable for education	UVISAVE HD5
TLC & UV INSTRUMENTS – Sophisticated lighting solutions		Dedicated PC-controlled TLC imaging system	FIREREADER TLC
		UV filtered lamps for fluorescence and TLC techniques	UVILITE
		Viewing cabinets for fluorescent samples and TLC plates	UVICAB
		Enhanced UV transillumination & documentation free of unwanted background fluorescence	UVIPURE
		Standard UV transillumination	UVIVUE
		Germicidal UV for Sterilisation	UVILITE GERMICIDE
		Replacement UV tubes	UVITUBE

TYPICAL APPLICATIONS

Chemiluminescence and Multi-Wavelength Fluorescence. Colorimetric imaging. Thin Layer Chromatography plates

FEATURES:

- Programmable microprocessor control
- Automatic monitoring of UV energy
- Small footprint with large interior
- Large visible front panel LED, with non-UV transmissible front door connected to safety interlock switches
- Observation window – UV blocking
- Membrane keypad operation

UV Crosslinker

The UVIlink UV crosslinker is especially designed for binding nucleic acids to membranes. A membrane keypad facilitates manual or preset control of the desired UV dosage and exposure time, while a highly accurate microprocessor-controlled photo-feedback system maintains uniform output from each of the crosslinker's five 8-Watt UV bulbs. Other features comprise safety interlock switches to prevent accidental UV leakage during operation, a clearly visible LED, plus a large interior chamber and small footprint area. The crosslinker may be used in a variety of applications, such as colony or plaque lifts, UV sterilisation and gene mapping or DNA damage studies.

ORDERING INFORMATION

CL-508.G	Shortwave crosslinker, 254nm
CL-508.M	Midrange crosslinker, 302nm
CL-508.BL	Longwave crosslinker, 365nm

TECHNICAL SPECIFICATION

UV Source	5x8W UV Bulbs, 254, 302 or 365nm
Exposure Time	0 – 999.9 minutes
Energy Ranges	0 – 99.99 J or 0 – 9.999 J
Internal Dimensions	26x33x14.5cm (w x d x h)
Exterior Dimensions	35x35x30cm (w x d x h)
Weight	10.5Kg
Footprint	35x36cm

TYPICAL APPLICATIONS

Crosslinking DNA and binding to membranes. Colony and plaque studies, UV sterilisation and gene mapping.

UV Transilluminators

Available in single and dual wavelength formats, in 21x21cm and 21x26cm sizes, our transilluminators are supplied either as standalone units or with the microDOC™, as part of a fully integrated gel documentation system. With a large surface area, each transilluminator serves as the perfect workstation for viewing and working with fluorescently-stained nucleic acid and protein gels.

Standard features include a high/low intensity safety switch and an efficient starter that allows each of the six 8-Watt UV tubes to energise quickly without flickering, while special filter glass minimises unwanted background light. All of these features maximise contrast and sensitivity, allowing even the faintest fluorescent gels to be viewed. Two dual wavelength models offer added flexibility and convenience.

FEATURES:

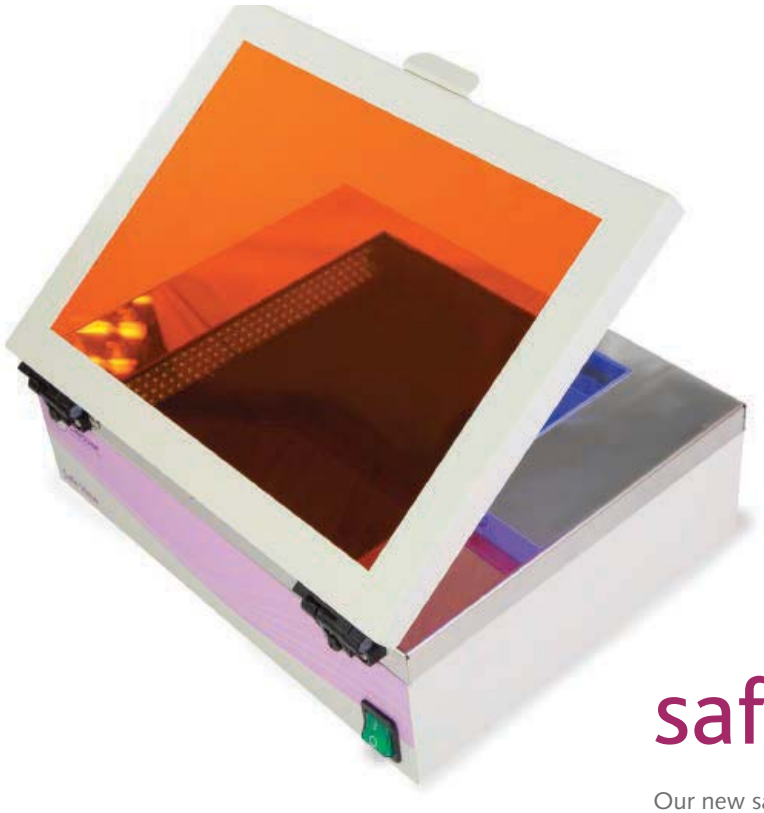
- Three wavelength options: 254/312/365 nm – Two dual wavelength models
- Long life filter
- High efficiency reflector
- Hi/Lo intensity switch
- Fast start up

TECHNICAL SPECIFICATION

Filter Size	21 x 21 cm or 21 x 26cm
Light Source	8W x 6 tubes
Intensity Switch	High (100%) / Low (70%) intensity switch for single wavelength mode
Fast Start Up	New high quality starter to simultaneously illuminate tubes when switched on with no blink
UV resistant plastic cover	33 x 25 cm (w x d)
Unit dimensions (w x l x h)	34 x 29.5 x 10 cm

ORDERING INFORMATION

CSLUVTS254	UV Transilluminator, small, 21 x 21 cm, 254 nm
CSLUVTS312	UV Transilluminator, small, 21 x 21 cm, 312 nm
CSLUVTS365	UV Transilluminator, small, 21 x 21 cm, 365 nm
CSLUVTSDUO	UV Transilluminator, small, 21 x 21 cm, 254/365 nm
CSLUVTSDUO312	UV Transilluminator, small, 21 x 21 cm, 254/312 nm
CSLUVTSDUO365L	UV transilluminator, small, 21 x 21 cm, 312/365 nm
CSLUVTS254L	UV Transilluminator, large, 21 x 26 cm, 254 nm
CSLUVTS312L	UV Transilluminator, large, 21 x 26 cm, 312 nm
CSLUVTS365L	UV Transilluminator, large, 21 x 26 cm, 365 nm
CSLUVTSDUOL	UV Transilluminator, small, 21 x 26 cm, 254/365 nm
CSLUVTSDUO312L	UV Transilluminator, small, 21 x 26 cm, 254/312 nm
Replacement Parts and Accessories	
CSL-Txxx	8W UV bulb (xxx = 254 nm, 312 nm or 365 nm)
CSL-UVPS22	UV Transparent Cutting Platform 22 x 22 cm
CSL-UVPS27	UV Transparent Cutting Platform 22 x 27 cm



safeVIEW

Our new safeVIEW LED transilluminator offers the user a safe way to view and document their samples.

This light source also has the added advantage that it does not cause damage to DNA or RNA that would normally be associated with uv light.

They are supplied as a standalone unit and can be used with the microDOC™, as part of a fully integrated gel documentation system. With a large surface area, each transilluminator serves as the perfect workstation for viewing and working with fluorescently-stained protein and nucleic acid gels.

FEATURES:

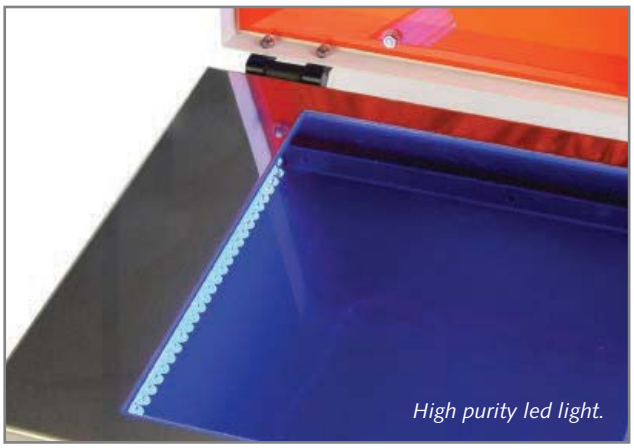
- No DNA damage to samples.
- Safer for user - No UV light.
- High Purity LED light.
- Strong Metal enclosure with stainless steel filter frame.
- Fast start up.

ORDERING INFORMATION

Safeview	BLUE Light Transilluminator 21 x 21cm
Accessories	
CSL-UVPS22	UV Transparent Cutting Platform 22 x 22cm
CSL-UVPS27	UV Transparent Cutting Platform 22 x 27cm

TECHNICAL SPECIFICATION

Filter Size	21 x 21cm
Light Source	470nm BLUE LED's
Size	340 x 270 x 130mm
Weight	5Kg
Voltage	110- 240V (Selectable)



High purity led light.

TYPICAL APPLICATIONS

A safe way for the operator to view their samples with no DNA or RNA damage.

duoVIEW

Our new duoVIEW transilluminator offers the user the added advantage of being able to view their gels with either standard UV light or using the safer blue light technology. This means only one transilluminator is needed for ethidum bromide and safe dye stained gels. They can either be used as a standalone unit or with the microDOC™, as part of a fully integrated gel documentation system. With a large surface area, each Duoview serves as the perfect workstation for viewing and working with Nucleic acid and fluorescently stained protein gels.

FEATURES:

- UV & Blue light technology in one transilluminator.
- Single or dual wavelength models avaialble.
- Industry leading long life UV filter
- Fast start up

TECHNICAL SPECIFICATION

Filter Size	21 x 21cm
Light Source	470nm BLUE LED's or UV Single Wave (8W x 5 tubes) or UV dual Wave (8W x 9 Tubes)
Intensity Switch	High (100%)/ Low (70%) Single
Size	400 x 190 x 350mm
Weight	10.5Kg
Voltage	110- 240V (Selectable)

ORDERING INFORMATION

DUOVIEW254	UV254 & BLUE Light Transilluminator 21 x 21cm (110V-240V)
DUOVIEW312	UV312 & BLUE Light Transilluminator 21 x 21cm (110V-240V)
DUOVIEW365	UV365 & BLUE Light Transilluminator 21 x 21cm (110V-240V)
DUOVIEW254/312	UV254/312 & BLUE Light Transilluminator 21 x 21cm (110V-240V)
DUOVIEW254/365	UV254/365 & BLUE Light Transilluminator 21 x 21cm (110V-240V)
Accessories	
CSL-UVPS22	UV Transparent Cutting Platform 22 x 22cm
CSL-UVPS27	UV Transparent Cutting Platform 22 x 27cm

TYPICAL APPLICATIONS

Viewing of DNA & Protein Gels

FEATURES:

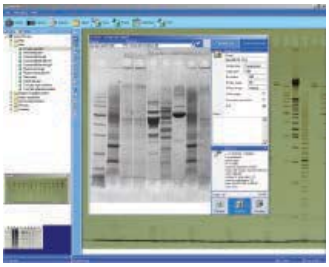
- For scanning of colorimetric protein gels, blots and TLC plates
- Sealed unit suitable for wet gels
- User has full control over resolution, compression and scan speed, providing complete flexibility in choosing between high speed or high quality image acquisition
- Transmittance and reflectance modes for different imaging applications, whereas colour channel separation allows accurate detection of all colorimetric dyes
- Create and store acquisition methods for different applications to ensure scan-to-scan reproducibility; greyscale wedge for system calibration and calibration reporting
- Ideal for post-electrophoresis scanning of omniPAGE Mini, Midi, Maxi and WAVE gels

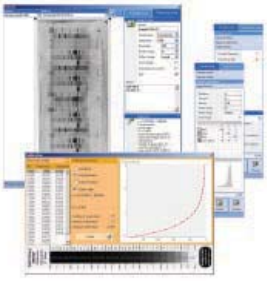
ORDERING INFORMATION

CSL-MSCAN	microSCAN complete documentation system for 1-D and 2-D colorimetric gels – 240VAC*
CSL-MSCAN$	microSCAN complete documentation system for 1-D and 2-D colorimetric gels – 110VAC*
*Each system includes Epson scanner with transparency unit; power supply and USB cable; control software and greyscale wedge for system calibration	

TECHNICAL SPECIFICATIONS

System	High Quality 1-D and 2-D A4 scanner with transmittance and reflectance modes
Max. Gel Imaging Size	20.9x28.5cm (reflectance) 19.7x23.7cm (transmittance)
Optical Resolution	2400dpi
Resolution	16-bit greyscale; 48-bit colour
Scan Optical Density Range	3.8 OD
Spectral Range	430-745nm
Interface	USB 2.0, Firewire
Dimensions (w x d x h)	30.8x53x15.3cm
Weight	6.6Kg
Power	110-240VAC





microSCAN
2-D and 1-D A4 Gel Scanner

The microSCAN is a low-cost documentation system for scanning colorimetric 1-D and 2-D gels, as well as blots and TLC plates. The microSCAN's control software allows rapid generation of high quality images that may then be imported into recommended TotalLab Quant and Phoretix 1D software (Pg 107) for analysis. Users may choose between transmittance and reflectance modes in colour and greyscale, and can select their required resolution. The microSCAN can generate high resolution images at 2400 dpi, while its variable colour scanning functionality is sensitive enough to detect the faintest protein spots in gels stained with Coomassie Blue, silver and other colorimetric stains. As a sealed unit with a maximum 20.9x28.5cm scanning area, the microSCAN is also suitable for wet protein gels, particularly those run in the omniPAGE Mini and Midi, and Maxi and WAVE vertical systems (Pg 51).

TYPICAL APPLICATIONS

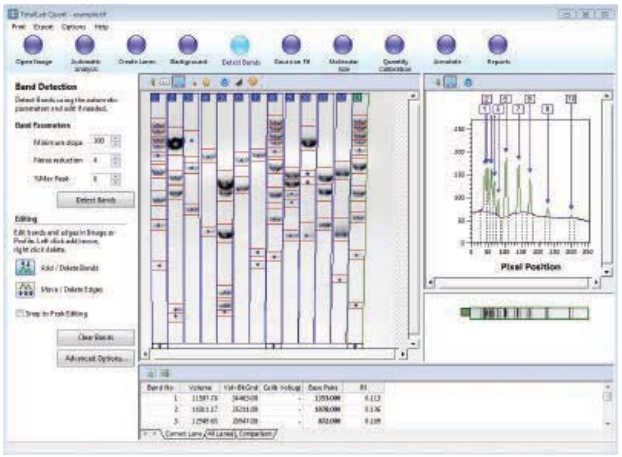
Scanning and documentation of gels and blots.

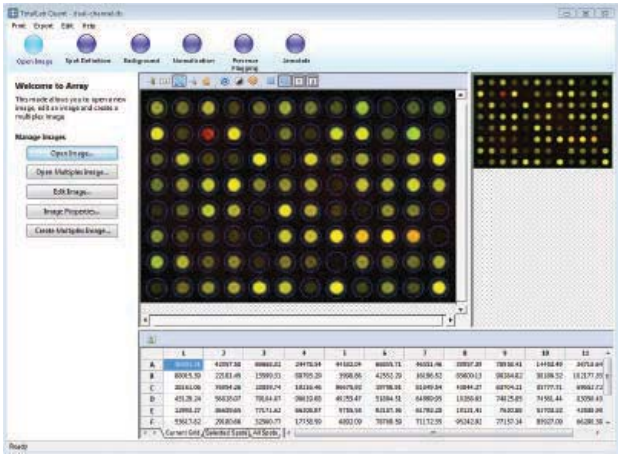
ORDERING INFORMATION

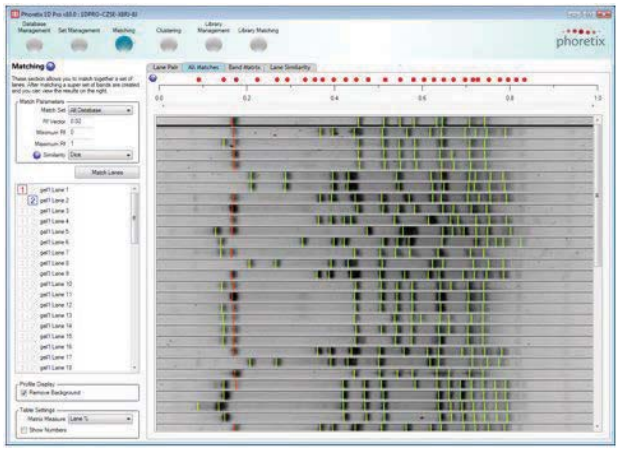
TotalLab 1D	TotalLab 1D analysis module for agarose and PAGE gels; available only with the purchase of MicroDOC1D models (Pg 95)
TotalLab Quant	TotalLab 1D analysis module plus array analysis, colony counting & toolbox modules
Phoretix 1D	Phoretix 1D software for gel quantitation, calibration and band pattern matching studies within a single gel
Phoretix 1D Pro	Phoretix 1D software for gel quantitation, calibration and band pattern matching studies between multiple gels

TECHNICAL SPECIFICATION

	TotalLab 1D	TotaLlab Quant	Phoretix 1D	Phoretix 1D Pro
Compatible with 21CFR part 11 compliance module	✓	✓	✓	
Automatic detection of lanes and bands	✓	✓	✓	✓
Automatic background subtraction	✓	✓	✓	✓
Image manipulation tools	✓	✓	✓	✓
Lane templates	✓	✓	✓	✓
Analysis protocols for batch processing			✓	✓
Molecular weight calibration	✓	✓	✓	✓
Quantity calibration & normalisation	✓	✓	✓	✓
Profile deconvolution	✓	✓	✓	✓
Rf calibration			✓	✓
Band picking			✓	✓
Band pattern matching – single gel			✓	✓
Band pattern matching – lanes across multiple gels				✓
Band pattern queries				✓
Dendrogram – single gel			✓	✓
Dendrogram – lanes from multiple gels				✓
Data archive and search facility				✓
Classification and identification tools				✓
Reports	✓	✓	✓	✓
Array analysis module		✓	✓	✓
Colony counting module		✓	✓	✓
Toolbox for general analysis		✓	✓	✓







Gel Analysis Software

TotalLab and Phoretix

TotalLab and Phoretix gel analysis software options are available for quantitative gel analysis following gel documentation. Each software option offers the highest level of automation currently available and guides the user step by step through the analysis process. A user-friendly interface is split into four parts allowing the user to view within a single screen every aspect of gel quantitation, including the gel image, lane and band profiles, analysis data and the help menu.

TotalLab is used primarily for 1D gel quantitation and is suitable for all users regardless of their experience. More advanced Phoretix software, which also includes a free copy of TotalLab Quant, is recommended for laboratories performing in-depth lane relationship studies. Details of each software option are as follows:

TotalLab 1D Module which is the 1D gel analysis module of TotalLab Quant, is the software supplied exclusively with all microDOC1D models (Pg 95). TotalLab 1D features a user-friendly interface and help menu that provide a simple, guided workflow for fast and accurate quantitation and calibration of 1D gels and western blots. Main benefits include:

- The capacity to review each step within the automated workflow analysis, and manually intervene or edit if desired
- Highly developed algorithms which accurately detect lanes and bands even on distorted gel images
- A range of visualisation tools that facilitate further examination of lane and band data to verify results, including band calibration from Molecular Size standard lanes and accurate quantitation derived from known band volumes
- Full user control over the visualisation tools and the data displayed, allowing only the important data fields and images of choice to be selected for final output
- Multiplex analysis

TotalLab Quant includes TotalLab1D plus three modules for array analysis; colony counting and 2D spot measurement; and general feature-based image analysis. The array analysis module can automatically detect up to 1536 wells or arrays spots, and may also be used to quantify dot and slot blots. Array analysis and Toolbox modules also include multiplex analysis functionalities.

