About Horizontal Electrophoresis

Gel concentration
The range of fragment sizes to be separated will determine the choice of agarose concentration for a gel. Typical agarose concentration is 0.5% to 3.0%. For large DNA fragments low-percentage gels are required, while for small DNA fragments, high-percentage gels are recommended. Weak gels (0.5% agarose) should be electrophoresed at low temperatures (e.g. -4°C). Agarose gels of 0.75% to 1.0%, for routine electrophoresis, are recommended for a wide range of separations (0.15 to15 kb). 2…4% agarose gels are usually selected for PCR fragment resolution. If the gel has to be subsequently photographed, thin gels (2 to 3 mm) with low-percentage agarose are better than thick or high-percentage gels. The latter produce increased opaqueness and autofluorescence.

Electrophoresis buffer
TAE buffer provides optimal resolution of fragments >4 kb in length, while for 0.1 to 3 kb fragments, TBE buffer should be selected. TBE has both a higher buffering capacity and lower conductivity than TAE and therefore should be used for high-voltage electrophoresis. Additionally, TBE buffer generates less heat than TAE at an equivalent voltage and does not allow a significant pH drift. Note: because of its lower buffering capacity, TAE should be circulated or mixed from time to time for full-length electrophoresis, especially at higher voltages.

Temperature influence
Electrophoresis at high voltages produces heat. Additionally, high-conductivity buffers such as TAE generate more heat than low-conductivity buffers. Care should be taken in agarose gel electrophoresis with voltages greater than 175 V, as heat build up can generate gel artifacts such as S-shaped migration fronts, and in extended electrophoresis runs, can even melt the agarose gel. With high voltage electrophoresis, the use of low-melting-point agarose gels should be avoided.

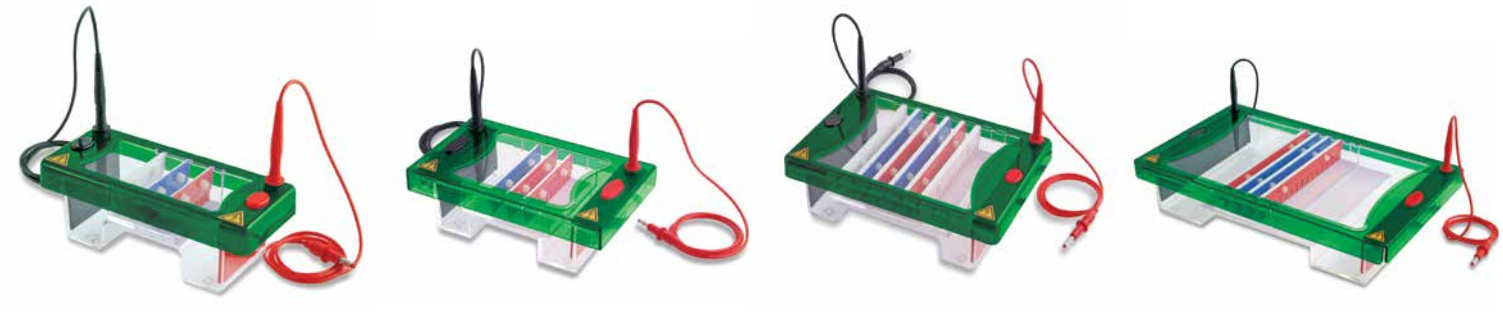
RNA mobility
Either before or during electrophoresis, RNA should be denatured. For example, RNA fragments which have denatured with glyoxal and dimethyl sulphoxide can be separated on neutral agarose gels, or RNA can be fractionated on agarose gels containing methylmercuric hydroxide or formaldehyde. RNA samples usually require longer runs or buffers that are easily depleted, so it is necessary to circulate the buffer. Northern analyses should not normally be run on a mini gel tank.

Separation performance
Gel concentration, running buffer, voltage, temperature, conformation, and the presence of ethidium bromide all affect separation results. To establish progress of double-stranded DNA, ethidium bromide (0.5 µg/ml) is often added to running buffer. The dye's fluorescence properties allows the band to be visualised under a UV lamp. However, ethidium bromide may slow the DNA migration rate by approx. 15%. As an alternative, after electrophoresis, the gel may be stained in an ethidium bromide solution (0.5 µg/ml H20) for 15 to 60 minutes and then viewed or photographed on a UV trans-illuminator.

