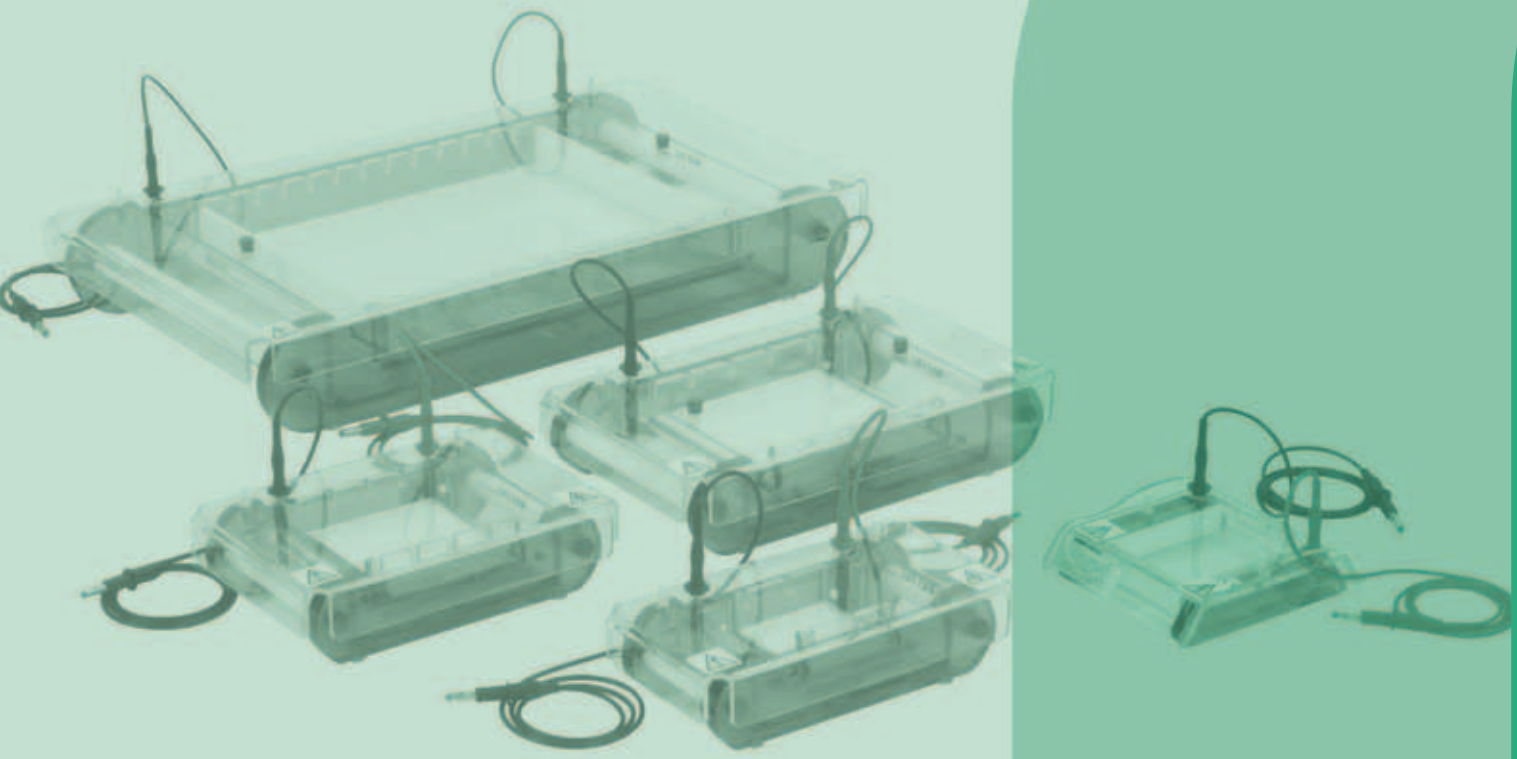

Horizontal Gel Units

Scie-Plas horizontal gel electrophoresis units offer the ultimate standards in innovative design and manufacture, acquired during our 20+ years existence.

Each model incorporates the many design and safety features recommended to us by scientists, either from within our in-house product development team or laboratories worldwide. As a result, all our models are manufactured and finished to the highest specification, easy to use, and, with safety always paramount, CE-marked - conforming to the latest European safety regulations.

BENEFITS INCLUDE

- **Robust acrylic tank construction 12mm walls, leak proof**
- **Safety lid with integral power leads**
- **Shrouded 4mm power output connectors universally compatible with modern-day low to medium voltage power supplies**
- **Long-life, 99.99 % pure platinum electrodes**
- **Gold-plated terminals with corrosion-free stainless steel washers**
- **Durable high-impact polystyrene (HIPS) combs**
- **UV-transparent acrylic gel-casting trays**
- **Offset asymmetric electrodes**
- **Colour-coded combs corresponding to 1, 1.5 and 2mm thicknesses**