Phoretix 1D is more advanced analysis software used primarily for band-pattern matching within individual DGGE, SSCP and RFLP gels that are important for cultivar experiments, evolutionary biology and population genetics. Phoretix 1D has a powerful band matching feature, which is flexible and easy to use, while visual tools show the results of matching and identify similarities within an individual gel, including lane clustering via dendrograms. A copy of TotalLab Quant is included with Phoretix 1D.

Phoretix 1D Pro shares the same analysis features as Phoretix 1D, but with added database storage to provide the ideal solution for generating and manipulating large lane-comparison datasets from multiple gels. Benefits include:

- Long-term archiving and storage of data from multiple gels
- Comparison of each lane with any other lane within the database, with the results presented as dendrograms or tables that show all band and lane similarities, thereby enabling identification of lane relationships across many different experiments
- Classification and identification of unknown sample against a defined library of known references that can be easily shared between co-workers and labs making collaboration on large projects easier

TYPICAL APPLICATIONS

Analysis of gel bands and 1D quantification.

Statistics

- 100% matched data enables you to apply robust and reliable multivariate statistics including, False
- Discovery Rate (q-values), Principal Components Analysis, Correlation Analysis and Power Analysis
- Highlight the interesting spots on a whole gel image view
- Import findings from any other statistical analysis packages and link them to spots in your experiment

View Results

- Differentially expressed spots are automatically sorted by significance based on ANOVA p-value
- Validate expression changes using 2D and 3D montage views, expression profiles and spot data tables
- Perform any editing on a single image and apply the change to all other images automatically
- Quickly create populations of spots with shared, user-defined characteristics using tags
- Display a CV plot to check experimental variation is within the limits defined by your lab
- Interesting spots are taken forward for statistical analysis, picking and reporting

Experiment Design Setup

- Choice of experiment design setups – either "between-subject design" or "within-subject design" (e.g. same patients sampled before, during and after treatment)
- Set up multiple comparisons of data within the same experiment

SameSpots analysis

- Automatic analysis of the aligned image set and correction of dye related offsets in DIGE
- The result is a common spot outline map across every image with 100% matching and no missing values for robust statistical analysis
- Unique normalisation method that is unaffected by outliers and saturated large spots

Filtering & Normalisation Review

- Exclude any artefacts and/or damaged areas of your gel from the analysis
- Review results of normalisation and take corrective action if required to maintain experiment quality

ORDERING INFORMATION

Progenesis2D	Software for 2D gel analysis

Image Alignment

- Automatically align images at the pixel level before image analysis
- Accuracy can be assessed before proceeding using a simple visual application
- Pixel-perfect alignment makes it possible to generate a common spot outline map across every image
- Make detection applicable to your experiment by selecting the images the software uses to generate the
- SameSpots outline map

Image Quality Control

- Automatic assessment at the start of your workflow highlights many common problems with image quality before you proceed to the next step. Tools are included to crop, flip, rotate and invert images.
- Image intensity histogram shows intensity levels and dynamic range of your captured gel images

Image Import

- Analyse single stain, 2D DIGE and multiple-staining of the same gel. Supports .tiff, .img, .gel, .mel images
- Extend your analysis at any time by adding new images to existing experiments

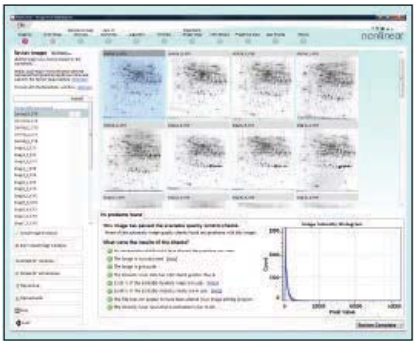
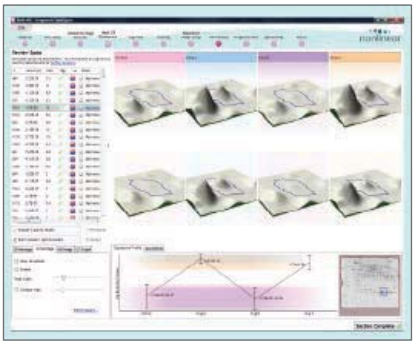
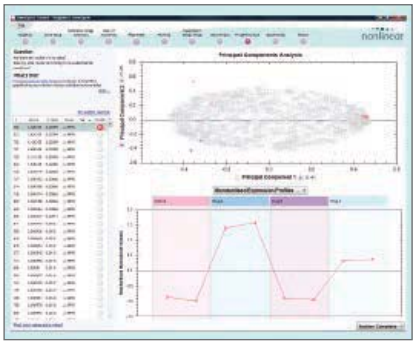
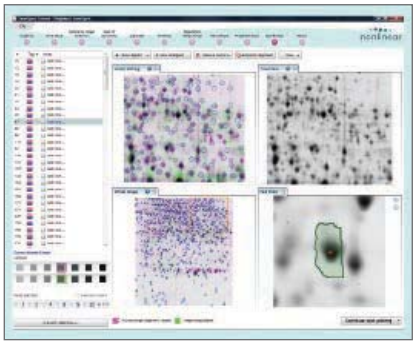


Image QC


Image Alignment


View Results


Multivariate Statistics


Spot Picking

Reproducible 2D gel analysis is possible Be confident in your proteomics data...

Progenesis SameSpots from Total Labs is the 2D gel analysis software of choice for reproducible proteomics results. It enhances your analysis workflow with speed, objectivity and statistical power. You also have features to perform detailed investigations of your data, support spot picking and generate custom reports.

Speed

Typical analysis times of 5mins/image* with a fast, streamlined workflow. Faster analysis times means you can run more replicates.

Objectivity

Easy-to-use and proven to give highly reproducible results across-labs. Post analysis editing is eliminated on the majority of experiments.

Statistics

Increased statistical power with 100% matching in your experiment and no missing values, so you can apply valid multivariate statistics.

Progenesis SameSpots

Key Steps in the Workflow:

- Quickly share a report of protein spots defined as significant, interesting or those you selected for picking
- Print or save the report. Images and data can be cut and pasted into other applications

Spot Calibration & Picking

- Pick spots using a unique image alignment approach for high precision
- Supports common spot cutting robots including GelPix, ProPic™ and Ettan™ as well as manual picking
- pI and Molecular Weight calibration

GENERAL LAB EQUIPMENT – OVERVIEW

Please see below a synopsis of the general laboratory equipment now available through Cleaver Scientific.

NEW PRODUCTS
GTC96S gradient thermal cycler delivers affordable, high performance PCR of DNA in 96-well plates and 0.2ml tubes and strips.
RMC24 refrigerated micro centrifuge sets a new standard in laboratory bench top centrifugation for molecular biology applications. Equipped with high speed 24-place rotor for 24 × 1.5/2.0 ml tubes, 2 × PCR strips or 16x0.2ml tubes.
LIQUID HANDLING
omniPETTE – ergonomically designed single and multichannel pipettes provide accurate and precise liquid handling. Left- and right-handed operation, fully autoclaveable and UV resistant.
omniPET pipette filler – cordless, rechargeable and with a digital LCD to show volume – dispense 0.5-100ml volumes.
Pipette tips – available on request – please enquire.
CENTRIFUGES, VORTEX AND SHAKER
Quickspin microcentrifuge for rapid spin-downs of samples in 1.5/2ml microtubes and 0.2ml strips.
multiFUGE – includes a unique duoROTOR for simultaneous centrifugation of 12x 1.5/2ml microtubes and 32x 0.2ml PCR tubes.
Vortex – combines fast, efficient mixing with minimal vibration. Optional head attachments for 0.2ml tubes and strips, 1.5/2ml tubes and larger 15ml and 50ml tubes.
MiniMix 3D Shaker combines orbital shaking with rocking to provide the perfect speed and tilt for blotting incubations and gel staining. A range of blot boxes available in different sizes.
DRY BATHS, HEATERS AND STIRRERS, STIRRING WATER BATHS
microBLOCK – personal, ultra-compact mini dry bath for tubes ranging from 0.2 to 50ml in size.
Cube Dry Baths – with digital microprocessor controller for accurate temperature control in 0.1°C increments from ambient +5°C to 150°C, for applications including restriction digestion and Hot Start PCR. Single and dual block models with interchangeable blocks to accommodate different tube volumes.
Stirring water baths with either 1 or 3 built-in stirrers in 10 and 20L volumes.
PERISTALTIC PUMPS
Supplied in single, dual and tetrad pump-head formats with a selection of silicone tubes. Ideal for buffer recirculation and gradient gel formation.
HYBRIDISATION OVENS
Used in numerous temperature sensitive applications, such as enzyme assays, nucleic acid probe-hybridisations and overnight cultures. The entry-level hybridBASIC includes 2 stainless steel shelves, while more sophisticated models include vortex, orbital, reciprocal and rocking shaking-platform formats with optional tube rotisseries, double-capacity platform, and 250ml and 500ml flask holders.
UV STERILISATION, COOLCUBE AND ICE BUCKETS
CSL-UVCAB and CSL-UVCABMINI – serve as low cost alternatives to clean rooms to provide a convenient area to set up PCR reactions in an environment free from background nucleic acid contamination.
Consort pH meters – measure pH, conductivity, total dissolved salt, salinity and temperature, and may be supplied with electrodes, buffers and standards.
CoolCube – allows temperature-sensitive samples to be retained on the bench at 4°C for up to 4 hours.
Ice buckets made from durable plastic and supplied with lids to keep samples at 0°C.
CHILLER, GEL DRYERS AND VACUUM PUMPS
CSL-CHILLER – recirculating chiller ready to use with insulated tubing and clips, and a 3-year warranty. The preferred cooling option for the VS-20WAVE electrophoresis and blotting units.
Gel dryers supplied in 21x31cm and 35x45cm sizes.
Vacuubrand MZ 2C + 2 AK – the preferred vacuum pump option for Cleaver Scientific gel dryers.
ROCKERS AND SHAKERS
Four models in orbital, reciprocal, rocking and 2-D/3-D gyratory shaking-platform formats. Additional platforms double capacity without increasing footprint area. Optional water bath for nucleic acid hydridisations.

GENERAL LAB EQUIPMENT

KEY FEATURES:

- A full array of products for electrophoresis-related applications
- Include: pipettes for liquid handling; heating blocks and dry baths for enzyme incubations and sample denaturation; heaters and stirrers, and stirring water baths to dissolve solids in buffers and samples; peristaltic pumps for gradient gel formation; hybridisation incubators for northern and Southern blotting applications; UV cabinets and gradient thermal cyclers for PCR; pH meters; ice buckets for storage of temperature-sensitive samples; recirculating chillers for active gel temperature control; refrigerated centrifuges to harvest living cells; gel dryers and vacuum pumps; rockers and shakers; glove boxes and radiation safety.
- Guaranteed minimum 1-year warranty

Cleaver Scientific offers a comprehensive collection of laboratory equipment for molecular biology and life science laboratories

All laboratory needs are met.
Regardless of whether it's a microcentrifuge to spin-down protein samples denatured in a heating block ahead of gel loading, a thermal cycler, or a hybridisation incubator and shielding for manipulation of radioactively labelled nucleic acid probes, The range of Cleaver Scientific laboratory products offers a solution.

RELATED PRODUCTS

BALANCES
PAGE 153

RADIATION PROTECTION PRODUCTS
PAGE 148

READERS AND CHEMICALS
PAGE 134

omniPETTE

Variable Volume Single and Multi-channel Pipette

Ergonomically designed omniPETTE single and multichannel pipettes feature slim handle, high accuracy and precision rates combined with their tremendous robustness and very competitive price.

Safety & Comfort

Distinctive handle of these pipettes with ejector pushbutton located on the top of the finger rest and the volume counter facing backwards offer their users the sense of comfort and continuous control of the pipetting volume. omniPETTE single channel pipettes feature PVDF shafts ensuring increased chemical and mechanical durability of the product.

omniPETTE pipettes are available in wide range of volumes: from 0.1 µl to 10000 µl.

Large Volume Display

Easy-to-read numbers

Accuracy and Precision

High technology design, and sophisticated space age materials are used for our pipettes production. Each pipette is individually tested (Quality Control Certificate included) on the most precise electronic balances.

Smooth Adjustment of Pipette Volume

New pipetting mechanism allows for precise and effortless setting of pipette volume. Winding the counter from min to max volume can be performed with one hand in minimal time.

Multichannel Manifold

omniPETTE multichannels feature a revolutionary suspension system which allows the shafts to retract slightly when they are pressed against a row of pipette tips. Each shaft moves independently, resulting in an even sealing force being applied to all 8 or 12 tips. This ensures that all tips secured on their individual shaft with the minimum of effort - and never fall off!

The suspension system not only ensures secure tip sealing but also eliminates the common incidence of tips being jammed on pipette outer shafts. The innovative ejection bar is curved, allowing the tips to be pushed off in steps, therefore reducing the amount of force required for ejection. For comfortable pipetting in any direction improved omniPETTE manifold now ejects tips within 360o.

UV Resistant

Crafted out of highly durable materials omniPETTE Series Pipettes can be safely sterilized with UV radiation. Even prolonged exposure to UV beams does not damage the plastic and the de-coloration of the pipette parts is minimal.

Recalibration System

Calibration key provided with omniPETTE allows for quick and accurate pipette recalibration.

Reliable Pipette – Tip System

Cleaver Scientific offers the wide range of pipette models. Shafts of omniPETTE are designed to fit all popular tips. To ensure outstanding precision and repeatability each Cleaver Scientific pipette is manually calibrated. The performance of every pipette is checked by gravimetric method and the results of test are printed in pipette Quality Control Certificate.

ORDERING INFORMATION

omniPETTE Single Channel			
	Volume µl		Volume µl
CV2	0.2 - 2ul	CV200	20 - 200ul
CV10	0.5 - 10ul	CV1000	100 - 1000ul
CV20	2 - 20ul	CV5000	1000 - 5000ul
CV100	10 - 100ul	CV10000	1000 - 10,000ul
omniPETTE 8-Multichannel			
	Volume µl		Volume µl
CV8-10	0.5 - 10ul	CV8-200	20 - 200ul
CV8-50	5 - 50ul	CV8-300	50 - 300ul
omniPETTE -Multichannel			
	Volume µl		Volume µl
CV12-10	0.5 - 10ul	CV12-200	20 - 200ul
CV12-50	5 - 50ul	CV12-300	50 - 300ul
Pipettes Stands			
CV-RS	Rotating Stand	CV-4POS	4 Position Stand
CV-1POS	1 Position Stand	CV-MS	Multiple Stand

TYPICAL APPLICATIONS

Measuring and dispensing of low to medium sample volumes

omniPET Pipette

Pipetting Never Felt So Good

omniPET is a revolutionary engine powered pipette filler with LCD display designed for cordless work with glass or plastic pipettes in the 0.5-100 ml range. While designing the omniPET we made users convenience a priority. Carefully modeled lightweight handle, together with smooth pushbuttons and switches located "right where they are needed" guarantee effortless pipetting even during extensive use. For convenient storage our tool is equipped with "rest wings". LCD display indicates setting options and level of battery charge.

Adjust It To Suit Your Work

Easily accessible switches of omniPET allow choosing different operation mode depending on the volume of pipette and viscosity of liquid. For liquid aspiration the user can choose HIGH or LOW work speed and additionally adjust the suction by the pressure applied to the trigger button. Dispensing can be carried out by gravity (GRAV) or supported by pump (BLOW) which empties the pipette with blow out. The settings are shown on the LCD display.

ORDERING INFORMATION	
Pipette filler	
Omnipet	omnipet, with charging stand

TECHNICAL SPECIFICATIONS	
Autoclavability	Nosepiece, pipette holder, filter
Filter	Hydrophobic PTFE 0,2µm
Pipette types	Glass or Plastic 0.5-100ml

No Worries About Safety

Many pipette fillers are not sufficiently protected against overfilling. When an aggressive liquid enters the body of a pipetting aid it may damage the tool or constitute a threat to the users health. Therefore we have equipped the omniPET not only with standard PTFE filters, but also a safety valve, blocking any liquid from entering the unit. To protect your samples from cross contamination, filters and pipette holders can be easily exchanged and autoclaved.

- Suitable for 0.5 ml to 100 ml pipettes
- Ergonomically shaped handle
- LCD display
- Sensitive valves for precise work with low volume pipettes
- Low battery light indicator
- Protected by filter and safety valve
- Autoclavable nosepiece and pipette holder
- Charging stand

Always Ready for Action

Powerful, environmentally friendly Ni-MH battery enables many hours of continuous work. The LCD display indicates when omniPET should be recharged. You do not have to stop your work. Just put the power supply jack in and load your tool while working! omniPET battery is automatically protected against overcharging by timing and thermal systems so you do not need to worry about your tool while leaving it for overnight charge. The omniPET is supplied with comfortable charging stand.

TYPICAL APPLICATIONS

Measuring and dispensing of medium to large sample volumes

FEATURES:

- Supplied with both standard microtube and strip tube rotors
- Ideal for quick spin-downs and microfiltration
- Starts and stops in seconds
- Compact design

ORDERING INFORMATION

CSLQSPIN	Spectrafuge Mini complete with 1.5/2.0 ml rotor, strip tube rotor, 0.5 and 0.4ml adapters, purple lid
CSLQSPIN$	Spectrafuge Mini complete with 1.5/2.0 ml rotor, strip tube rotor, 0.5 and 0.4ml adapters, purple lid 110v

Quickspin

The Quickspin 'Purple' is perfect for microfiltration and rapid spin-down of sample from the walls and caps of microcentrifuge tubes.

By occupying less than 6 inches square of bench space, the Quickspin 'Purple' has a very small footprint, making it easy to use in the lab. Rotors and adaptors, which may be easily interchanged, are supplied as standard to accommodate 1.5 ml, 0.5 ml and 0.4 ml tubes, as well as 0.2 ml strips and individual tubes.

A highly durable stainless steel hinge pin facilitates easy opening of the translucent lid, while an on/off switch is located on the side of the centrifuge to start and stop operation. Alternatively, with the switch in the 'on' position, the centrifuge can be started and stopped by closing and opening the lid.

TECHNICAL SPECIFICATIONS

Maximum speed	6000rpm
Maximum G Force	2,000 x g
Capacity	6 x 1.5/2.0 ml 2 x 0.2ml Strips
Unit Dimensions (w x l x h)	15 x 15 x 11.7 cm
Weight	0.45 kg

FEATURES:

- duoROTOR for microtubes and PCR strips/ tubes
- Twice the capacity of traditional mini centrifuges
- Near silent operation
- Starts & stops with opening/closing of lid

CSL Multifuge

Unlike traditional mini centrifuges, the new multiFUGE Mini Centrifuge eliminates the need to change rotors when switching between microtubes and PCR strips. Included, the unique duoROTOR is all that is required for running 12 microtubes and 4 PCR strips simultaneously.

With a fixed speed that produces 2,000 xg, this centrifuge is perfect for quick spin downs. Simply close the lid and the unit quickly ramps up to 5500 rpm. Open the lid and the rotor quickly decelerates for removal of samples.

At just 14 cm wide and 11 cm high, the multiFUGE Mini Centrifuge trully is a personal centrifuge with unmatched capacity and flexibility.