Enhancing resolution
2 x TAE buffer can be used in units with low buffer volume to enhance resolution during extended runs.

EHS1000 series

Horizontal units



- Overview

Low cost
Injection moulded construction
Durable, leak-proof environment for complete safety and long life

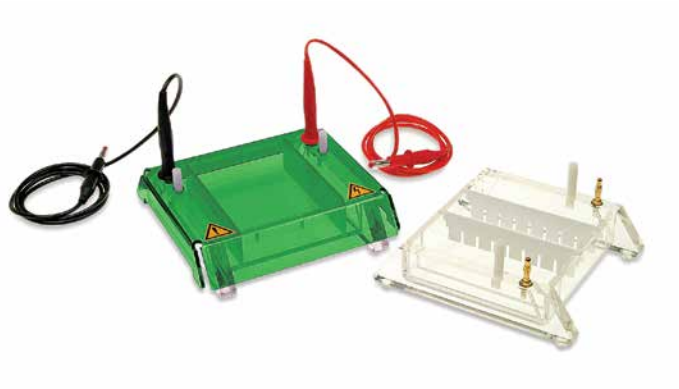
Cassette type electrodes
Inexpensive, easy to replace. Made of 99.99% corrosion resistant, pure platinum.

Multiple gel trays
Gel size and sample number requirements can be exactly matched in each unit, with the option of additional gel tray sizes.
This eliminates the need for multiple gel tanks for changes in gel size or application. With no indentations or casting gate grooves in the tray to interfere with sample progression, traditional tape casting can be used, should this be preferred.

Easy to use
Leak proof "Plug and Go" casting dams allow gels to be rapidly cast externally while the tank remains in use for electrophoresis.

Gel dimensions	10x 8 cm
Buffer volume	50ml
Sample Capacity	40
Unit Dimensions	15x15x4 cm

Recommended power supply
EV2650



Description

The mini rapid horizontal unit 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.

Complete System

Code	Description
EHS1050-SYS	Mini rapid unit dams 2 combs: 8 sample, 1.5mm

Combs

Code	Description	Sample volume
EHS1050-C16-1.0	1 mm thick, 16 sample	15 µl

Replacement parts & Accessories

Code	Description
EHS1050-GATE	Casting dams (pk/2)

Gel dimensions	7x7cm 7x10 cm
Buffer volume	225ml
Sample Capacity	64
Unit Dimensions	21x9x9 cm
Warranty	12 months

Recommended power supply
EV2650
EV2310

EHS1100 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. This compact unit is capable of resolving up to 64 different samples.

Complete System

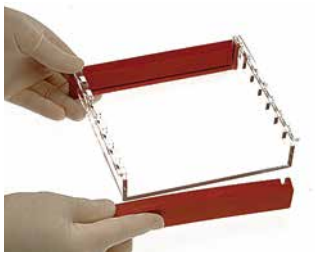
Code	Description
EHS1100-SYS	Mini horizontal unit, 7x7 cm casting tray, 7x10 cm casting tray loading guides, dams 2 combs: 8 sample, 1mm
EHS1101-SYS	Mini horizontal unit, 7x7 cm casting tray loading guides, dams 2 combs: 8 sample, 1 mm
EHS1102-SYS	Mini horizontal unit, 7x10 cm casting tray loading guides, dams 2 combs: 8 sample, 1 mm

Combs

Code	Description	Sample volume
EHS1100-C8-1.0	1 mm thick, 8 sample	25 µl
EHS1100-C10-1.0	1 mm thick, 10 sample	18 µl
EHS1100-C16-1.0	1 mm thick, 16 sample	10 µl
EHS1100-C8-1.5	1.5 mm thick, 8 sample	37 µl
EHS1100-C10-1.5	1.5 mm thick, 10 sample	27 µl
EHS1100-C16-1.5	1.5 mm thick, 16 sample	14 µl