ORDERING INFORMATION

CSL-MULTI-FUGE	multiFUGE Mini Centrifuge, with duoROTOR for microtubes and PCR strips/tubes
MF-A0.5-6	Adapters, 0.5ml, pack of 6
MF-A0.2-6	Adapters, 0.2ml, pack of 6

TECHNICAL SPECIFICATIONS

Speed	5,500rpm / 2,000xg
Capacity	12 x 1.5 / 2.0ml tubes 32 x0.2ml PCR tubes 4 x PCR strips (8x0.2ml)
Dimensions	14 x 20 x 11.2 cm
Weight	1.1 kg
Electrical	100-240V, 50-60Hz

TYPICAL APPLICATIONS

Spinning down (centrifugation) of liquid samples in small tubes

ORDERING INFORMATION

Part Number	Description
RMC24	Refrigerated 24-place micro centrifuge, 230VAC
RMC-24-ROTOR	Rotor, 24x1.5/2ml tubes (included with RCM-24)
RMC-24-1205	Adaptors for individual 0.5/0.6ml tubes, pk of 6
RMC-24-1206	Adaptors for individual 0.25/0.4ml tubes, pk of 6
RMC24$	Refrigerated 24-place micro centrifuge, 110VAC
RMC-24-SS	Strip-spin adaptor for 2x 8x0.2ml PCR strips or 16x0.2ml tubes
RMC-24-1222	Adaptors for individual 0.2ml tubes, pk of 6

TECHNICAL SPECIFICATIONS

Maximum Speed	13,500rpm
Maximum rcf	17,135 x g
Temperature Range	-10 to +40°C
Timer	0.5-99'; continuous
Dimensions	10.9x17x9.8" / 27.7x43x24.8cm (WxDxH)
Weight	44lb / 20 kg
Electrical	120V~ or 230V~ 50/60Hz; 500W

Rotors & Adaptors:

for 24x1.5/2ml tubes; 2x PCR strip tubes; and up to individual 0.2 or 0.5ml tubes

RMC-24-ROTOR

RMC-24-SS

Easy access

FEATURES:

- Solid aluminium rotor with sample capacity for 24 × 1.5/2.0 ml tubes, 2 × PCR strips or 16x0.2ml tubes
- Maximum speed of 17,135 × g (13,500 rpm) achieved in <16 seconds
- Rapid-COOL function allows rotor temperature to reach 4°C within eight minutes; 4°C maintained even at maximum speed
- User-friendly LCD display facilitates temperature control from -10 to +40°C, and allows speed to be set either in rpm or rcf
- Imbalance detection with automatic shut-off
- Quiet operation at <56dBA at maximum speed
- Quick spin function ideal for cell 'pelleting'
- Brushless motor ensures maintenance-free operation
- Compact with small footprint
- 2-year warranty

The new RMC24 refrigerated micro centrifuge

The Cleaver Scientific RMC24 refrigerated micro centrifuge sets a new standard in laboratory bench top centrifugation. Its 24-place rotor and high speed capability make the RMC24 the ideal centrifugation solution for all molecular biology applications that entail 1.5ml tubes and 0.2ml tubes and strips. A self-explanatory LCD control panel provides full user-control over speed, time and temperature, as well as a wipe-clean surface for easy decontamination, while speed adjustments in increments as low as 100 rpm or 100 x g ensure precise control to a maximum 13,500 rpm, or 17,135 x g rcf.

Centrifugation may be either timed between 30 seconds and 99 minutes or performed continuously, whereas a 'quick' key is available for short spins or cell pelleting. The RMC24's powerful refrigeration system maintains sample temperatures as low as -10°C and takes less than 8 minutes to reach 4°C from room temperature. A brushless motor drive allows the rotor to achieve its set speed quickly and effortlessly, while a computer-controlled isolation system ensures that the centrifuge operates free of vibration with a slight load imbalance; although shut down occurs automatically, within 18 seconds and without sample disruption, if a significant imbalance is detected. The unique design of the 24-place rotor allows easy access to all sample tubes; and individual tube slots within the solid aluminium rotor support each tube along its length and retain sample in the event of tube failure. The rotor accepts 1.5 and 2.0ml tubes directly and smaller 0.5ml tubes through the purchase of specialist adaptors; whereas an optional StripSpin™ adaptor is connected to the top of the rotor to spin 0.2ml tubes and PCR strips. The RMC24 rotor sits on a tapered shaft so that it may be removed easily to clean and autoclave.

TYPICAL APPLICATIONS

Centrifugation of samples in a controlled temperature down to -10 degrees C.

FEATURES:

- Powerful, reliable motor with optimised counter balance
- Circular orbit for effective vortexing at any speed
- CombiCup head accepts a variety of tube sizes
- Versatile head attachment accessories for microplates and different tube sizes

Vortex

Cleaver Scientific's new variable speed Vortex Mixer combines fast, efficient mixing with minimal vibration. Unlike other vortex mixers using elliptical orbits, the CSLVORTEX true circular orbit facilitates uniform sample-vortexing even at low speed. The CombiHead™ head, which is supplied as standard, accepts many different tube sizes, while the unique overmoulding technology used in its manufacture provides a sturdy plastic core with non-slip TPE that fits optional heads for microplates, microtubes, PCR strip tubes, 15ml and 50ml tubes and blood vials.

CSLVORTEX may be used in 'touch' or continuous mode: 'touch' mode being activated by simply depressing the sample head and then stopped by releasing the pressure. An optimised counter balance system within the CSLVORTEX minimises vibration and movement of the unit during operation, whereas its lightweight construction and small footprint allows it to be readily transported and used in areas where space is restricted. The CSLVORTEX is also safe for use in temperature controlled environments, and may be used within a cold room.

ORDERING INFORMATION

CSLVORTEX	Cleaver Vortex Mixer with general purpose head
S0200-21	Optional Head Attachment for 24 x 1.5/2.0ml Tubes, 24 x 0.5ml Tubes and 32 X 0.2ml Tubes (or 4 Tube
S0200-22	Optional Head Attachment for 1 Microplate or 64 x 0.2ml Tubes or 8 x 0.2ml Tube Strips
S0200-23	Optional Head Attachment for 8 x 15ml and 8 x 12/13mm Diameter Tubes
S0200-24	Optional Head Attachment for 6 x 50ml Tubes
SO200-25	Optional Head Attachment for 12 x 1.5/2.0ml Tubes, Held Horizontally
S0200-26	Optional Head Attachment for 4 x 15ml Tubes, Held Horizontally
S0200-27	Optional Head Attachment for 2 x 50ml Tubes, Held Horizontally

TECHNICAL SPECIFICATIONS

Speed Range	115V 0 - 3400 RPM 230V 0 - 2850 RPM
Operating Modes	Touch or Continuous
Ambient Operating Range	4 - 65°C
Dimensions (w x d x h)	14cm x 16cm x 13cm
Weight	2.2Kg
Electrical	115V or 230V, 50/60Hz

TYPICAL APPLICATIONS

Mixing of samples in tubes between 0.2ml to 50ml volume.

FEATURES:

- The perfect speed and tilt for blotting and gel staining
- Three-dimensional motion
- Designed for use with Blot Boxes

Blot Boxes

These gel staining/blotting boxes are available in 4 sizes and are the ideal accessory for incubating blots or staining gels. The two smaller sized boxes are available in packs of ten. The smallest box has dimensions of 9.1 x 6.6cm and a capacity for 3-5ml of solution.

This is ideal for incubating cut blot strips. The next box in the range holds 6-10ml of solution and is appropriate for mini gels and blots up to 11.7 x 8.9cm. Two larger boxes, available in single packs, can be used for staining gels or incubating blots up to 12 x 12cm or 20 x 16.5cm respectively.

ORDERING INFORMATION

CSL3DSHAKER	MiniMix 3D Shaker with 20x16.5cm tray and non-slip rubber mat, 230V
CSL-BB9X6	Gel/Blot box, 9.1 x 6.6cm, 3-5ml capacity, 10/pack
CSL-BB11X8	Gel/Blot box, 11.7 x 8.9cm, 6-10ml capacity, 10/pack
CSL-BB12X12	Gel/Blot box, 12 x 12cm, 1/pack
CSL-BB20X16.5	Gel/Blot box, 20 x 16.5cm, 1/pack

TECHNICAL SPECIFICATIONS

Speed Range	18rpm (115V) / 20 rpm (230V)
Motion	3-D, nutating
Tilt Angle	5°
Platform Size (w x d)	20x16.5cm
Ambient Operating Range	4-65°
Dimensions (w x d x h)	20.3X17.8X10.5cm
Weight	0.88kg
Electrical	115/230V 50/60Hz

MiniMix 3D Shaker

The Cleaver Scientific MiniMix combines the motions of orbital shaking and rocking to produce a gentle, but thorough, 3-D action that is perfect for antibody incubation of western blots and staining gels.

The pitch and speed of the Cleaver Scientific MiniMix are optimised to generate a tilt angle that is large enough to ensure uniform distribution of solutions, yet small enough to prevent the centre of the blot from drying out. This has the added benefit of allowing users to work with minimal volumes, thus conserving valuable probes and antibodies.

A non-slip rubber mat keeps the boxes in place on the agitating platform, which, along with the housing, is very easy to clean and decontaminate after use. The MiniMix's compact and light weight design allows it to be moved around the lab where needed. It is also safe for use in an incubator or cold room for temperature controlled reactions.

TYPICAL APPLICATIONS

Staining and destaining of gels. Incubating blots.

microBLOCK

A personal sized drybath

A breakthrough in size and economy, our NEW micro-BLOCK Mini Dry Bath is truly the first personal block incubator. Whether your customers are incubating PCR strips or tube sizes up to 50mL, the compact microBLOCK Mini has the smallest footprint of any digital dry bath on the market.

FEATURES:

- Compact, fits in the palm of your hand
- Exchangeable blocks, for tubes 0.2 to 50ml
- Clear cover ensures temp, uniformity
- Digital temperature control
- Portable (Optional 12V car adapter)
- User tempreature calibration
- Outsranding heating rate
- Single molded chamber, no cracks or welds
- PTFE coated chamber resistance stains

ORDERING INFORMATION

MBDB-01	microBLOCK Digital Dry Bath, with block lifter (No block supplied)
MD-MINI-B01	For 0.2ml tube (PCR Strip Tube), 32 wells, 6.35mm, depth 19mm, L71 x W47 x H32mm
MD-MINI-B02	For 1.5ml tube, 12 wells, 10.8mm, depth 28.5mm, L71 x W47 x H32mm
MD-MINI-B03	For 15ml tube, 6 wells, 17.3mm, depth 70mm, L71 x W47 x H75mm
MD-MINI-B04	For 50ml tube, 2 wells, 29.2mm, depth 72mm, L71 x W47 x H75mm
MD-MINI-B05	For 0.5ml tube, 12 wells, 8.0mm, depth 25mm, L71 x W47 x H32mm
MD-MINI-B06	For 2.0ml or 1.5ml tube, 12 wells, 11.0mm, depth 30mm, L71 x W47 x H32mm
MD-MINI-B07	For 1.5ml tube, 12 wells, 10.9mm, depth 30mm, L71 x W47 x H32mm
MS-BL95-E	Block lifter 95mm, with E-Type Retaining Rings

TECHNICAL SPECIFICATIONS

Temperature Range	Ambient +5 to 80 °C
Temperature Accuracy	+/- 0.5 °C
Temperature Increments	0.1 °C
Temperature Uniformity	+/- 0.2 °C
Dimensions	11 x 15 x 10 cm
Weight	500g
Electrical	100-240V, 50-60Hz*


MD-MINI-B03


MD-MINI-B04


MD-MINI-B01


MD-MINI-B02


MD-MINI-B05


MD-MINI-B07

TYPICAL APPLICATIONS

Precise heating of samples up to 80°C in an ultra compact bath.

FEATURES:

- Microprocessor control with digital performance for precise, accurate control
- Wide temperature control range with excellent uniformity
- Rapid temperature increase rate
- LCD screen showing timer and temperature simultaneously
- User temperature calibration
- Data logging and function control software available

Cube Dry Baths

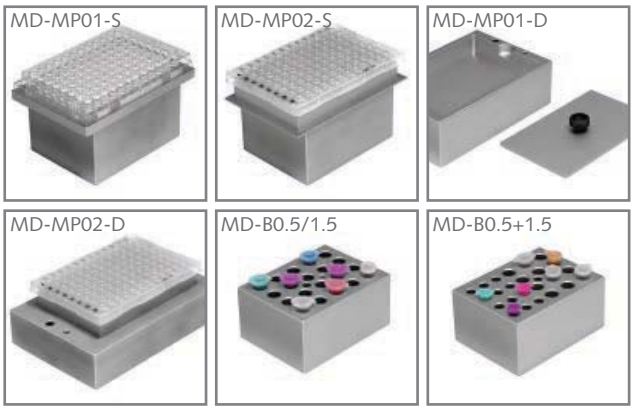
Cleaver Scientific's Cube digital dry baths are available in single and dual block models, and comprise a comprehensive range of interchangeable blocks. Each digital dry bath is compact, easy-to-use and excellent value for money.

Interchangeable quick-change blocks have fast heat-up times and reproducible temperature uniformity and accuracy, and may be used in a variety of applications, which include: restriction digestion, BUN, melting agar, coagulation studies, hybridisation, Hot Start PCR® reactions and DNA denaturation. Because of an impermeable moulded aluminium alloy block construction, each Cube dry bath may also be adapted as a mini water bath incubator if desired.

Both dry baths incorporate a digital microprocessor controller for accurate temperature control in 0.1°C increments from ambient +5°C to 150°C. Rapid and easy programming is facilitated by the easy to use arrow keys on the sloped front panel, while both the temperature and running time are shown simultaneously on the conspicuous dual digital LCD display. Two software options are available for data logging to a PC and computer control (please enquire).

ORDERING INFORMATION

SINGLE BLOCK	
TCDB-01	The Cube Dry Bath Incubator (one block unit); without block 220V
DUAL BLOCK	
TCDB-02	The Cube Dry Bath Incubator (dual block unit); without block 220V
Accessories	
MD-MP01-S	Block for Microplate; Titerplate Plain Block for Single Block Unit Only
MD-MP02-S	Block for 96 wells deep Microplate or PCR plate for Single Block Unit Only
MD-MP01-D	Block for Microplate; Titerplate Plain Block for Dual Block Unit Only
MD-MP02-D	Block for 96 wells deep Microplate or PCR plate for Dual Block Unit Only
MD-B0.5/1.5	Double side block: one side for 1.5 or 2.0 ml tube, 20 wells; Opposite side for 0.5 ml tube, 30 wells
MD-B0.5+1.5	Combination block : for 0.5 ml tube, 12 wells and for 1.5 or 2.0 ml tube, 12 wells (on the same side)
MD-B0.2	Block for 0.2 ml tube, 64 wells or for 0.2ml PCR strip tubes for 8 wells x 8
MD-B0.5	Block for 0.5 ml tube, 20 wells
MD-B1.5	Block for 1.5 ml tube, 20 wells
MD-B13	Block well size 13 mm, 20 wells
MD-B17	Block for 15 ml centrifuge tube, 12 wells
MD-B20	Block well size 20 mm, 12 wells
MD-B25	Block well size 25 mm, 6 wells
MD-B29	Block for 50 ml centrifuge tube, 4 wells
MD-RS232	RS232 Cable
MD-DLSW	Single License Software Package for Datalogging
MD-PCSW	Single License Software Package for Datalogging and Computer-controlled Temperature Setting



TYPICAL APPLICATIONS

Precise heating of samples up to 150°C in a compact bath .

ORDERING INFORMATION

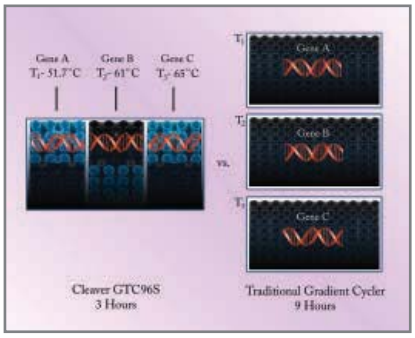
GTC96S	GTC96S thermal cycler with 96-well block, 240VAC
GTC96$	GTC96S thermal cycler with 96-well block, 120VAC
Package Deals	
CSL-PCRKIT	PCR package includes GTC96S thermal cycler, MSMIDI96 96-well electrophoresis unit and nanoPAC-500 power supply
CSL-CLEANCAB	Complete PCR package with low cost clean room. Includes CSL-GTC96S, CSL-UVCAB, CV2, CV20, CV200, CV1000 and CV8-200 pipettes, MSMIDI96 and nanoPAC-500.
Use CSL-PCRKIT$ and CSL-CLEANCAB$ to order 120VAC versions	

TECHNICAL SPECIFICATIONS

Sample Capacity	1x 96-well plate; 12x 8x0.2ml strip tubes; 96 x 0.2ml tubes
Programmable Temperature Range	4-99.9°C
Temperature Control	Calculated or block
Temperature Accuracy / Uniformity	±0.5°C / ±0.5°C
Heating / Cooling Method	Peltier
Maximum Heating / Cooling Rate	5°C / 3.5°C per second
Temperature Range of 6-Segment Blocks	30-99°C; temperature of each segment may be set independently
Maximum Temperature Difference Between 6-Segment Blocks	24°C
6-Segment Temperature Block Format	6 segments, each 4x4-well
Programmable Lid Temperature	60-65°C, 90-94°C
Memory	200 complete programmes
Temperature Increments / Decrements	Yes
Time Increments / Decrements	Yes

Blue and black squares on the thermal cycler block aid identification of each of the six 4x4-well temperature zones.

Intuitive user-friendly interface facilitates manual selection of different temperatures in each of the 4x4-well zones, for full user control during PCR optimisation.



Flexible temperature technology provides ability to run multiple samples with different annealing temperatures in one run. This is ideal for genotyping.

FEATURES:

- Compatible with 96-well plates, 0.2ml tubes and tube strips
- Protocol optimization selectable from 1 to 24°C across the entire temperature control range from 4-99°C
- Improved protocol optimisation aided by Flexible Temperature technology allows simultaneous testing of 6 different annealing temperatures for optimum yield of the desired PCR product less nonspecific artefacts
- Precision temperature control increases both speed and efficiency
- Intuitive programming through self-explanatory user-friendly interface
- 3-year warranty

The NEW GTC96S

Thermal Cycler at a Personalised price!

Faster and with enhanced features, the new GTC96S advanced thermal cycler delivers exceptional performance at an affordable price. An improved protocol optimisation process utilises Flexible Temperature technology to segregate the 96-well plate into six discrete (4x4-well) temperature zones, made easily distinguishable by blue and black squares. Temperature selection is no longer automated and is entirely in the hands of the operator over a 24°C advanced range, anywhere between 4 and 96°C. This enables the operator to optimise PCR by testing 6 different temperatures simultaneously in just one thermal cycler run. This is ideal for Genotyping work.

With heating and cooling rates of 5°C/s and 3.5°C/s respectively, the precision temperature control of the GTC96S minimises temperature overshooting and undershooting between individual stages within each PCR cycle, resulting in faster run times and greater efficiency.

Programming is both quick and simple through a large user-friendly interface, while pre-programmed methods for Optimisation, Touchdown and Time Increments make set-up obvious even to first time users. A heated lid, which is fully adjustable to apply optimal pressure to 0.2ml tubes and microplates, may be programmed to hold different temperatures between 60 and 65°C and 100 to 115°C. Additional advantages offered by the new heated lid are its slide-in slide-out design for safe access to samples, and its prevention of condensation formation during overnight cooling.

TYPICAL APPLICATIONS

Gene cloning and analysis. Gene expression analysis. Mutational screening

Heaters and Stirrers

Cleaver Scientific hotplates, stirrers and hotplate-stirrers feature an exceptionally durable, chemically resistant, white ceramic work surface. Their space-efficient design (20 x 23 cm footprint), makes them ideal for use on crowded bench tops and inside cabinets.

Advanced microprocessor controls with convenient turn knobs allow quick, precise adjustment and maintenance of speed and temperature. A safety indicator LED on each front panel indicates when the heating and stirring functions have been activated. With a square 19 x 19 cm work surface, all three models are compatible with a wide variety of popular sizes of borosilicate glass beakers, flasks, bottles and other vessels.

The hotplate/magnetic stirrer model (CSL Hotplate) comes complete with a support rod for mounting thermometers and temperature probes.

FEATURES:

- Large work surface, 19 x 19 cm
- Space saving design, 20 x 23 cm Footprint
- Chemical resistant white ceramic top plate
- Safety LEDs indicate when heating or stirring
- Quick and easy adjustment of heating/mixing

ORDERING INFORMATION

CSL-HOTPLATE	CSL Hotplate, 19 x 19 cm
CSL-HOTSTIR	CSL Hotplate Magnetic Stirrer 19 x 19 cm
CSL-STIR	CSL Magnetic Stirrer, 19 x 19 cm
Use $ sign to order 110v version	

TECHNICAL SPECIFICATIONS

Speed Range:	60-1500 rpm (stirring units only)
Temp. Range (heating units only)	Ambient +5° to 380°C
Platform	19 x 19cm
Control	Quick Adjustment Knobs
Unit Dimensions (w x d x h)	20 x 23 x 11.5 cm
Electrical Data	120V, 60 HZ / 230V, 50/60 HZ

TYPICAL APPLICATIONS

Heating and stirring of liquids in beakers and conical flask.

Peristaltic Pumps

Available in single, dual and tetrad formats these versatile peristaltic pumps are an ideal accessory for gradient gel formation with the VS20-DGGE. The 'easy load' head of the MU-D01 single peristaltic pump accommodates multiple tubes of different diameters offering the user enhanced flexibility in flow rate selection, while the MU-D02 single pump has the added benefit of a more powerful pump motor. The MFU-01 and MFU-02 dual and tetrad pumps are equipped with microprocessor technology for more accurate rpm control, and comprise 2 and 4 peristaltic pumps respectively that may be controlled individually. All 4 pumps are reversible and have a small footprint, occupying minimum space within the laboratory. Other applications include: filtration, sampling, chemical spraying, dispensing, transferring, feeding and filling.

ORDERING INFORMATION			
MU-D01	Single Peristaltic Pump	MU-S14	Silicon tube I.D. 1/16", 25 ft
MU-D02	Single Peristaltic Pump	MU-S16	Silicon tube I.D. 1/8", 25 ft
MFU-01	Dual Peristaltic Pump	MU-S18	Silicon tube I.D. 3/8", 25 ft
MFU-02	Tetrad Peristaltic Pump	MU-S25	Silicon tube I.D. 3/16", 25 ft
MU-S13	Silicon tube I.D. 1/32", 25 ft	MU-S17	Silicon tube I.D. 1/4", 25 ft

TECHNICAL SPECIFICATIONS				
	MU-D01	MU-D02	MFU-01	MFU-02
No. of Heads	1	1	2	4
Max. RPM:	300	600	100	100
Flow Rate, : ml/min	1.2-1140	0.3-2280	0.6-380	0.6-380
Dimensions: (h x l x w)	20x34x13	20x34x13	26.5x34x18	26.5x34x18
Weight, kg:	5.7	5.7	5.7	5.7

Stirring Water Baths

A powerful magnetic stirring mechanism combined with high wattage heating allows each Cleaver Scientific stirring water bath to maintain temperatures to a maximum 99°C. Available in 10 and 20 litre bath capacities, these water baths comprise as many as 3 stirrers for a maximum stirring speed of 1800rpm. Each bath includes a conspicuous front-panel LCD, reproducible microprocessor control of temperature within 0.1°C increments, a corrosion resistant stainless steel interior and automatic alarm and safety shutdown mechanism. Optional data logging and PC control software is also available.

ORDERING INFORMATION	
SWB-10L-1	Stirring Water Bath 10L with 1 built-in stirrer
SWB-10L-2	Stirring Water Bath 10L with 2 built-in stirrers
SWB-20L-1	Stirring Water Bath 20L with 1 built-in stirrer
SWB-20L-3	Stirring Water Bath 20L with 3 built-in stirrers
All of the above include lid	
Accessories	
SWB-LID10	Transparent lid for 10L stirring water bath
SWB-LID20	Transparent lid for 20L stirring water bath

TYPICAL APPLICATIONS

Precise temperature control and stirring of liquids in beakers and flasks. Precise pumping or dispensing of small liquid volumes.

TECHNICAL SPECIFICATIONS
for all models – CSL-NHYBRID -BASIC, VX, ORB, REC & ROC

Display	3.5" 64K colour-TFT display
Controller	32-bit Microprocessor-control
Control interface	Touch screen & Graphical interface
Timer / Resolution	Continuous; Programmable 1-9999' with alarm / 1'
Temperature Control Range / Resolution	Ambient +5°C to 85°C / 0.1°C
Temperature Uniformity / Accuracy at 37°C	±0.2°C
Temperature Calibration	Yes
Dimensions (w x d x h)	Inner Chamber 34x22.5x26cm
	Exterior 44.2x46.2x45.2cm
Platform Dimensions	27x20cm (20x30cm for CSL-NHYBRIDVX)
Data-logging capacity	RS-232
Operating Voltage	110/220V~ 50/60Hz (Dual, selectable)
Construction / Weight	Painted metal chassis; ABS front door panel / 29kg
Safety features	Safety-door & thermal safety switches; auto shut-off upon fan failure; auto-recovery after power failure

ORDERING INFORMATION

CSL-NHYBRIDBASIC incubator	
CSL-NHYBRIDBASIC	Incubator with 2x stainless steel mesh-shelves – 110/240 VAC
Accessories	
CSL-HYB-SSMP	1x Stainless steel mesh plate, 32.5 x 34.5cm, with 4x holders
CSL-NHYBRIDVX & CSL-NHYBRIDROC incubators	
CSL-NHYBRIDVX	Vortex Incubator with 20x30cm platform for 4 microplates (no rotisserie) – 110/240 VAC
CSL-NHYBRIDROC	Rocking-shaker Incubator with 27x20cm platform (no rotisserie) – 110/240 VAC
Hybridisation Rotisserie Options	
CSL-HYB-8RT	1x Rotisserie for 8x40mm glass tubes (CSL-HYBBT40X150, CSL-HYBBT40X200 & CSL-HYBBT40X300; tubes not included)
CSL-HYB-16RT	1x Rotisserie for 16x50ml disposable conical tubes (tubes not included)
CSL-HYB-24RT	1x Rotisserie for 24x15ml disposable conical tubes (tubes not included)
e.g. To purchase a vortex incubator with one 8-tube rotisserie and one 16-tube rotisserie, use codes (quantities): CSL-NHYBRIDVX (1 off), CSL-HYB-8RT (1 off) and CSL-HYB-16RT (1 off)	
Accessories	
CSL-HYBBT40X150	1x Glass tube 40x150mm (d x l) for CSL-HYB-8RT
CSL-HYBBT40X200	1x Glass tube 40x200mm (d x l) for CSL-HYB-8RT
CSL-HYBBT40X300	1x Glass tube 40x300mm (d x l) for CSL-HYB-8RT

TECHNICAL SPECIFICATIONS
for Shaking-platform models only

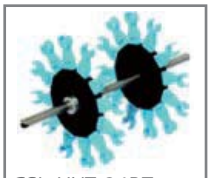
Incubator Model	Shaker motion	Speed
CSL-NHYBRIDVX	Vortex	50-1500rpm
CSL-NHYBRIDORB	Orbital (clockwise &anticlockwise)	0-200rpm
CSL-NHYBRIDREC	Reciprocal	5-100rpm
CSL-NHYBRIDROC	Rocking	5-100rpm

ORDERING INFORMATION

CSL-NHYBRIDORB & CSL-NHYBRIDREC incubators	
CSL-NHYBRIDORB	Orbital-shaking Incubator with 27x20cm platform (no rotisserie) – 120/240 VAC
CSL-NHYBRIDREC	Reciprocal-shaking Incubator with 27x20cm platform (no rotisserie) – 110/240 VAC
Hybridisation Rotisserie Options	
CSL-HYB-8RT	1x Rotisserie for 8x40mm glass tubes (CSL-HYBBT40X150, CSL-HYBBT40X200 & CSL-HYBBT40X300; tubes not included)
CSL-HYB-16RT	1x Rotisserie for 16x50ml disposable conical tubes (tubes not included)
CSL-HYB-24RT	1x Rotisserie for 24x15ml disposable conical tubes (tubes not included)
Accessories	
CSL-NHYB-P2720	Additional 27x20cm platform (with 4x 10cm pillars) to double capacity of CSL-NHYBRIDORB & CSL-NHYBRIDREC incubators
CSL-NHYBFH-250	1x250ml flask holder for CSL-NHYBRIDORB & CSL-NHYBRIDREC platforms
CSL-NHYBFH-500	1x500ml flask holder for CSL-NHYBRIDORB & CSL-NHYBRIDREC platforms
CSL-NHYBFH-250-SET	5x250ml flask holders for CSL-NHYBRIDORB & CSL-NHYBRIDREC platforms
CSL-NHYBFH-500-SET	4x500ml flask holders for CSL-NHYBRIDORB & CSL-NHYBRIDREC platforms
CSL-HYBBT40X150	1x Glass tube 40x150mm (d x l) for CSL-HYB-8RT
CSL-HYBBT40X200	1x Glass tube 40x200mm (d x l) for CSL-HYB-8RT
CSL-HYBBT40X300	1x Glass tube 40x300mm (d x l) for CSL-HYB-8RT
e.g. To purchase an orbital incubator with one 8-tube rotisserie, an extra 27x20cm platform and four 500ml flask holders, use codes (quantities): CSL-NHYBRIDORB (1 off), CSL-HYB-8RT (1 off), CSL-NHYB-P2720 (1 off) and CSL-NYHYBFH-500-SET (1 off)	


CSL-HYT-8RT


CSL-HYT-16RT


CSL-HYT-24RT


CSL-NHYB-P2720


Various Glass Tubes


CSL-NHYBFH-250-SET

FEATURES:

- Five compact benchtop incubator models for multiple temperature-sensitive applications, ranging from incubation of overnight cultures to nucleic acid hybridisation
- Large 3.6" colour touchscreen control panel with easy-to-programme 3-line display
- Temperature uniformity to within ±0.2°C
- Wipe-clean painted metal chassis and stainless steel interior

hybridPRO Hybridisation Shaking Incubators

With a compact, space-saving stackable design and temperature uniformity to within ±0.2°C, Cleaver Scientific's hybridPRO can be used for numerous temperature-dependent applications. In addition to the standard entry level model, the hybridPRO range includes four incubator models, each supplied in one of four shaking-platform formats – vortex, orbital, reciprocal or rocking – that may be customised for nucleic acid hybridisation techniques with three rotisserie options. A large 3.6" colour-touchscreen control panel simplifies manipulation of speed, temperature and time within an easy to programme 3-line display, while a new 32-bit microprocessor provides the temperature uniformity and stability necessary to support the most temperature-sensitive applications. A modern stylish front door panel encloses the stainless steel interior of a robust metal chassis designed to withstand the stresses of frequent daily usage.

The hybridPRO Incubator Range includes…

CSL-NHYBRIDBASIC – Standard

- Basic Incubator model with 2 stainless steel mesh-shelves to maintain airflow
- Typical applications: drying agar plates & microbial plating techniques

CSL-NHYBRIDVX - Vortex

- Vortex Incubator model with vibrating platform for 4x microplates
- Three rotisserie options for hybridisation techniques using 40mm, 15ml and 50ml tubes
- Typical applications: drying agar plates & microbial plating techniques

CSL-NHYBRIDORB – Orbital, CSL-NHYBRIDREC – Reciprocal, CSL-NHYBRIDROC - Rocking

- Each model equipped with a 27x20cm shaking platform that exhibits orbital, reciprocal or rocking motion
- Optional flask holders fit to the shaking platform to accommodate up to five 250ml or four 500ml flat-bottomed flasks
- Shaking platform may be replaced by one of three optional hybridisation rotisseries
- Additional platform with four 10cm mounts available to double capacity in orbital and reciprocal models
- Typical applications:
  - CSL-NHYBRIDORB - growing overnight cultures of bacteria, yeast & insect cells;
  - CSL-NHYBRIDREC - staining, blocking & antibody incubations;
  - CSL-NHYBRIDROC - nucleic acid hybridisations: northern & Southern blotting techniques.

TYPICAL APPLICATIONS

Temperature controlled incubation with a choice of orbital, reciprocal, rocking or vortex sample mixing and shaking.

UV Sterilisation Cabinets

These UV Sterilisation Cabinets provide a convenient area for setting up PCR reactions in a nucleic acid free environment thus limiting PCR reaction contamination.

Acting effectively as a low cost alternative to a clean room, the powerful UV lights on the cabinets denature nucleic acids in 5 to 30 minutes making them unsuitable for amplification. The cabinet incorporates safety features to prevent user exposure to UV light. The UV lights themselves are timer controlled and there are safety switches on the cabinets doors which turn off the UV lights when opened. The cabinets also act as an efficient shield of beta radioactive emissions and can therefore be safely used with isotopes such as 32P.

White light provides excellent visibility when working within the cabinets. For use with trays of size 68 x 54cm, CSR-TW4/TY4/TL4.

With the benefits comparable to those offered by the CSL-UVCAB, the new Mini UV Cabinet is the perfect solution for laboratories constrained by space and budget. A reduced height and footprint allows the Mini UV Cabinet to fit snugly and conveniently into those small areas within the laboratory that would otherwise remain unused.

Optional HEPA Filter extraction system available suitable for removal of VOC's/Solvent fumes and particulate – please enquire.

FEATURES:

- Inactivates nucleic acids in 5 to 30 minutes
- Doors fitted with safety switches
- Complete with four powerful, timer controlled UV bulbs
- Efficient decontamination of the complete work surface
- Suitable for work with 32P

ORDERING INFORMATION

CSL-UVCAB	UV sterilisation cabinet with timer, four UV lights and white light, no Tray
CSL-UVCABTY4	UV Sterilisation cabinet with timer, four UV lights and white light and includes tray.
CSL-UVCABMINI	Mini UV sterilisation cabinet with timer, UV light and white light, no Tray
CSL-UVCABMTY4	Mini UV sterilisation cabinet with timer, UV light and white light, includes Tray
CSL-UVTUBE	Replacement UV tube for cabinets
CSL-WHITETUBE	Replacement White Light tube for cabinets
CSR-TW4	General Purpose Tray White - 68 x 54cm
CSR-TY4	Radiation Hazard Tray Yellow - 68 x 54cm
CSR-TL4	Liners - 68 x 54cm, Pk/25 (for cabinet)

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

TECHNICAL SPECIFICATIONS

UV Lights	Maxi	4 x 15 Watt	Mini	4 x 15 Watt
White Light	Maxi	15 Watt	Mini	15 Watt
Dimensions (h x w x d)	Maxi Mini	770 x 560 x 420mm 510 x 560 x 350mm		
Weight	Maxi	19 Kg	Mini	12 Kg

Consort pH Meter

Ideally suited to the measurement of electrophoresis buffer pH, Consort pH meters may also be used to measure conductivity, total dissolved salt, salinity and temperature. Each meter may be supplied on its own, with or without the electrode, calibration buffers and standards. All meters comprise a BNC connection for connection to most electrodes commonly available on the market.

ORDERING INFORMATION	
C1010	Meter only (without electrodes) + mains adaptor
C1010P	Meter kit for pH: meter + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl)
C1010K	Meter kit for conductivity: meter + conductivity/ ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl)
C1010T	Meter kit complete: meter + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + dissolved oxygen electrode SZ10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl)
SH300	Flexible electrode holder (optional)
C5010	Meter only (without electrodes) + 4 NiMH batteries + mains adaptor
C5010X	Meter kit without electrodes: C5010 + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
C5010P	Meter kit for pH: C5010 + pH/ATC electrode SP10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + carrying case
C5010K	Meter kit for conductivity: C5010 + conductivity/ ATC electrode SK10T + 50 ml conductivity standard (0.01 M KCl) + carrying case
C5010Z	Meter kit for oxygen: C5010 + dissolved oxygen electrode SZ10T + carrying case
C5010T	Meter kit complete: C5010 + pH/ATC electrode SP10T + conductivity/ATC electrode SK10T + dissolved oxygen electrode SZ10T + 2x50 ml buffers (pH 4 and 7) + 50 ml electrolyte (3M KCl) + 50 ml conductivity standard (0.01 M KCl) + carrying case
A4049	Car adaptor, 12 V (optional)

Coolcube

The CoolCube is designed to store samples safely on the lab bench without sample degradation caused by temperature increase or fluctuation. The CoolCube maintains temperature at approximately 0°C for up to four hours. Simply place the CoolCube in a freezer overnight and it will be ready to use. One side of the CoolCube can be used as a convenient PCR workstation for 12 standard 1.5/2.0ml microtubes with one 96 well PCR plate, or with 12x 0.2ml strips or 96x0.2ml tubes. The other side may be used to hold up to 36 standard 1.5/2.0ml microtubes.

TECHNICAL SPECIFICATIONS	
Temperature	0°C for up to 4 hours
Capacity	36 x 1.5ml 96 x 0.2ml 12 x 0.2ml PCR Strips 1 x 96 well PCR Plate
Dimensions:	142 x 142 x 63.5mm
Weight:	900g
Material:	Durastar Polymer

Ice Buckets

Cleaver Scientific Ice Buckets are constructed of durable plastic and offer both robustness and long life. They will also withstand reasonable use with dry ice. Lids are available for the the large bucket.

ORDERING INFORMATION	
CSLIB	Large Ice Bucket - White
CSLIBLID	Lid For Large Ice Bucket - White
CSMIB	Mini Ice Bucket - White
CSL-COOLCUBE	Coolcube Storage Rack

TYPICAL APPLICATIONS

Measuring pH, conductivity, salinity and temperature of buffers. Cool storage of small and large samples

CSL-Chiller

The CSL-CHILLER is available ready assembled with the thermostat mounted on the refrigerator and supplied with insulated tubing and clips to form a system ready to use. Supported by an industry leading 3 year warranty emphasising our confidence in the reliability of our product.

The system comprises the following:

- 5 litre tank with drain tap
- relay control for refrigeration on/off
- cooling power 140W @ 0°C
- temperature range -20 to 100°C

The immersion thermostat incorporates Intelligent Control Optimisation for adaptive intelligent PID temperature control and includes a powerful integral pump, making the system suitable both for immersing samples and circulating temperature controlled fluid to external devices. It includes a convenient timer function for reaction timing and a variable high temperature alarm setting. The temperature range and heater power are automatically limited according to the liquid type selected.

- Simple-to-use rotor plus two keys provide access to the interactive interface for fast, accurate set-up
- Clear digital display for instant reassurance - easy to read from a distance
- Visual and audible alarm - alert you when your attention is required
- Operating setpoint plus 3 adjustable preset temperatures for convenience
- User calibration facility for optimum accuracy at the required operating temperature
- Powerful integral pump - maximum flow rate 17L/min
- Cooling/heating range: -20 to 100°C
- Stability ± 0.1°C

Note: The refrigeration unit can be switched off indepedendently of the thermostat to allow heating only applications. All the refrigeration base units can be used up to a maximum temperature of 100°C.