Replacement parts & Accessories

Code	Description
EHS1100-TRAY7	Gel casting tray, 7x7 cm
EHS1100-TRAY10	Gel casting tray, 7x10 cm
EHS1100-GATE	Casting dams, pk/2
EHS1100-POS	Positive electrode cassette (red)
EHS1100-NEG	Negative electrode cassette (black)
EHS1100-LG	Adhesive loading guides
EHS1100-BUFSAVE	Buffer saving blocks, pk/2 (saves 100 ml of buffer)
EHS1100-COOL	Cool-pack and platform
EHS1100-SCOOP	Gel scoop, 7 cm

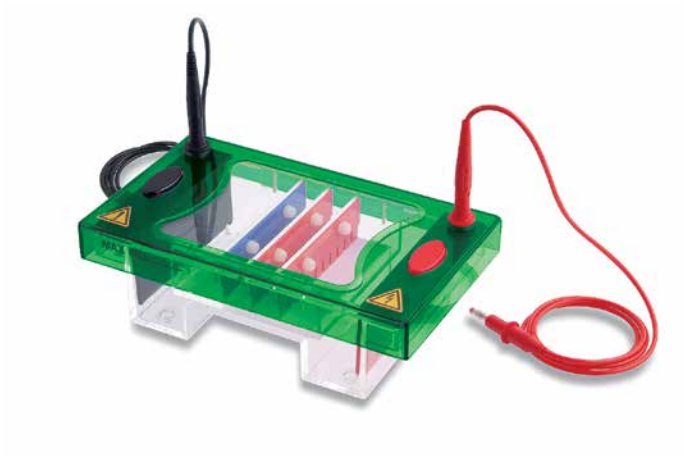


Casting dams allow gels to be rapidly cast externally while the unit is in use for gel running1

Gel dimensions	10x7cm 10x10 cm
Buffer volume	300ml
Sample Capacity	100
Unit Dimensions	22x12.5x9 cm
Warranty	12 months

Recommended power supply
EV2650
EV2310

EHS1200 allows more samples to be resolved per gel without a significant increase in buffer or gel volumes. 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.



Ordering codes

Code	Description
EHS1200-SYS	Midi horizontal unit, 10x7 cm casting tray, 10x10 cm casting tray loading guides, dams 2 combs: 16 sample, 1 mm
EHS1201-SYS	Midi horizontal unit, 10x7 cm casting tray loading guides, dams 2 combs: 16 sample, 1 mm
EHS1202-SYS	Midi horizontal unit, 10x10 cm casting tray loading guides, dams 2 combs: 16 sample, 1 mm

Combs

Code	Description	Sample volume
EHS1200-C8-1.0	1 mm thick, 8 sample	41 µl
EHS1200-C12-1.0	1 mm thick, 12 sample	23 µl
EHS1200-C16-1.0	1 mm thick, 16 sample	16 µl
EHS1200-C25-1.0	1 mm thick, 25 sample	10 µl
EHS1200-C8-1.5	1.5 mm thick, 8 sample	61 µl
EHS1200-C12-1.5	1.5 mm thick, 12 sample	34 µl
EHS1200-C16-1.5	1.5 mm thick, 16 sample	24 µl
EHS1200-C25-1.5	1.5 mm thick, 25 sample	15 µl

Replacement parts & Accessories

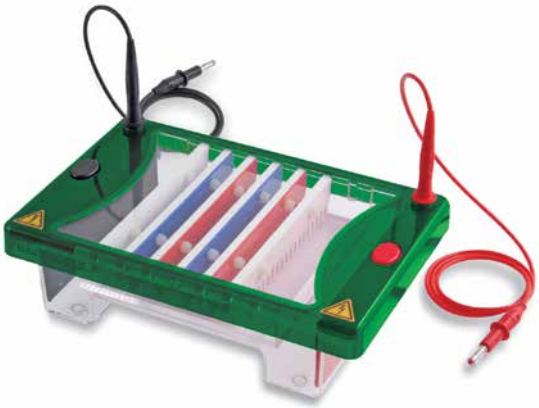
Code	Description
EHS1200-TRAY7	Gel casting tray, 10x7 cm
EHS1200-TRAY10	Gel casting tray, 10x10 cm
EHS1200-GATE	Casting dams, pk/2
EHS1200-POS	Positive electrode cassette (red)
EHS1200-NEG	Negative electrode cassette (black)
EHS1200-LG	Adhesive loading guides
EHS1200-BUFSAVE	Buffer saving blocks, pk/2 (saves 100 ml of buffer)
EHS1200-COOL	Cool-pack and platform
EHS1200-SCOOP	Gel scoop, 10 cm