ORDERING INFORMATION

CSL-CHILLER	Chiller system, -20 to 100°C, including insulated tubing & clips, 220V supply
CSL-CHILLER$	Chiller system, -20 to 100°C, including insulated tubing & clips, 115V supply

ORDERING INFORMATION

Gel Dryer	
CSL-GDVH	Midi Gel Dryer 220V, 21 x 31 cm
CSL-S2131	Replacement Silicon Rubber, Midi
CSL-M2131	Replacement Supporting Mask, Midi
CSL-GDVH35	Maxi Gel Dryer 220V, 35 x 45 cm
CSL-S3545	Replacement Silicon Rubber, Maxi
CSL-M3545	Replacement Supporting Mask, Maxi
CSL-GDVHCS	Cellophane sheets, precut, 30x30cm, pk/100
CSL-GDVH35CS	Cellophane sheets, precut, 35x45cm, pk/100
Pump	
CSL-GDPUMP	Geldryer Pump - 732502 MZ 2C NT +2AK

TECHNICAL SPECIFICATIONS

Gel Dryer	
Temperature Increment	0.1°C
Temperature Calibration	Yes
Temp Uniformity	± 0.2°C
Timer	1-999 mins
Drying area	Midi 21 x 31cm Maxi 35 x 45cm
Operating Temp. Range	Ambient to 90°C
Dimension (w x h x l)	Midi 30 x 36 x 8cm Maxi 44 x 50 x 8cm
Pump MZ 2C + 2 AK	
Unit Dimensions (w x l x h)	24.1 x 34.5 x 32.6cm
Vacuum Pump	Chemistry Diaphragm Pump
Number of Stages	2
Pumping Speed 50/60 Hz	1.9m3/h / 2.1 m3/h // 1.2cfm
Ultimate Vacuum (total)	9 mbar // 6.8 Torr
Ultimate Vacuum with Gas Ballast	15 mbar // 11 Torr
Inlet Connection (IN)	Hose nozzle NW 10mm
Outlet Connection (EX)	Hose nozzle NW 10mm
Weight	11.9kg
Pump Flow Rate	35 l/min

Gel Dryers

With a drying area of 21 x 31 cm, the Midi gel dryer can dry six 10 x 10cm gels or a single larger gel. The Maxi Gel Dryer with a 35 x 45cm drying area can dry twelve 10 x 10cm mini gels simultaneously. The unit's microprocessor controls temperature and time, each parameter being displayed on its own LED display. The gels are heated from the base plate while the vacuum removes the moisture from below to dry the gel homogeneously. These dryers feature optimal sealing using a silicone rubber cover and supporting mask. When applying the vacuum, a groove that frames the drying surface provides an optimal tight seal during drying.

Vacuum Pumps

The Vacuubrand® MZ 2C + 2 AK is a quiet, low maintenance oil free vacuum pump, which generates the lowest pressure measurable reproducibly at room temperature for almost 100% efficient solvent recovery. Two round bottomed flasks collect and condense noxious gases released during gel drying, whereas inlet and outlet separators act in tandem with the diaphragm pump to facilitate controlled collection of vapours without risk of condensate entering and contaminating the pump. The pump also benefits from a compact design and construction from specially-selected chemically resistant materials, long-life easy-to-change diaphragms and valves, and gas ballast function.

TYPICAL APPLICATIONS

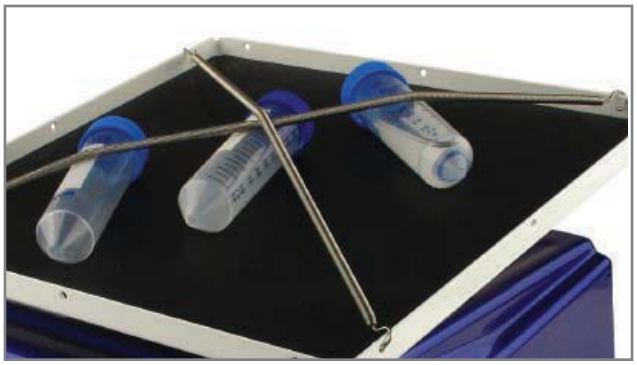
Drying of sequencing, IEF or smaller format gels for analysis, storage and documentation

ORDERING INFORMATION

CS-NOR	Orbital shaker with 30x30cm platform and non-slip rubber mat – 110 / 230 VAC
CS-NRC	Reciprocal shaker with 30x30cm platform and non-slip rubber mat – 110 / 230 VAC
CS-NRK	Rocking shaker with 30x30cm platform and non-slip rubber mat – 110 / 230 VAC
CS-NOR, CS-NRC & CS-NRK Options	
CS-P3030	1x 30x30cm shaking platform with 8 adjustable pillars and non-slip rubber mat
CS-SP	2x Strip springs to secure laboratory glassware, tissue culture flasks & multi-well plates
MS-DIMPLED-30	1x 30x30cm dimpled mat
2-D/3-D Gyratory Shaker	
CW-23	2-D/3-D gyratory shaker with 33x33cm platform and non-slip rubber mat – 110 / 230 VAC
CW-WB	Hybridisation water bath (ambient to 95°C) with RS232 port for data-logging
CW-SP	2x Strip springs to secure laboratory glassware, tissue culture flasks & multi-well plates
CW-P3333	1x 33x33cm shaking platform with 8 adjustable pillars and non-slip rubber mat
CW-DIMPLED	1x 33x33cm dimpled mat
MW-PF-SS	Stainless Steel Platform Option per platform for 2 & 3D Waver Shaker

TECHNICAL SPECIFICATIONS

Shaker Mode	CS-NOR	CS-NRC	CS-NRK	CW-23
Motion	Orbital: single-direction or alternating, bi-directional clockwise & anticlockwise shaking	Linear, reciprocating action	Rocking	Gyratory (2-D or 3-D)
Orbits per Shaking Cycle	0.1-10	-	-	-
Orbit / Amplitude	20mm	19mm	-	-
Max. Tilt Angle	-	-	12°	8°
Speed / Resolution	0-200rpm / 1rpm	5-100rpm / 1rpm		
Timer / Resolution	1-9999' with alarm; continuous / 1'			
Controller	Digital microprocessor			
Display	4-digit red LED			
Operating Temperature	4-40°C			
Optional Stacking Platform	Yes			
Platform Dimensions (w x l)	30 x 30 cm			33 x 33 cm
Max. Load for Platform	10kg	15kg	15kg	15kg
Unit Dimensions (w x l x h)	26 x 31 x 13 cm			33 x 45 x 28 cm
Operating Power	110 / 220V			
Weight	7 kg	7 kg	8 kg	10 kg
Operating Voltage	110/240V selectable			



FEATURES:

- Orbital, reciprocal & rocking models supplied with a 30x30cm shaking-platform & non-slip rubber mat
- 2-D/3-D shaker supplied with 33x33cm shaking-platform & non-slip rubber mat, to accommodate optional hybridisation water bath
- Additional platforms available for all models to double capacity without increasing footprint area
- Dimpled mat option (all models) to support 1.5ml, 15ml and 50ml tubes

Rockers and Shakers

Cleaver Scientific rockers and shakers are available as four different models in orbital, reciprocal, rocking and 2-D/3-D gyratory shaking-formats. Features and benefits include: outstanding uniform motion and low noise; microprocessor-based keypads with digital control and display of pre-set time, continuous time, operation mode and speed; and high quality stain-resistant platforms with non-slip rubber mats. All models are lightweight and portable for easy transportation from the bench to incubator and cold room alike, while additional platforms may be added for increased capacity.

CS-NOR - Orbital

The CS-NOR includes a 30x30cm orbital shaking-platform that may be programmed to perform up to ten 20mm orbits within each clockwise or anticlockwise shaking cycle. This generates the swirling motion optimal for aeration of samples, 0.5 to 5ml in volume, within multi-well plates, standard dishes and Petri dishes.

CS-NRC – Reciprocal

The CS-NRC is a 30x30cm reciprocal shaking-platform incubator that has a linear reciprocating motion which is perfect for incubation of western blots and initial mixing of reagents within 96-well microplates during enzyme assays and PCR.

CS-NRK - Rocking

The CS-NRK includes a 30x30cm rocking platform to provide the perfect motion and tilt angle to prevent gels and membranes from drying out during staining, blocking and antibody incubations.

CW-23 – 2-D/3-D Gyratory

The CW-23 includes a 33x33cm platform whose 3-D gyratory action is ideal for gentle, foam-free washing of delicate cell lines within tissue culture. An optional water bath (CW-WB) may be mounted on the gyratory platform for nucleic acid hybridisation applications.

TYPICAL APPLICATIONS

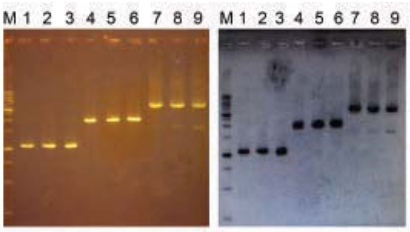
Mixing enzyme and PCR reactions. Staining, blocking and antibody incubations. Tissue culture.

CW-23

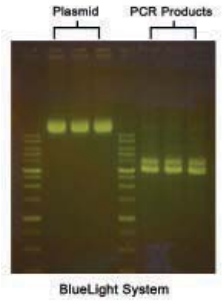
REAGENTS AND CHEMICALS – OVERVIEW

Please see below a synopsis of the reagents and chemicals now available through Cleaver Scientific.

NEW PRODUCTS



'Just-Add-DNA' is a ready-to-use PCR Master-Mix. Just add water, DNA primers and template to use!



runSAFE Stains - four non-cytotoxic, non-mutagenic stains produce instant visualisation of DNA bands upon irradiation with blue light or UV in agarose or polyacrylamide gels. See safe series horizontal section page 31.

CleverGEL Instant Agarose Tablets – dissolve rapidly with no tedious weighing-out to be performed beforehand.

HORIZONTAL NUCLEIC ACID ELECTROPHORESIS

CleverGEL environmentally friendly agarose suitable for routine nucleic acid electrophoresis. Low melting point and high resolution agarose are also available.

Pre-made TBE and TAE in powdered and liquid form. No weighing-out of individual chemicals and pH adjustments once dissolved.

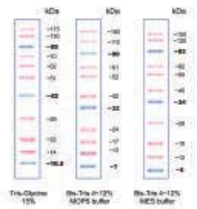
Ready-to-use DNA markers – stable for up to 2 years and available in 6 molecular weight size ranges: 100-3000bp, 100-1500bp, 50-1500bp, 100bp-10Kb and 250bp-25Kb.

DNA Loading Dye – mix with DNA samples to monitor their progress in electrophoresis runs.

RNase-Free Water for use in PCR and northern blotting techniques.

GelX Disposable Tips – for completely safe and contamination-free removal of DNA bands from agarose gels during cloning.

VERTICAL PROTEIN ELECTROPHORESIS



'Add colour to your PAGE' with PINK Plus and BLUE Wide Range Protein Markers. Supplied pre-stained in gel loading buffer for direct loading and stable for up to 2 years at -20°C. 10-175kDa (PINK Plus) and 10-245kDa (BLUE Wide Range) sizes.

PAGE Buffers available in powder sachets and as pre-made stock solutions for a variety of native and denaturing protein gel electrophoresis techniques.

BLOTTING

Ready-to-use powdered buffers and stock solutions for classic Towbin wet electroblotting techniques and high-intensity semi-dry transfers.

Blot-absorbent filter paper in convenient 10x10cm and 20x20cm sizes for efficient transfers.

Membrane rolls in 0.24x3m and 0.3x3m (WxL) sizes in PVDF, Nitrocellulose and positively charged supported nylon for protein and nucleic acid blotting applications.

Reusable Ponceau S staining solution for membrane staining and protein detection following transfer.

REAGENTS AND CHEMICALS

KEY FEATURES:

- Supplied in robust, convenient packaging for shipping and long-term storage
- Time-saving: agarose and buffers in tablet and powder-sachet form eliminating tedious weighing procedures; ready-made stock solutions of electrophoresis and blotting buffers also available
- Long 'shelf-life' DNA and protein markers
- Membranes and blot-absorbent filter paper provided to match the most popular gel sizes
- Ready-to-use pre-made PCR MasterMixes and nucleic acid stains

At Cleaver Scientific our remit is simple: to provide everything you need for electrophoresis.
Consequently, Cleaver Scientific now offers a select choice of reagents and chemicals for electrophoresis and molecular biology techniques. Each Cleaver Scientific reagent is manufactured to a high standard free of impurities and tested using the most stringent analytical methods.

RELATED PRODUCTS

HORIZONTAL GEL SYSTEMS
PAGES 4-45

VERTICAL GEL SYSTEMS
PAGE 46-71

BLOTTERS
PAGES 72-81

PCR CABINETS
PAGE 128

Cleaver Scientific now offers a choice selection of chemicals and reagents for electrophoresis and molecular biology techniques. Each Cleaver Scientific reagent is manufactured to a high a standard free of impurities and tested using the most stringent analytical methods.

THREE TYPES OF AGAROSE AVAILABLE:

Low EEO general purpose agarose resolves 100bp to 25Kb in size

Low Melting Point – for nucleic acid recovery – typically resolves fragments 200bp to 25Kb

High Resolution – PCR grade – high resolution, low background for analysis of fragments, 20-800bp

Horizontal Nucleic Acid Electrophoresis

CleverGEL – High Grade Agarose for Nucleic Acid Electrophoresis Clever for DNA and Clever for the Environment

CleverGEL is a new environmentally friendly agarose suitable for routine analysis of nucleic acids using standard electrophoretic procedures. CleverGEL is manufactured by a process which excludes organic solvents harmful to marine life, making it far kinder to the environment than conventional agarose.

A low EEO (electroendoosmotic) flow minimises diffusion so that even the smallest of nucleic acid fragments remains sharp and tightly resolved, while a high gel strength aids handling and maintains compatibility with blotting techniques.

CleverGEL is now available in a low melting point form for nucleic acid recovery and enzymatic applications, as well as in a high resolution PCR-grade form to resolve very small nucleic acid fragments 20-800bp in size.

TECHNICAL SPECIFICATIONS

	Low EEO	Low Melting Point	High Resolution
CAS	9012-36-6	39346-81-1	39346-81-1
EEO	<0.13	≤0.1	≤0.1
Gelling Point*	36°C±1.5°C	26-30°C	≤33°C
Melting Point*	88°C±1.5°C	≤65°C	≤70°C
Solubility	Clear, colourless @ 1% [w/v] solution	Clear, colourless @ 2% [w/v] solution	
Moisture	≤10%	≤10%	≤10%
Gel Strength	>1200 g/cm2 (1% [w/v] Gel)	>200 g/cm2 (1% [w/v] Gel)	≥750 g/cm2 (1.5% [w/v] Gel)
Nuclease & Protease Free	Yes	Yes	Yes

*For a 1.5% [w/v] gel

ORDERING INFORMATION

CSL-AG5	Agarose 5g, Low EEO	Low Melting Point	
CSL-AG100	Agarose 100g, Low EEO	CSL-LMA5	Agarose 5g, LMP
CSL-AG500	Agarose 500g, Low EEO	CSL-LMA50	Agarose 50g, LMP
CSL-AG1000	Agarose 1000g, Low EEO (2x500g bottles)	CSL-LMA100	Agarose 100g, LMP
CSL-AG2000	Agarose 2000g, Low EEO (4x500g)	High Resolution PCR-grade	
CSL-AG5000	Agarose 5000g, Low EEO (10x500g)	CSL-HRA100	Agarose 100g, HR
CSL-AG10KG	Agarose 10Kg, Low EEO (20x500g)	CSL-HRA500	Agarose 500g, HR

FEATURES:

- Each tablet constitutes 0.5g of agarose, eliminating the need for tedious, inconvenient and sometimes inaccurate weighing procedures
- Faster to prepare: simply add the required number of tablets to buffer, and then heat, dissolve and pour the gel as usual
- 200 tablets supplied in total, in 20 foil blister packs of 10 tablets
- Made from environmentally friendly CleverGEL low EEO agarose (Page 140)
- ISO9001:2008 compliant
- Fast Dissolving
- Consistent Gel Percentage
- No Weighing Necessary

CleverGEL Instant Agarose Tablets

Environmentally friendly CleverGEL agarose is now available in tablet form for routine analysis of nucleic acids using standard electrophoretic procedures. Supplied as 200 tablets in total, each tablet contains 0.5g of CleverGEL agarose which eliminates the need to weigh out loose agarose powder. Because each tablet is fast-dissolving all that is required is to add the desired number of tablets to the buffer, heat, dissolve and then prepare the gel as normal. CleverGEL agarose tablets are provided in blister packs of 10, rather than bulky bottles, for extra convenience and storage.

TECHNICAL SPECIFICATIONS

	Low EEO
CAS	9012-36-6
EEO	<0.13
Gelling Point*	36°C±1.5°C
Melting Point*	88°C±1.5°C
Solubility	Clear, colourless @ 1% [w/v] solution
Moisture	≤10%
Gel Strength	>1200 g/cm2 (1% [w/v] Gel)
Nuclease & Protease Free	Yes

*For a 1.5% [w/v] gel

ORDERING INFORMATION

CSL-AGTAB	Agarose 100g, Low EEO (200x0.5g tablets, supplied as 20 blister packs of 10x0.5g tablets)

TYPICAL APPLICATIONS

For horizontal agarose gels resolving nucleic acids 0.1-10Kb in size. For industrial and academic laboratories adhering to rigorous standard operating procedures and protocols

Powdered and Liquid Buffers

Cleaver Scientific supplies TBE and TAE in powder and liquid form. Both TBE and TAE are widely used to separate nucleic acids by horizontal gel electrophoresis, and occasionally in vertical polyacrylamide gels. TBE has a higher buffering capacity than TAE, which is used for faster separations of linear double-stranded DNA.

Cleaver Scientific dry TBE is supplied in packs of 10 powder sachets to maintain shelf life. Each buffer sachet may be opened as required and reconstituted in distilled water to make 1 litre of working solution.

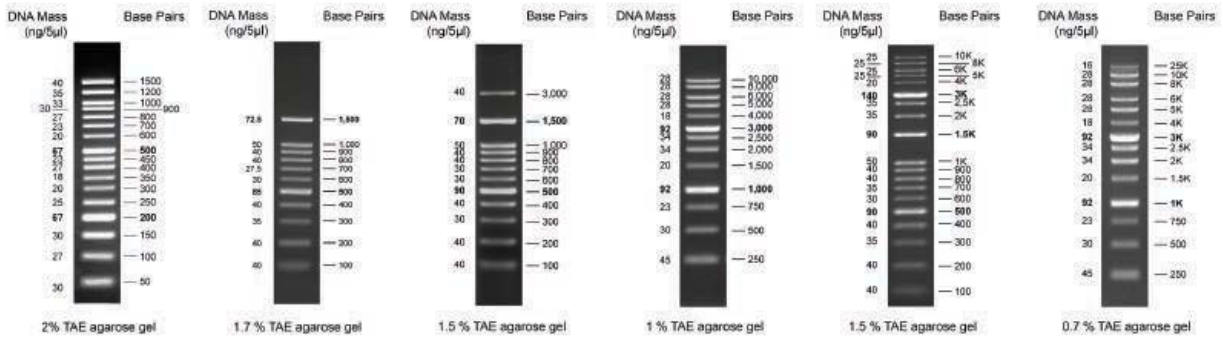
Buffers are also provided as ready-made 50x TAE and 10x TBE solutions in 1 and 5 litre volumes. These are ideal for laboratories running horizontal nucleic acid gels on a daily basis that require off-the-shelf working stock solutions.