Loading guides allow easy well identification and sample loading

Gel dimensions	15x7cm 15x10 cm 15x15 cm
Buffer volume	500ml
Sample Capacity	210
Unit Dimensions	26.5x17.5x9 cm
Warranty	12 months

Recommended power supply
EV2650
EV2310

EHS1300 offers a wide degree of versatility with three tray options. Up to 210 samples to be resolved per gel. The 15 cm total run length allows restriction fragment or other close MW sample bands to be easily separated and identified.



Ordering codes

Code	Description
EHS1300-SYS	Midi-plus horizontal unit, 15x7 casting trays, 15x10 casting trays, 15x15 cm gel casting trays loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1301-SYS	Midi-plus horizontal unit, 15x7 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1302-SYS	Midi-plus horizontal unit, 15x10 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1303-SYS	Midi-plus horizontal unit, 15x15 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick

Combs

Code	Description	Sample volume
EHS1300-C10-1.0	1 mm thick, 10 sample	45 µl
EHS1300-C12-1.0	1 mm thick, 12 sample	41 µl
EHS1300-C20-1.0	1 mm thick, 20 sample	21 µl
EHS1300-C35-1.0	1 mm thick, 35 sample	10 µl
EHS1300-C10-1.5	1.5 mm thick, 10 sample	68 µl
EHS1300-C12-1.5	1.5 mm thick, 12 sample	61 µl
EHS1300-C20-1.5	1.5 mm thick, 20 sample	32 µl
EHS1300-C35-1.5	1.5 mm thick, 35 sample	15 µl

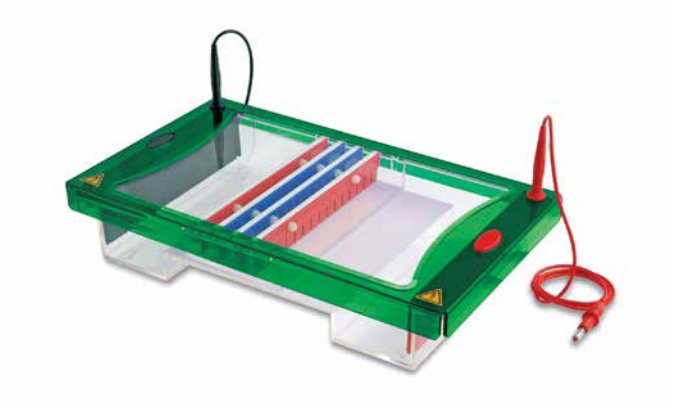
Replacement parts & Accessories

Code	Description
EHS1300-TRAY7	Gel casting tray, 15x7 cm
EHS1300-TRAY10	Gel casting tray, 15x10 cm
EHS1300-TRAY15	Gel casting tray, 15x15 cm
EHS1300-GATE	Casting dams, pk/2
EHS1300-POS	Positive electrode cassette (red)
EHS1300-NEG	Negative electrode cassette (black)
EHS1300-LG	Adhesive loading guides
EHS1300-BUFSAVE	Buffer saving blocks, pk/2 (saves 190 ml of buffer)
EHS1300-COOL	Cool-pack and platform
EHS1300-SCOOP	Gel scoop, 15 cm

Gel dimensions	20x10cm 20x20 cm 20x25 cm
Buffer volume	1200ml
Sample Capacity	550
Unit Dimensions	39.5x23x9 cm
Warranty	12 months

Recommended power supply
EV2310
EV2650

EHS1400 is primarily designed for resolution of high numbers of samples such as from cloning or PCR. It allows ultra high-resolution separations over extended runs. Tray sizes correspond to standard blotter sizes. Multichannel pipette compatible combs facilitate speed loading of up to 550 samples per gel.