ORDERING INFORMATION

CSL-TBEP	Powdered Tris-Borate-EDTA Running Buffer – 10 sachets (1 litre / pack)
TBE10X1L	Cleaver Buffer Tris-Borate-EDTA Running Buffer, 10 x 1L
TBE10X5	Cleaver Buffer Tris-Borate-EDTA Running Buffer, 10 x 5L
TAE50X1L	Cleaver Buffer Tris-Acetate-EDTA Running Buffer, 50 x 1L
TAE50X5L	Cleaver Buffer Tris-Acetate-EDTA Running Buffer, 50 x 5L

TECHNICAL SPECIFICATIONS

TAE	Each 50x solution contains: Tris-base (2.0M final stock concentration); glacial acetic acid (1.0M); EDTA, pH 8.0 (0.05M); followed by distilled water to 1L
TBE	Each 10x solution / powder contains: Tris-base (0.112M final stock concentration); boric acid (0.112M); EDTA, pH 8.0 (0.02M); followed by distilled water to 1L



Ready To Use DNA Markers

Pre-made and containing loading dye for immediate use, Cleaver Scientific's ready-to-use (RTU) DNA markers are specially formulated to run accurately and produce sharp, well defined ladders. Available in six molecular weight ranges and composed of discrete marker fragments isolated from restriction-digested proprietary plasmids, each DNA marker will remain stable for up to 6 months at room temperature and 12 months if kept in the fridge at 4°C. All Cleaver Scientific RTU markers contain high intensity reference bands and may be used to perform size comparisons with DNA molecules ranging from the smallest of PCR fragments to large, linearised cosmid vectors.

ORDERING INFORMATION

CSL-MDNA-100BPH	100bp DNA ladder, 100-3000bp, 1x500µl vial
CSL-MDNA-100BP	100bp DNA ladder, 100-1500bp, 1x500µl vial
CSL-MDNA-1KB	1Kb DNA ladder, 250bp-10Kb, 1x500µl vial
CSL-MDNA-50BP	50bp DNA ladder, 50-1500bp, 1x500µl vial
CSL-MDNA-BR	Broad Range DNA ladder, 100bp-10Kb, 1x 500µl vial
CSL-MDNA-HR	High Range DNA ladder, 250bp-25Kb, 1x500µl vial

TECHNICAL SPECIFICATIONS

Product Code	CSL-MDNA-100BPH	CSL-MDNA-100BP	CSL-MDNA-1KB	CSL-MDNA-50BP	CSL-MDNA-BR	CSL-MDNA-HR
Size Range	100-3000bp	100-1500bp	250bp-10Kb	50-1500bp	100bp-10Kb	250bp-25Kb
Number of Bands	12	11	13	17	19	14
Reference Bands	500, 1500bp	500, 1500bp	1Kb, 3Kb	200, 500bp	500bp, 1.5 & 3Kb	1Kb, 3Kb
Package Concentration	54µg/500µl vial	50µg/500µl vial	50µg/500µl vial	56µg/500µl vial	86µg/500µl vial	52µg/500µl vial
Storage	6 months at 25°C, 12 months at 4°C & 24 months at - 20°C					
Recommended loading Volume	5µl/well	5µl/well	5µl/well	5µl/well	5µl/well	5µl/well
Tracking Dyes	Orange G, Xylene Cyanol FF, Bromophenol Blue					
Source	Proprietary plasmids and PCR fragments phenol-extracted following restriction digestion and dissolved in 10mM Tris-HCl (pH 8.0) and 10mM EDTA.					

TYPICAL APPLICATIONS

Size determination of DNA and RNA bands on gels

DNA Loading Dye

DNA loading dye contains 10x bromophenol blue, the standard tracking dye for electrophoresis. The charge-to-mass ratio of bromophenol blue allows it to co-migrate with smaller molecules within agarose and PAGE gels (e.g. at 300bp in a standard 1% agarose, TBE gel) which, with its conspicuous dark blue colour, makes it the perfect tracking dye to monitor the progress of electrophoresis runs. DNA loading dye is supplied in 1ml volumes for easy handling.

ORDERING INFORMATION	
CSL-LOADDYE	10x Bromophenol Blue Loading Dye, 1ml
CSL-LOADDYE10	10x Bromophenol Blue Loading Dye, 10ml

Orange G Loading Dye

Orange G Loading dye 1x (with ficoll) Used as a marker in PAGE and Agarose electrophoresis of DNA, as it migrates through the gel consistently with smaller DNA fragments. Contains sucrose and Xylene Cyanol. Used as a 1x solution.

ORDERING INFORMATION	
CSL-ORANGEDYE	Orange G Loading Dye, 1ml

RNase-Free Water

DEPC-treated to eliminate enzyme activity and then autoclaved, this sterile highly purified water product is perfect for use in PCR and Northern blotting techniques. RNase-Free water is available either as a single 250ml bottle or in fifty 5ml aliquots to prevent cross-contamination.

ORDERING INFORMATION	
RFW250	RNase-Free Water, 1x250ml
RFW50X5	RNase-Free Water, 50x5ml

BP Grade Ultra Pure Water

Purified water (18 mega Ohms) for use with sensitive experimental procedures often needs verifying as pyrogen free, this is done using the LAL test or Limulus (Horseshoe crab) amoebocyte lysate assay. The LAL test is extremely sensitive to endotoxins which are the result of bacterial lysis.

BP Grade Sterile Water has endotoxins removed by electrostatic filtration at the final purification stage prior to autoclaving. The LAL tested water conforms to the standard having less than <0.25EU/ml to ensure the water is of pre-requisite quality. This product is therefore pyrogen free. CFU>0 WFi compatible.

LAL (Limulus Amoebocyte Lysate Assay)

ORDERING INFORMATION	
UPW1000	BP Grade Sterile Water, 1000ml

TYPICAL APPLICATIONS

Useful reagents for PCR, Electrophoresis and Blotting

GelX Disposable Gel Excision Tips

Widely acclaimed as an excellent tool for gene cloning, Cleaver Scientific GelX disposable gel excision tips offer a unique and convenient way to excise nucleic acid and protein bands from gels. GelX tips allow completely safe and contamination free removal of the gel band of interest without the need to handle potentially dangerous scalpels. The gel band is neatly extracted and contained in the tip, when it is then dispensed into a tube for further analysis. Once used, the tip is ejected for disposal.

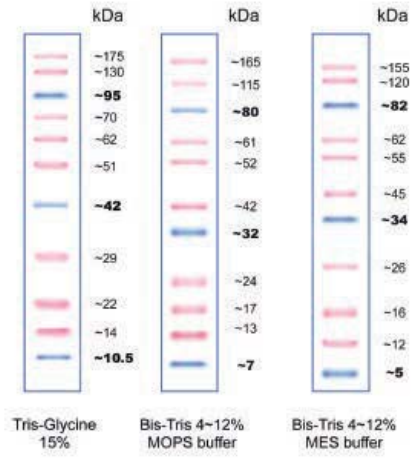
- Eliminates scalpel damage to transilluminator or gel tray
- Designed for removing bands from agarose and protein gels
- One-handed operation
- Push button gel and tip release mechanism
- Fits standard 1000µl pipettes
- Autoclavable, and DNase and RNase free
- Sterile versions also available

ORDERING INFORMATION

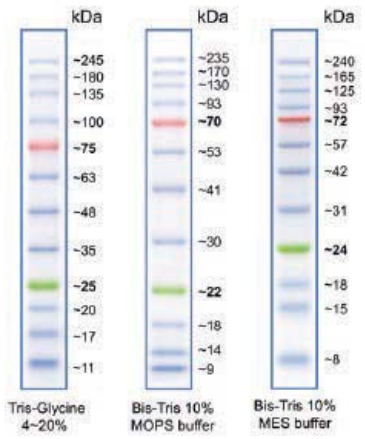
CSL-GELX4	4mm x 1mm, Gel Cutting Tips, 250/ bag
CSL-GELX4RACK	4mm x 1mm, Gel Cutting Tips, 5 racks of 48
CSL-GELX6.5	6.5mm x 1mm, Gel Cutting Tips, 250/ bag
CSL-GELX6.5RACK	6.5mm x 1mm, Gel Cutting Tips, 5 racks of 48

TYPICAL APPLICATIONS

Cutting out and purification of DNA bands for cloning



PINK Plus



BLUE Wide

Vertical Protein Electrophoresis

PINK Plus and BLUE Wide Range Protein Markers

Adding colour to your PAGE

Stable for up to 2 years if stored at -20°C and supplied pre-stained in gel loading buffer for direct loading, Cleaver Scientific PINK Plus and BLUE Wide Range recombinant protein markers are perfect for SDS-PAGE applications. Sizes range from 10-175kDa for PINK Plus and 10-245kDa for BLUE Wide Range, making both markers suitable for accurate molecular weight determination of most cellular proteins.

Each marker is covalently bound to a pink or blue colour chromaphore to produce a ladder of evenly interspersed bands of uniform intensity. Coloured reference bands serve as visual indicators of electrophoresis run progression and the efficiency of western transfer onto membranes following SDS-PAGE. Both PINK Plus and BLUE Wide Range markers can be detected at volumes as low as 2.5µl per well.

ORDERING INFORMATION

CSL-PPL	CSL PINK Plus Prestained Protein Ladder, 10-175kDa, with 10, 40 & 90kDa reference bands, 1x 500µL vial.
CSL-BBL	CSL BLUE Wide Range Prestained Protein Ladder, 10-245kDa, with 25 & 75kDa reference bands, 1x 500µL vial.

FEATURES:

- Standard (10-175kDa) and wide (10-245kDa) molecular weight ranges available
- Coloured reference bands for easy identification in gels and blots
- Stable for 2 years at -20°C

TECHNICAL SPECIFICATIONS

Product Code	CSL-PPL	CSL-BBL
Size Range	10-175kDa	10-245kDa
Number of Bands	11	12
Reference Bands	10, 40 and 90kDa blue	25 & 75kDa; green & red
Contents	Max. 2.2mg total protein in 15% (v/v) glycerol, 2% SDS, 20mM Tris pH 7.5, 1mM 2-ME and 3.6M Urea	Max. 2.4mg total protein in 15% (v/v) glycerol, 2% SDS, 20mM Tris pH 7.5, 1mM 2-ME and 3.6M Urea
Volume Supplied	500µl	500µl
Storage	Stable for up to 2 weeks at 25°C, 3 months at 4°C & 24 months at -20°C	
Loading Volume	2.5-5µl/well	
Number of Applications	100-200	
Source	Recombinant proteins, various sources	

FEATURES:

- Convenient, pre-made stock solution or powder – just dilute or dissolve as necessary with water
- Save time & trouble – no weighing, pH adjustment or need to stock individual compounds
- Long shelf-life
- Consistency assured – rigorous QC for reproducible separations

Page Buffers

Five buffers are available in powder sachets for a range of native and denaturing protein gel electrophoresis techniques. Each powder sachet, which is supplied as a 10-pack, may be reconstituted to make 1 litre of working solution. Running buffers are also available in 1 litre and 5 litre volumes as ready-made 10x Tris-Glycine and 10x Tris-Glycine-SDS solutions.

TECHNICAL SPECIFICATIONS

Powder Buffer	Composition	Applications
Tris-Glycine-SDS	Each litre of 1x working solution contains: Tris-base (25mM); glycine (192mM); SDS, 0.1% (w/v); followed by distilled water. Working solution pH = 8.3.	Denaturing SDS-PAGE for most cellular proteins, 10-200kDa in size
Tris-Glycine	Each litre of 1x working solution contains: Tris-base (25mM); glycine (192mM); followed by distilled water. Working solution pH = 8.3.	Native PAGE
Tris-Tricine-SDS	Each litre of 1x working solution contains: Tris-base (0.1M); tricine, (0.1M); SDS, 0.1% (w/v); followed by distilled water. Working solution pH = 8.25.	Denaturing SDS-PAGE, with greater resolving power for small proteins 2-20kDa in size
MOPS-SDS	Each litre of 1x working solution contains: MOPS (50mM); Tris Base (50mM); SDS, 0.1% (w/v); EDTA (1mM); followed by distilled water. Working solution pH = 7.7.	Denaturing SDS-PAGE for medium- to large-sized proteins
MES-SDS	Each litre of 1x working solution contains: MES (50mM final stock concentration); Tris Base (50mM); SDS, 0.1% (w/v); EDTA (1mM); followed by distilled water. Working solution pH = 7.3.	Denaturing SDS-PAGE for small- to medium-sized proteins; faster than MOPS

ORDERING INFORMATION

Powder Buffers	
CSL-TGSDSP	Powdered Tris-Glycine-SDS Running buffer - 10 Sachets (10 litres/pk)
CSL-TGP	Powdered Tris-Glycine Running buffer - 10 Sachets (10 litres/pk)
CSL-TTSDSP	Powdered Tris-Tricine-SDS Running buffer - 10 Sachets (10 litres/pk)
CSL-MSDSP	Powdered MOPS-SDS buffer Running buffer - 10 Sachets (10 litres/pk)
CSL-MESDSP	Powdered MES-SDS buffer Running buffer - 10 Sachets (10 litres/pk)
Liquid Buffers	
TG10X1L	Cleaver Buffer Tris-Glycine 10 x 1litre
TG10X5L	Cleaver Buffer Tris-Glycine 10 x 5litre
TG-SDS10X1L	Cleaver Buffer Tris-Glycine SDS 10 x 1litre
TG-SDS10X5L	Cleaver Buffer Tris-Glycine SDS 10 x 5litre

TYPICAL APPLICATIONS

Used with protein gels in vertical electrophoresis systems

Blotting Membrane Rolls

Supplied in 0.24x3m and 0.3x3m (w x l) sizes, allowing them to be cut to match specific gel formats, these membrane rolls are suitable for transfer of proteins and nucleic acids from polyacrylamide and agarose gels. Offered in 0.2 and 0.45µm pore sizes.

ORDERING INFORMATION

Code	Description
CSL-RNC45	Nitrocellulose roll, 0.3x3m (w x l)
CSL-RNC2	Nitrocellulose roll, 0.3x3m (w x l)
CSL-RNY45	Positively charged supported nylon, 0.24x3m (w x l)
CSL-RNY2	Positively charged supported nylon, 0.24x3m (w x l)

TECHNICAL SPECIFICATIONS

Code	Pore Size	Recommended Applications
CSL-RNC45	0.45µm	For most analytical blotting procedures, including protein, single-stranded DNA & RNA; compatible with colorimetric, radiolabelled, chemiluminescent and fluorescent detection and staining methods
CSL-RNC2	0.2µm	For small proteins <15kDa
CSL-RNY45	0.45µm	For Southern blots and transfer of nucleic acids from agarose and acrylamide gels; rapid alkaline Southern transfer
CSL-RNY2	0.2µm	

PVDF Sheets & Membrane Rolls

Used in Western Blotting of Proteins and for use in Hybridisation Tehcniques. PDVF with nitrocellulose and nylon membranes are available for different application needs. A protein's properties (i.e., charge, hydrophobicity, etc.) affects its ability to bind to membrane surfaces. Finding the optimal membrane may require experimenting with your specific protein on different materials. We supply PVDF membrane in sheet form and as a 3M role which can be cut to size to fit your particular need.

ORDERING INFORMATION

Code	Description
CSL-PVDF0.22S	10 Pre-cut PVDF 28 x28 cm 0.22 µm
CSL-PVDF0.45S	10 Pre-cut PVDF 28 x28 cm 0.45 µm
CSL-PVDF0.45R	Roll PVDF 28 cm x 3 m, 0.45 µm
CSL-PVDF0.22R	Roll PVDF 28 cm x 3 m, 0.22 µm

Blot-Absorbent Filter Paper

Cleaver Scientific blot-absorbent filter paper is supplied in packs of 50 and in sizes of 10x10cm and 20x20cm. Its 1-mm-thick texture and high buffer retention properties, being able to absorb twice its own weight in buffer, allow it to exert the gel-membrane compression needed for efficient transfers.

ORDERING INFORMATION

CSL-BP1010	Blot-Absorbent Filter paper, 10x10cm, pack of 50
CSL-BP2020	Blot-Absorbent Filter paper, 20x20cm, pack of 50

Ponceau S

Ponceau S staining solution is reusable and available in a convenient 500ml volume for membrane staining and early protein detection following transfer before western blotting. Ponceau S may also be supplied a powder staining kit for long-term storage.

ORDERING INFORMATION

CSL-PSS	Ponceau S staining solution (500ml)
CSL-PSB	Ponceau S staining solution powder staining kit (makes 2000ml)

TYPICAL APPLICATIONS

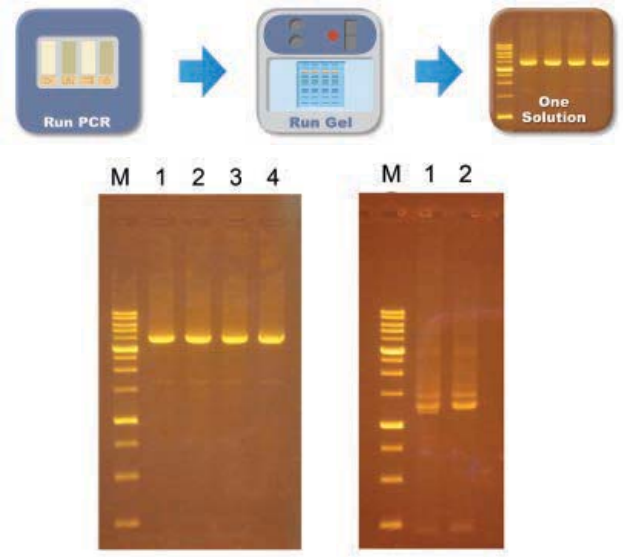
Membranes, stains and reagents for blotting

FEATURES:

- Ready-to-use, pre-mixed 2x PCR® MasterMix that contains Taq DNA Polymerase, PCR buffer, dNTPs, and fluorescent stain and loading dye for electrophoresis post-PCR
- Just mix with an equal volume of DNA and primer solution, perform PCR and then run the resultant products straight out on an agarose gel without prior mixing with loading dye
- No agarose gel staining and destaining necessary
- UV- and blue-light fluorescent; perfect for runVIEW (Pg 28)
- Contains Thermus Aquaticus Taq DNA polymerase - expressed and purified from recombinant E. coli – with 5'-3' polymerase and exonuclease activities
- Lack of 3'-5' exonuclease and proofreading activity makes 'Just-Add-DNA' useful for PCR-based site-directed mutagenesis applications
- As sensitive as ethidium bromide, but without the mutagenicity and associated environmental and disposal hazards
- Long shelf-life: stable for 3 months at room temperature and up to a year at -20°C
- Supplied in two 1.25ml vials to make up to 100 PCR reactions, each of 50µl final volume
- Ideal for use in the GTC96S thermal cycler (Pg 123)

ORDERING INFORMATION

CSL-JADNA	'Just-Add-DNA' MasterMix, 2x 1.25ml vials, sufficient for 100 reactions
CSL-JADNA-10	'Just-Add-DNA' MasterMix, 20x 1.25ml vials, sufficient for 1000 reactions
CSL-RV-JA-DNA	CSL-runVIEW PCR kit for users already with thermal cycler; incl. CSL-RVMSCHOICETRIO plus CSL-JADNA-10
CSL-GTC96-JA-DNA	CSL-GTC96S PCR kit for users already with runVIEW or an electrophoresis system; incl. CSL-GTC96S plus CSL-JADNA-10
CSL-GTC96-RV-JA-DNA	Complete PCR/real-time DNA electrophoresis workstation; incl. CSL-GTC96S & CSL-RVMSCHOICETRIO, plus CSL-JADNA-10



Ligation compatible: 'Just-Add-DNA' has no adverse effect on ligation of PCR products following PCR. Recombinant plasmids containing identical insert after amplification with standard PCR (1) and 'Just-Add-DNA' (2) master mixes. Stable for at least 3 months at room temperature.

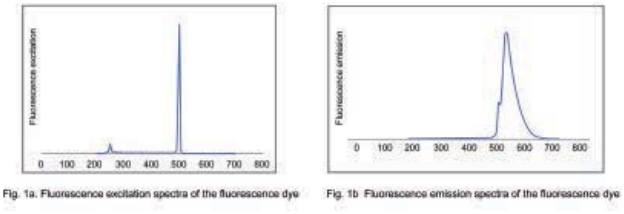


Fig. 1a. Fluorescence excitation spectra of the fluorescence dye

Fig. 1b Fluorescence emission spectra of the fluorescence dye

Fluorescence excitation and emission maxima of the fluorescent stain within 'Just-Add-DNA'. Excitation is maximal around 490nm with a secondary peak at 490nm. Fluorescence emission is maximal at around 550nm.

'Just Add DNA' PCR® MasterMiX

'Just-Add-DNA' is a ready-to-use PCR® MasterMix that requires only water, DNA primers and template to execute primer elongation or the DNA polymerisation step of PCR®. With 'Just-Add-DNA' MasterMix time-consuming MasterMix preparation is rendered unnecessary, as Taq DNA polymerase, PCR buffer, deoxynucleotides (dNTPs), gel-loading dye and fluorescent stain are already premixed at 2x concentration, and may be dispensed in 25µl aliquots to an identical volume of DNA template and primer solution. Once mixed, PCR may be performed as usual and the resultant PCR products then checked following transfer from the thermal cycler block to an agarose gel, which is visualised on a UV transilluminator or by using runVIEW - our award-winning blue-light real-time horizontal gel electrophoresis system (Pg 28).

TYPICAL APPLICATIONS

All in one PCR mix plus electrophoresis safe stain for direct loading onto gels

COMPLIMENTARY PRODUCTS OVERVIEW

In our range of complimentary products are our radiation protection products, glove boxes and balances.

Radiation Safety Products

Cleaver Scientific provide radiation protection shielding for use in Laboratories. Three types are available for shielding against Beta emitters, Gamma emitters and for dual blocking.

Beta Protection Products

The accepted standard for shielding beta emissions of ^{32}P, ^{35}S, ^{3}H and ^{14}C is 10mm thick optical acrylic which is an effective and ideal material for the construction of beta radiation protection equipment. Its properties provide easy fabrication and manufacturability into a wide range of products.

Gamma Protection Products

Now readily available is a lead containing acrylic sheet which offers complete visibility of stored gamma emitting radioisotopes unlike the non transparent solid lead shielding which until recently has been used as protection against isotopes such as ^{125}I, ^{133}Xe, ^{57}Co, ^{99}mTe, ^{123}I and ^{67}Ga.

This transparent shielding has a lead content of 30% which is introduced as an organo lead salt.

The CSL range of products using 12mm thick lead acrylic, 0.5mm thick lead equivalent, attenuates gamma emissions from ^{125}I and of lesser energy. The 35mm thick lead acrylic, 1.7mm thick lead equivalent, can be purchased for use with more energetic isotopes of Iodine.

Glove Boxes

Cleaver Scientific Glove Boxes are manufactured from Poly carbonate and provide a contained area for a variety of isolation procedures.

These boxes are ideal for use as isolation chambers for potentially harmful samples and substances. In addition they can also be used to maintain consistent atmospheres and conditions around sensitive samples including:- moisture / humidity controlled or free atmosphere, inert gas (nitrogen) atmosphere, anaerobic atmosphere and oxygen rich atmosphere.

Cleaver Scientific Glove Boxes are available in four sizes but are also customizable for your specific requirements.

Balances

Cleaver Scientific offer the full range of Adams balances and weighing instruments of a variety of types including portable, precision, analytical, compact and triple beam.

COMPLIMENTARY PRODUCTS

RELATED PRODUCTS

REAGENTS
PAGES 134-135

ROCKERS AND SHAKERS
PAGE 132

THERMAL CYCLERS
PAGE 123

ORDERING INFORMATION

BETA	GAMMA	BOX SIZE
CSR-S1	CSR-S1G	Small Fixed 15° Angle - Flat Base 30 x 45cm, Base 30 x 30cm
CSR-S1T	CSR-S1TG	Small Fixed 15° Angle - Curved Base 30 x 45cm
CSR-S2	CSR-S2G	Large Fixed 15° Angle - Flat Base 35 x 53cm, Base 35 x 30cm
CSR-S2T	CSR-S2TG	Large Fixed 15° Angle - Curved Base 35 x 53cm
CSR-S1O	CSR-S1OG	Small Fixed 45° Angle - Flat Base 30 x 45cm, Base 30 x 30cm
CSR-S1OT	CSR-S1OTG	Small Fixed 45° Angle - Curved Base 30 x 45cm
CSR-S2O	CSR-S2OG	Large Fixed 45° Angle - Flat Base 35 x 60cm, Base 30 x 30cm
CSR-S2OT	CSR-S2OTG	Large Fixed 45° Angle - Curved Base 35 x 60cm
CSR-S3	CSR-S3G	3-Sided Front 46 x 50cm, Sides 30 x 50cm
CSR-S4	CSR-S4G	Hourglass Shield - Flat Base 30 x 45cm, Base 30 x 30cm
CSR-S4T	CSR-S4TG	Hourglass Shield - Curved Base 30 x 45cm
CSR-SFLEXI	CSR-SFLEXIG	Shield - Adjustable 35 x 54 or 54 x 35cm
CSR-SF	CSR-SFG	Base Plate 45 x 41cm
	CSR-SDUO	DuoShield - Curved Base, Beta/Gamma 30 x 45cm
	CSR-SFLEXITG	Shield - Adjustable, 35 x 54 or 54 x 35cm, 35mm thick

ORDERING INFORMATION
TRAYS AND LINERS

Tray size	Radiation Hazard tray Yellow	BioHazard tray, White	General purpose tray, White	APET liners, pk 25
46 x 26cm	CSR-TY1	CSR-TO1	CSR-TW1	CSL-TL1
54 x 34cm	CSR-TY2	CSR-TO2	CSR-TW2	CSL-TL2
57 x 54cm	CSR-TY3	CSR-TO3	CSR-TW3	CSL-TL3
68 x 54cm	CSR-TY4	CSR-TO4	CSR-TW4	CSL-TL4
70 x 46cm	CSR-TY5	CSR-TO5	CSR-TW5	CSL-TL5
113 x 54cm	CSR-TY6	CSR-TO6	CSR-TW6	CSL-TL6

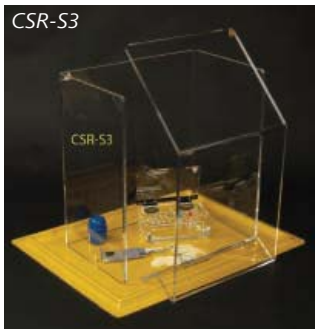
ORDERING INFORMATION
CABINETS

BETA	GAMMA	BOX SIZE
CSR-CAB	CSR-CABG	Beta Work Cabinet, 49 x 55 x 37cm


CSR-S1, CSR-S2


CSR-S1T, CSR-S2T


CSR-S1O, CSR-S2O

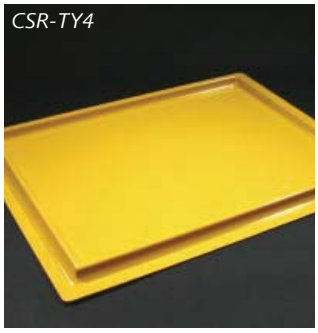


CSR-S3

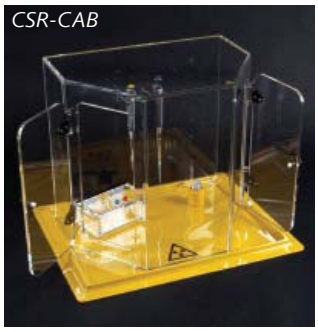

CSR-S4, CSR-S4T

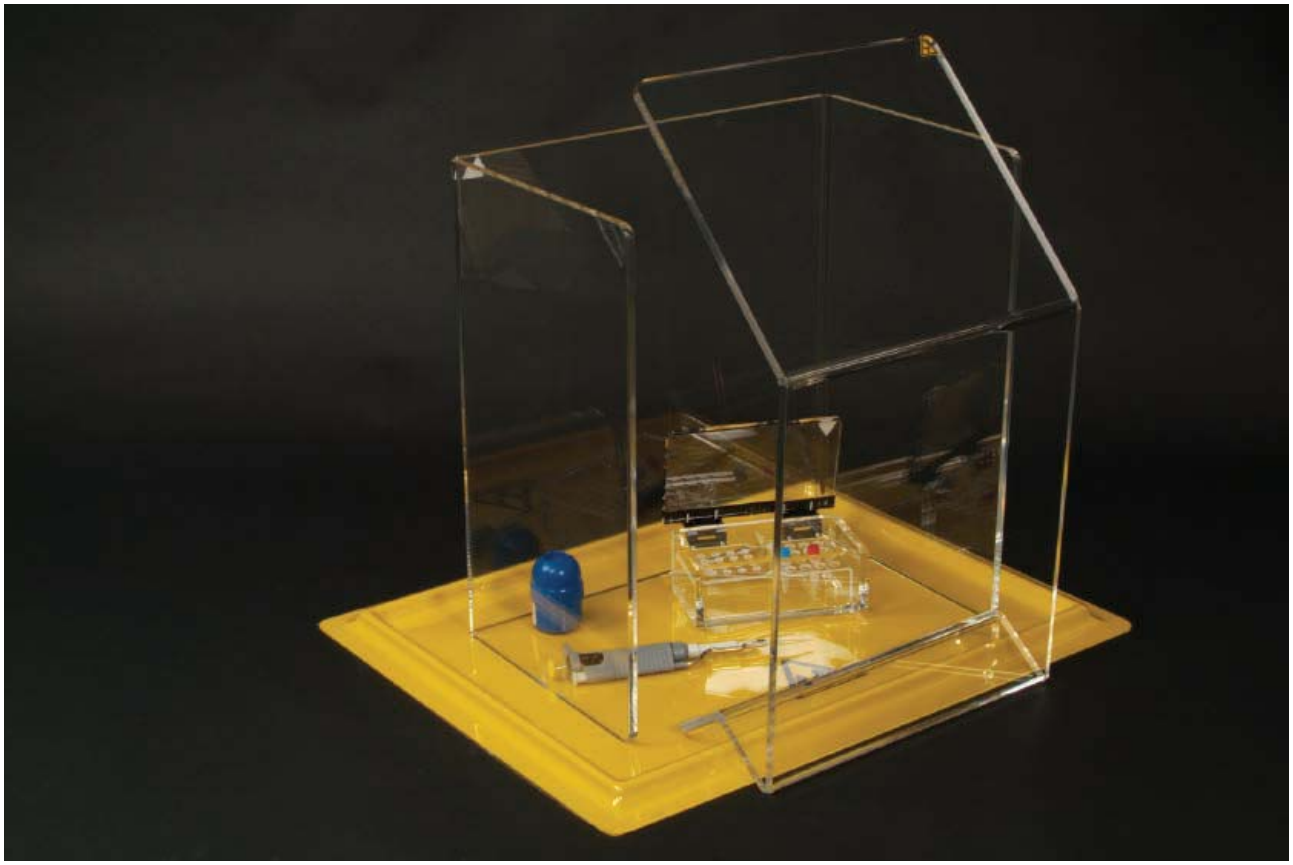

CSR-SFLEXI


CSR-SF


CSR-TY4


CSR-TW1


CSR-CAB



Radiation Safety

Available in standard 10mm beta-protecting acrylic, 12mm gamma-attenuating lead acrylic and also as duo shielding for protection against both types of emission, Cleaver Scientific's comprehensive range of Radiation Safety Products comprises a large selection of shields, boxes, waste bins, trays, plus assorted accessories and cabinets.

Shields

Supplied in small, medium and large sizes and with curved base 15cm-deep for use with safety trays or flat 30x30cm base for under-the-bench protection. A range of angles offers increased manoeuvrability, while clear optical acrylic aids visualisation.

Trays and Liners

Available in general purpose, biohazard and radiation safety formats, spilltrays provide a re-usable work area with the added benefit of safe containment of spillages and lab bench protection. All trays supplied with one free liner when purchased. Additional environmentally

Cabinets

Cleaver Scientific cabinets provide a convenient area to carry out work with beta and gamma emitting isotopes with complete all round protection. Each cabinet's 49 x 55 x 37cm dimensions offer a large working area without impeding vision, either in a standing or seated position.

TYPICAL APPLICATIONS

Protect users of radioactive isotopes from exposure to radiation. Allow visualisation of the sample and work area without exposure.

ORDERING INFORMATION

BETA	GAMMA	BOX SIZE
BINS		
CSR-B1	CSR-B1G	1L, use with bag CSR-BAG1 13 x 10 x 8cm
CSR-B2TIP	CSR-B2TIPG	2L, use with bag CSR-BAG1 13 x 13x 13cm
CSR-B2MCTIP	CSR-B2MCTIPG	2L, use with bag CSR-BAG1 13 x 13x 13cm
CSR-B3	CSR-B3G	3.3L, use with bag CSR-BAG1 15 x 15 x 15cm
CSR-B10	CSR-B10G	10L, use with bag CSR-BAG2 25 x 20 x 20cm
CSR-B15	CSR-B15G	15L, use with bag CSR-BAG2 29.5 x 21.5 x 23.5cm
CSR-B5TIP	-	Large 5L, use with bag CSR-BAG2 33 x 13 x 13cm
CSR-B20	CSR-B20G	20L, use with bag CSR-BAG5 38 x 21.5 x 23.5cm
CSR-B53	CSR-B53G	53L, use with bag CSR-BAG5 40 x 49 x 27cm
CSR-B47	-	47L with Wheels, use with bag CSR-BAG6 58 x 28.5 x 27cm
CSR-B122	-	122L with Wheels, use with bag CSR-BAG6 74 x 41 x 41cm
BAGS		
RBAG1	Printed Yellow Tinted Bags, 100/pack	200x150x380mm
RBAG2	Printed Yellow Tinted Bags, 100/pack	280x100x610mm
RBAG3	Printed Yellow Tinted Bags, 100/pack	280x280x760mm
RBAG4	Printed Yellow Tinted Bags, 250/roll	610x915mm
RBAG5	Unprinted Clear Bags, 100/pack	200x405mm
RBAG6	Unprinted Clear Bags, 100/pack	255x305mm
RBAG7	Unprinted Clear Bags, 100/pack	305x455mm
RBAG8	Unprinted Clear Bags, 100/pack	305x505mm
RBAG9	Unprinted Clear Bags, 100/pack	355x405mm
RBAG10	Unprinted Clear Bags, 100/pack	610x915mm
BOXES		
CSR-B0.4	CSR-B0.4G	Mini 5.5 x 8.5 x 8.5cm
CSR-B0.8	CSR-B0.8G	Midi 6 x 16.5 x 8.5cm
CSR-B6.5	CSR-B6.5G	Maxi 14 x 28 x 16.5cm
CSR-B3.5	CSR-B3.5G	Box for four way racks 14 x 17.5 x 15cm
CSR-B8	CSR-B8G	Transport Box 7.5 x 29.5 x 38cm
CSR-BDUO	CSR-BDUOG	Duo Box 7 x 10 x6cm
CSR-BLOCK	CSR-BLOCKG	Block for 4 x 1.5ml Eppendorf tubes 5 x 3.5 x 14cm
CSR-BLOCKL	CSR-BLOCKLG	Cover for B4 1 x 3.5 x 14cm
CSR-STORE	CSR-STOREG	Beta-Storage/Transport Block 7 x 15 x 12cm
CSR-COV	CSR-COVG	Carboy Cover 59 x 38 x 38cm

ORDERING INFORMATION

BETA	GAMMA	BOX SIZE
INSERTS		
CSR-R1.5	-	Mini Box Insert - 16 x 1.5ml tubes
CSR-R50	-	Maxi Box Insert - 8 x 50ml Centrifuge tubes
CSR-R0.5	-	Mini Box Insert - 20 x 0.5ml tubes
CSR-R3F	-	Maxi Box Insert - 3 x Falcon tubes, 8 x 1.5ml tubes
CSR-R1.5L	-	Midi Box Insert - 32 x 1.5ml Eppendorf tubes
CSR-R2F	-	Maxi Box Insert - 2 x Falcon tubes, 8 x 1.5ml tubes
CSR-R0.5L	-	Midi Box Insert - 40 x 0.5ml Eppendorf tubes
CSR-R20	-	Maxi Box Insert - 8 x 20ml Scintillation vials
CSR-RDUO	-	Midi Box Insert - 16 x 1.5 and 16 x 0.5ml tubes
CSR-R5	-	Maxi Box Insert - 15 x 5ml Scintillation vials
CSR-R2	-	Midi Box Insert - 32 x 2ml Cryotubes
CSR-RU	-	Maxi Box Insert - 8 x Universals
CSR-R15	-	Maxi Box Insert - 15 x 15ml Centrifuge tubes

ORDERING INFORMATION
ACCESSORIES

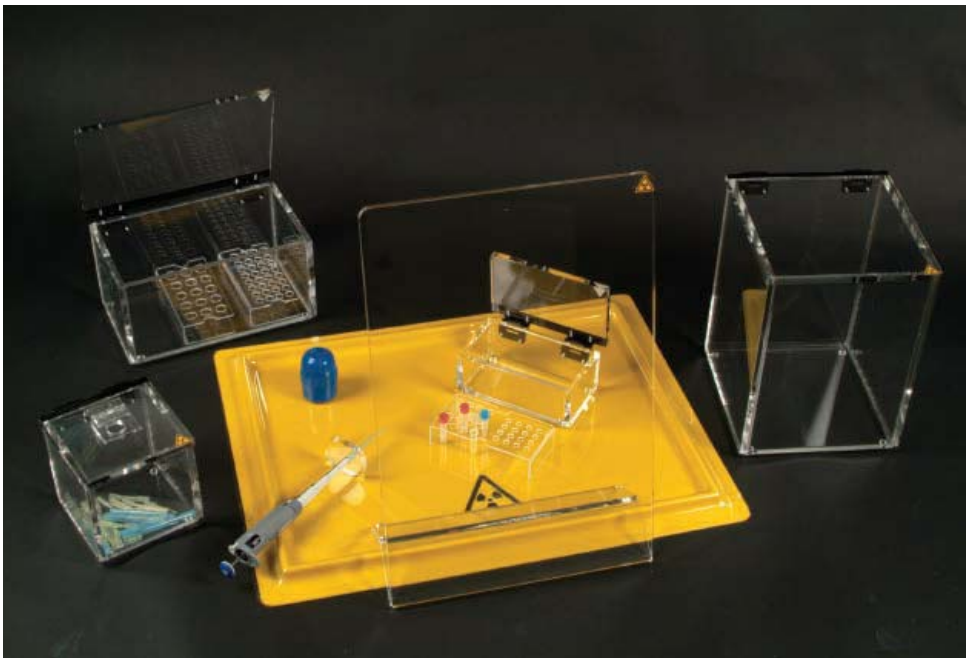
BETA	GAMMA	
CSR-PB2	CSR-PB2G	Pipette Shield - Biohit PS1000 Beta
CSR-PB1	CSR-PB1G	Pipette Shield - Biohit PS200 Beta
CSR-PB3	CSR-PB3G	Pipette Shield - Biohit PS5000 Beta
CSR-PG3	CSR-PG3G	Pipette Shield - Gilson P1000 Beta
CSR-PG1	CSR-PG1G	Pipette Shield - Gilson P20/100 Beta
CSR-PG2	CSR-PG2G	Pipette Shield - Gilson P200 Beta
LABELS		
CSR-LABS	-	Radiation Labels, pk/25 25x25mm
CSL-LABL	-	Radiation Labels, pk/25 50x50mm
TAPE		
CSR-RADTAPE	-	Radiation Tape, 1 Roll 25mm x 66m


CSR-B0.4


CSR-B0.8


CSR-B6.6

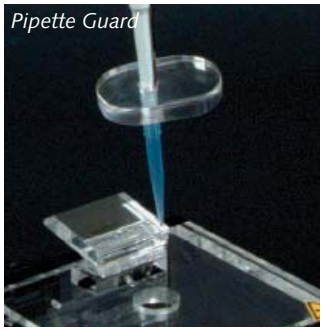

CSR-B8

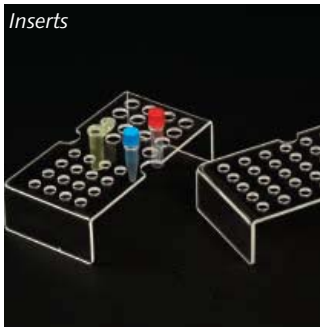



CSR-STORE


CSR-B15


CSR-B122


Pipette Guard


Inserts


CSR-B2TIP

Radiation Safety

Waste Bins, Bags and Inserts

Cleaver Scientific storage boxes are manufactured with hinged lids and accommodate interchangeable inserts that hold microtubes, centrifuge tubes, scintillation vials, universals, cryotubes and falcon tubes. Also supplied is our range of floor-standing and benchtop bins with anti-slip feet and hinged lids. These serve as an ideal solution for short-term storage of radioactive waste or radioisotopes. Both the Beta and Gamma storage bins are available in five sizes, while the two largest bin models have wheels for easy transportation. Optional heavy duty drawstring bags may also be purchased.