Ordering codes

Code	Description
EHS1400-SYS	Maxi horizontal unit, 20x10 gel casting tray, 20x20 cm casting trays loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1401-SYS	Maxi horizontal unit + 20x10 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1402-SYS	Maxi horizontal unit + 20x20 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick
EHS1403-SYS	Maxi Horizontal unit + 20x25 cm casting tray loading guides, dams, 2 combs: 20 sample, 1 mm thick

Combs

Code	Description	Sample volume
EHS1400-C10-1.0	1 mm thick, 10 sample	72 µl
EHS1400-C16-1.0	1 mm thick, 16 sample	41 µl
EHS1400-C25-1.0	1 mm thick, 25 sample	21 µl
EHS1400-C30-1.0	1 mm thick, 30 sample	17 µl
EHS1400-C36-1.0	1 mm thick, 36 sample	14 µl
EHS1400-C50-1.0	1 mm thick, 50 sample	10 µl
EHS1400-C10-1.5	1.5 mm thick, 10 sample	108 µl
EHS1400-C16-1.5	1.5 mm thick, 16 sample	61 µl
EHS1400-C25-1.5	1.5 mm thick, 25 sample	32 µl
EHS1400-C30-1.5	1.5 mm thick, 30 sample	26 µl
EHS1400-C36-1.5	1.5 mm thick, 36 sample	22 µl
EHS1400-C50-1.5	1.5 mm thick, 50 sample	16 µl

Replacement parts & Accessories

Code	Description
EHS1400-TRAY10	Gel casting tray, 20x10 cm
EHS1400-TRAY20	Gel casting tray, 20x20 cm
EHS1400-TRAY25	Gel casting tray, 20x25 cm
EHS1400-GATE	Casting dams, pk/2
EHS1400-POS	Positive electrode cassette (red)
EHS1400-NEG	Negative electrode cassette (black)
EHS1400-LG	Adhesive loading guides
EHS1400-BUFSAVE	Buffer saving blocks, pk/2 (saves 450 ml of buffer)
EHS1400-COOL	Cool-pack and platform
EHS1400-SCOOP	Gel scoop, 20 cm

Gel dimensions	26x16 cm 26x24 cm 26x32 cm
Buffer volume	1400 ml
Sample Capacity	672
Unit Dimensions	50x28x9 cm
Warranty	12 months

Recommended power supply
EV2650
EV3150

Designed for rapid screening of very large numbers of clonal or PCR samples, EHS1500 has a 672 maximum sample capacity per gel. This allows loading and analysis of seven 96 well format micro titre plates.

The large gel run length allows resolution of samples over a long distance for separation of complex sample bands. Buffer recirculation ports are included as standard to allow enhanced resolution over extended runs.

Ordering codes

Code	Description
EHS1500-SYS	Maxi-plus horizontal unit, 26x16 casting trays, 26x24 casting trays, 26x32 cm casting trays loading guides, dams, 6 combs: 28 sample, 1 mm thick
EHS1501-SYS	Maxi-plus horizontal unit, 26x16 cm gel casting tray loading guides, dams, 6 combs: 28 sample, 1 mm thick
EHS1502-SYS	Maxi-plus horizontal unit + 26x24 cm gel casting tray loading guides, dams, 6 combs: 28 sample, 1 mm thick
EHS1503-SYS	Maxi-plus horizontal unit + 26x32 cm gel casting tray loading guides, dams, 6 combs: 28 sample, 1 mm thick

Microtiter Combs

Code	Description	
EHS1500-CMT28-1.0	1 mm thick, 28 sample MC	34 µl
EHS1500-CMT56-1.0	1 mm thick, 56 sample MC	14 µl
EHS1500-CMT28-1.5	1.5 mm thick, 28 sample MC	51 µl
EHS1500-CMT56-1.5	1.5 mm thick, 56 sample MC	20 µl

Replacement parts & Accessories

Code	Description
EHS1500-TRAY16	Gel casting tray, 26x16 cm
EHS1500-TRAY24	Gel casting tray, 26x24 cm
EHS1500-TRAY32	Gel casting tray, 26x32 cm
EHS1500-TAPE	Gel tray sealing tape, 65 m x 25.4 mm
EHS1500-POS	Positive electrode cassette (red)
EHS1500-NEG	Negative electrode cassette (black)
EHS1500-LG	Adhesive loading guides
EHS1500-BUFSAVE	Buffer saving blocks, pk/2 (saves 625 ml of buffer)
EHS1500-COOL	Cool-pack and platform
EHS1500-SCOOP	Gel scoop, 26 cm