Accessories

Other accessories available include pipette guards, radiation tape and warning signs and labels.

TYPICAL APPLICATIONS

Storage of radioactive samples in various sized visible boxes with different types of inserts for different sized vials and tubes. Disposal of radioactive waste.

Gloveboxes

Cleaver Scientific glove boxes are available in four sizes and provide an ideal cost-effective solution for those scientists or users performing functions in which containment is paramount. A robust construction from non-reactive polycarbonate allows each glove box to be used with inert gases such as helium, nitrogen and argon, for procedures requiring exclusion of atmospheric oxygen and moisture. Each box, which includes hermetically-sealed gloves and a side panel as standard, provides a safe barrier between the worker and any potential contaminant. Glove boxes may also be supplied with airlocks, and are customisable in various shapes and sizes to suit different work environments, applications and spaces. Shelving and pipette holder options are also available.

NOW Introducing the Combi Box

The Cleaver Scientific Combi Box combines the benefit of UV sterilisation with the fully sealed and enclosed area of a glove box. Four 15W UV-C bulbs may be timer controlled for up to 30 minutes, or indefinitely, to decontaminate equipment and the work surface before and after use. A side panel with safety interlock switches immediately disconnects the UV source to facilitate easy placement and removal of samples and packages, while a 15W white light bulb illuminates the entire work surface to provide excellent visibility. Two hermetically sealed non-UV transparent gloves afford the user total manoeuvrability and dexterity when handling equipment, samples and packages within the contained environment of the glove box, plus additional protection when working under the UV source.

FEATURES:

- Available in 4 sizes with or without air locks:
- Standard 2 port 24x24x24" (60x60x60cm)
- Standard 2 port 36x24x24" (90x60x60cm)
- Standard 2 port 48x24x24" (120x60x60cm)
- Standard 2 port 60x24x24" (150x60x60cm)
- Provides a barrier between the user and potential contaminants
- Hermetically sealed gauntlets permit safe handling within a fully enclosed containment area
- Side panel allows samples and packages to be placed in and removed from the work area safely and easily
- Non-reactive polycarbonate suitable for use with gases such as helium, nitrogen and argon to allow work with samples sensitive to moisture or oxidation
- Customisable in different shapes and sizes to suit a variety of work settings, applications and spaces
- Antechamber, lead acrylic, shelving and pipette holder options available

ORDERING INFORMATION

Part Number	Description
CSL-GB24	Standard 2 port 24x24x24" (60x60x60cm)
CSL-GB24-A	CSL-GB24 with Air-Lock
CSL-GB36	Standard 2 port 36x24x24" (90x60x60cm)
CSL-GB36-A	CSL-GB36 with Air-Lock
CSL-GB48	Standard 2 port 48x24x24" (120x60x60cm)
CSL-GB48-A	CSL-GB48 with Air-Lock
CSL-GB60	Standard 2 port 60x24x24" (150x60x60cm)
CSL-GB60-A	CSL-GB60 with Air-Lock

ORDERING INFORMATION

Part Number	Description
CSL-COMBIBOX	Combination Glove box with 2 ports - 240VAC
CSL-COMBIBOX-A	CSL-COMBIBOX with Air-Lock - 240VAC
Use $ for 120VAC versions; e.g CSL-COMBIBOX$	

TYPICAL APPLICATIONS

Inert Gas Glove Boxes – handling and processing of air – and moisture-sensitive materials in carefully maintained atmosphere. Chemical Synthesis. Isolation Glove Box – self-contained area for opening suspect packages.

Adam® Equipment Balances

Cleaver Scientific is delighted to announce its distributor partnership with Adam® Equipment Ltd. Adam® Equipment Ltd. has been manufacturing high quality balances from the UK since 1972, for applications and disciplines that range from education and agriculture to laboratory research, health care and veterinary medicine. A synopsis of Adam® Equipment Laboratory Balances offered by Cleaver Scientific is shown below, although balances, scales, moisture analysers and mass measuring equipment for other applications are also available. For further information, or to receive an Adam® Equipment brochure or a quotation, please do not hesitate to contact us.

LABORATORY BALANCES & SCALES SYNOPSIS

PRODUCT		CAPACITY / READABILITY	APPLICATIONS	OVERVIEW
Nimbus Precision balances (Internal calibration)		80g -210g/0.0001g 220g - 420g/0.001g 1020g - 4600g/0.01g	• Weighing • Net / Total • Check weighing • Percentage weighing • Weight accumulation • Parts counting • Animal / dynamic weighing • Density determination • Below balance weighing	For laboratories, schools, industry and commercial users
Nimbus Precison balances (External calibration)		80g - 210g/0.0001g 220g - 420g /0.001g 2600g - 4600g/0.01g 4200g - 22000g/0.1g		
Eclipse Precision balances (External calibration)		100g - 310g/0.0001g 220g - 1620g/0.001g 1600g - 6200g/0.01g 4200g - 32000g/0.1g		
Eclipse Precision balances (Internal calibration)		100g - 310g/0.0001g 220g - 1620g/0.001g 1600g - 6200g/0.01g	• Weighing • Parts counting • Percentage weighing • Check weighing • Density determination • Below balance weighing	For those user requiring a high precision top-loading balance that is portable and easy to use
Highland™ Portable Precision Balances		120g-3kg / 0.001g-0.1g	• Weighing • Percentage weighing • Parts counting • Below balance weighing • Weight accumulation	For basic laboratory use, field work and various industrial applications
Core™ Compact Portable Balances		0.01g-1g / 200g-5000g	• Weighing • Below balance weighing • Weight accumulation	For simple operation and economy
Dune™ Compact Balances		200g-5000g / 0.1g-2g	• Weighing	For quick and easy weighing
CB Compact Scale		500g-3000g / 0.1g-1g	• Weighing	Compact, portable scale for a general weighing
TBB - Triple Beam Balances		2610g / 0.1g	• Weighing • Below balance weighing • Density of solids	Low cost mechanical balances for high precision, reliable weighing in laboratories, schools and industry
Other Balances available so please contact us for more information.				

FEATURES:

- Over 40 years' experience in the manufacture of high quality balances, weighing scales and mass measuring equipment
- Full versatility: systems supplied for weighing applications requiring the greatest precision and sensitivity, as well as full portability and space-saving design
- Full technical support and up to 3 years return-to-base warranty
- ISO 9001:2008 approved and certified

Note: New Range coming soon. Contact Cleaver Scientific for more information.

TYPICAL APPLICATIONS

Laboratories, research & education

Moisture analysis

Agriculture & food industries

NOTES

CLEAVER SCIENTIFIC TERMS AND CONDITIONS

1. Business customers and consumers

1.1 Some of these terms apply to consumers only; some apply to business customers only. Those terms are marked as such.

1.2 All other terms apply to all customers.

1.3 You are classified as a business customer if you indicate to us that the goods supplied by us will be used in the course of your business or if you use the goods in the course of your business.

1.4 If you are not a business customer, you are a consumer. Nothing in these terms affects your statutory rights as a consumer.

2. Price

2.1 **Consumers**: The quoted price includes VAT (unless otherwise stated).

2.2 **Business customers**: The price quoted excludes VAT (unless otherwise stated). VAT will be charged at the rate applying at the time of delivery.

2.3 Our quotations lapse after twelve weeks (unless otherwise agreed).

2.4 **Business customers**: The price quoted excludes delivery (unless otherwise stated).

2.5 **Business customers:** Unless otherwise stated, the price quoted to business customers is an illustrative estimate only and the price charged will be our price current at the time of delivery.

2.6 **Business customers:** Rates of tax and duties on the goods will be those applying at the time of delivery.

2.7 **Business customers:** At any time before delivery we may adjust the price to reflect any increase in our costs of supplying the goods.

3. Delivery

3.1 All delivery times quoted are estimates only.

3.2 If we fail to deliver within a reasonable time, you may (by informing us in writing) cancel the contract, however:

3.2.1 you may not cancel if we receive your notice after the goods have been dispatched; and

3.2.2 if you cancel the contract, you can have no further claim against us under that contract.

3.3 If you accept delivery of the goods after the estimated delivery time, it will be on the basis that you have no claim against us for delay (including indirect or consequential loss, or increase in the price of the goods).

3.4 We may deliver the goods in instalments. Each instalment is treated as a separate contract.

4 Delivery and safety

4.1 We may decline to deliver if:

4.1.1 we believe that it would be unsafe, unlawful or unreasonably difficult to do so; or

4.1.2 the premises (or the access to them) are unsuitable for our vehicle.

5 Payment terms

5.1 You are to pay us cash (or otherwise in cleared funds such as by credit card) on delivery unless you have an approved credit account.

5.2 **Business customers:** If you have an approved UK business credit account, payment is due 30 days from the end of the month of the invoice , unless otherwise agreed in writing.

5.3 If you fail to pay us in full on the due date:

5.3.1 we may suspend or cancel future deliveries;

5.3.2 we may cancel any discount offered to you;

5.3.3 you must pay us interest at the rate equivalent to that set for the purposes of s6 of the Late Payment of Commercial Debts (Interest) Act 1998:

a. calculated (on a daily basis) from the date of our invoice until payment;

b. compounded on the first day of each calendar month; and

c. before and after any judgement (unless the court orders otherwise).

5.4 If you have an approved **business** credit account we may withdraw it or reduce your credit limit or bring forward your due date for payment.

5.5 We take any of those actions in 5.4 at any time and without notice.

5.6 You do not have the right to set off any money you may claim from us against anything you may owe us.

5.7 While you owe money to us, we have a right to keep any property we may hold of yours until you have paid us in full (a lien).

5.8 You are to indemnify us in full and hold us harmless from all expenses and liabilities we may incur (directly or indirectly and including legal costs on a full indemnity basis) following any breach by you of any of your obligations under these terms.

6 Title

6.1 **Consumers:** s18 Sale of Goods Act 1979 applies.

6.2 **Business customers:** Until you pay all debts you may owe us:

6.2.1 all goods supplied by us remain our property;

6.2.2 you must store them so that they are clearly identifiable as our property;

6.2.3 you must insure them (against the risks for which a prudent owner would insure them) and hold the policy on trust for us;

6.2.4 you may use those goods and sell them in the ordinary course of your business, but not if:

a. we revoke that right (by informing you in writing); or

b. you become insolvent.

6.3 **Business customers:** You must inform us (in writing) immediately if you become insolvent.

6.4 **Business customers:** If your right to use and sell the goods ends you must allow us to remove the goods.

6.5 **Business customers:** We have your permission to enter any premises where the goods may be stored:

6.5.1 at any time, to inspect them; and

6.5.2 after your right to use and sell them has ended, to remove them, using reasonable force if necessary.

6.6 Despite our retention of title to the goods, we have the right to take legal proceedings to recover the price of goods supplied should you not pay us by the due date.

6.7 You are not our agent. You have no authority to make any contract on our behalf or in our name.

7 Risk

7.1 The goods are at your risk from the time of delivery.

7.2 Delivery takes place either:

7.2.1 at our premises (if you are collecting them or arranging carriage); or

7.2.2 at your premises (if we are arranging carriage).

7.3 You must inspect the goods on delivery. If any goods are damaged (or not delivered), you must write to tell us within seven working days of delivery (or the expected delivery time). You must give us (and any carrier) a fair chance to inspect the damaged goods.

8 Warranties

8.1 We warrant that the goods:

8.1.1 comply with their description on our delivery note; and

8.1.2 are free from material defect at the time of delivery (as long as you comply with clause 7.3).

8.2 **Business customers:** We give no other warranty (and exclude any warranty, term or condition that would otherwise be implied) as to the quality of the goods or their fitness for any purpose.

8.3 **Consumers:** Your statutory rights are unaffected.

8.4 If you believe that we have delivered goods which are defective in material or workmanship, you must:

8.4.1 inform us (in writing), with full details, as soon as possible; and

8.4.2 allow us to investigate (we may need access to your premises and product samples).

8.4.3 If the goods are found to be defective in material or workmanship (following our investigations), and you have complied with those conditions (in clause 8.4) in full, we will (at our option) replace the goods or refund the price.

8.5 We are not liable for any other loss or damage (including indirect or consequential loss, financial loss, loss of profits or loss of use) arising from the contract or the supply of goods or their use, even if we are negligent.

8.6 Our total liability to you (from one single cause) for damage to property is limited to five million pounds.

8.7 For all other liabilities not referred to elsewhere in these terms our liability is limited in damages to the price of the goods.

8.8 Nothing in these terms restricts or limits our liability for death or personal injury resulting from negligence.

9 Specifications and designs

9.1 If we prepare the goods in accordance with your specifications or instructions:

9.1.1 you must ensure that the specifications or instructions are accurate;

9.1.2 you must ensure that goods prepared in accordance with those specifications or instructions will be fit for the purpose for which you intend to use them; and

9.1.3 you warrant that the specifications or designs will not result in the infringement of any rights belonging to a third party and that you will indemnify us in respect of all loss, damage, costs or expenses (including legal fees) which we may incur in connection with any such claim or threatened claim by a third party.

9.2 By supplying goods to you we do not waive any intellectual property rights (including any design rights) that we may have in respect of them.

9.3 **Business customers only**: we also reserve the right to make without notice any minor modifications in our specifications designs or materials as we think necessary or desirable.

9.4 We reserve the right to make any changes in the specifications and designs of our goods which are necessary to ensure they conform with any applicable safety or other statutory requirements.

10 Return of goods

10.1 We will accept the return of goods from you only:

10.1.1 by prior arrangement (confirmed in writing);

10.1.2 on payment of an agreed handling charge (unless the goods were defective when delivered); and

10.1.3 where the goods are as fit for sale on their return as they were on delivery.

11 Export terms

11.1 Where the goods are supplied by us to you by way of export from the United Kingdom then the 'Incoterms' of the International Chamber of Commerce which are in force at the time of the date when the contract is made shall apply.

11.2 If there is any conflict between the Incoterms and the terms in these terms of trading then these terms shall prevail.

11.3 Clause 11 of these terms shall apply to exports (except where otherwise agreed in writing between us) notwithstanding any other provisions of these terms.

11.4 You are responsible for complying with any legislation or regulations governing the importation of the goods into the country of destination and for the payment of any duties due.

11.5 The goods shall be delivered as agreed between us but we shall be under no obligation to give a notice under section 32(3) of the Sale of Goods Act 1979.

11.6 You have the right at your expense and by arrangement with us to inspect the goods at our premises or at the point of shipment before shipment except where otherwise agreed. If you do not exercise that right then the fact the goods passed our quality inspection will be conclusive proof that they were of the warranted quality. We are not liable for any defect in the goods which would be apparent on your inspection unless a claim is made before shipment. We are not liable for any damage during transit.

11.7 Payment of all amounts due to us shall be made as stipulated by us unless otherwise agreed in writing.

11.8 We shall have no liability for death or personal injury arising from the use of the goods where the goods are to be delivered in the territory of another State (within the meaning of s.26 (3) (b) Unfair Contract Terms Act 1977).

12 Cancellation

12.1 Suppose the order is cancelled (for any reason). You are then to pay us for all stock (finished or unfinished) we may then hold (or to which we are committed) for the order.

12.2 We may suspend or cancel the order, by written notice if:

12.2.1 you fail to pay us any money when due (under the order or otherwise);

12.2.2 you become insolvent;

12.2.3 you fail to honour your obligations under these terms.

12.3 You may not cancel the order unless we agree in writing (and clauses 3.2.2 and 10.1 then apply).

13 Waiver and variations

13.1 Any waiver or variation of these terms is binding in honour only unless:

13.1.1 made (or recorded) in writing;

13.1.2 signed on behalf of each party; and

13.1.3 expressly stating an intention to vary these terms.

13.2 All orders that you place with us will be on these terms (or any that we may issue to replace them). By placing an order with us, you are expressly waiving any printed terms you may have to the extent that they are inconsistent with our terms.

14 Force majeure - business customers only

14.1 Suppose we are unable to perform our obligations to you (or able to perform them only at unreasonable cost) because of circumstances beyond our control. We may then cancel or suspend any of our obligations to you, without liability,

14.2 Examples of those circumstances include act of God, accident, explosion, fire, transport delays, strikes and other industrial disputes and difficulty in obtaining supplies.

15 General

15.1 English law is applicable to any Contract made under these terms. The English and Welsh courts have non-exclusive jurisdiction.

15.2 If you are more than one person, each of you has joint and several obligations under these terms

15.3 If any of these terms are unenforceable as drafted:

15.3.1 it will not affect the enforceability of any other of these terms; and

15.3.2 if it would be enforceable if amended, it will be treated as so amended.

15.4 We may treat you as insolvent if:

15.4.1 you are unable to pay your debts as they fall due; or

15.4.2 you (or any item of your property) becomes the subject of:

a. any formal insolvency procedure (examples of which include receivership, liquidation, administration, voluntary arrangements {including a moratorium} or bankruptcy);

b. any application or proposal for any formal insolvency procedure; or

c. any application, procedure or proposal overseas with similar effect or purpose.

15.5 **Business customers:** all brochures, catalogues and other promotional materials are to be treated as illustrative only. Their contents form no part of any contract between us and you should not rely on them in entering into any contract with us.

15.6 **Business customers only**: any notice by either of us which is to be served under these terms may be served by leaving it at or by delivering it to (by first class post or by fax) the other's registered office or principal place of business. All such notices must be signed.

15.7 No contract will create any right enforceable (by virtue of the Contracts [Rights of Third Parties] Act 1999) by any person not identified as the buyer or seller.

15.8 The only statements upon which you may rely in making the contract with us, are those made in writing by someone who is (or whom you reasonably believe to be) our authorised representative and either:

15.8.1 contained in our estimate (or any covering letter) and not withdrawn before the contract is made; or

15.8.2 which expressly state that you may rely on them when entering into the contract.

15.9 Nothing in clause 15.8 is to affect or limit our liability for fraudulent misrepresentation.

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