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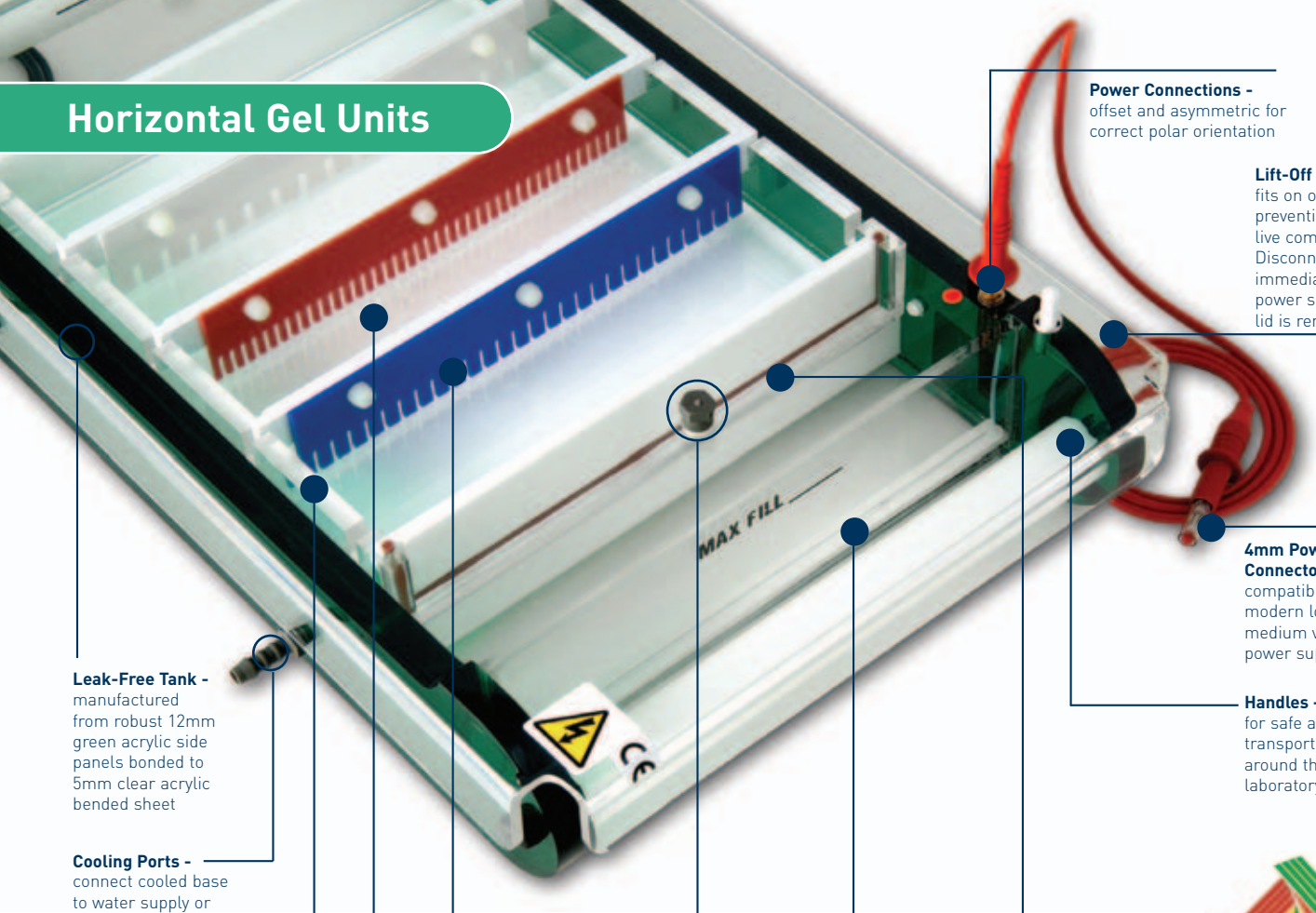
Horizontal Gel Units



Power Connections - offset and asymmetric for correct polar orientation

Lift-Off Lid - fits on one way only, preventing access to live components. Disconnects tank immediately from power supply once lid is removed

4mm Power Output Connectors - compatible with modern low to medium voltage power supplies

Handles - for safe and easy transportation around the laboratory

Leak-Free Tank - manufactured from robust 12mm green acrylic side panels bonded to 5mm clear acrylic bended sheet

Cooling Ports - connect cooled base to water supply or external chiller on CHU20 and CHU25 units only

Coloured strips - enhance sample visibility during loading

Gel Casting Tray - UV transparent with comb slots and end-grooves for seating casting gates

White Gel Table - for easier visualisation of marker dyes and samples as they migrate through the gel

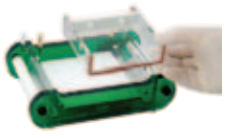
Combs - height-adjustable in Green Range units and colour-coded for thickness

Buffer Recirculation Ports - can be connected to a peristaltic pump, available on HU13, HU15, CHU20, HU20, CHU25 and HU25 units only

0.2mm Platinum Electrodes - 99.9% purity and user-replaceable

Gel Casting Options - available in multiple internal and external formats

1. Plastic casting gates

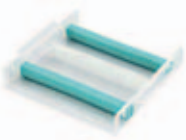


2. Silicone gaskets for direct in-tank casting

3. Silicone casting gates slot into preformed grooves

4. Casting gates with integral silicone seals

5. External casting unit for a maximum of 3 gels



6. Super-Seals for flexible gel casting

CASTING OPTION AVAILABLE WITH THE GREEN RANGE HORIZONTALS

CASTING OPTION	HB-SET	H1-SET	HU6	HU10	HU13	HU15	HU20	CHU20	HU25	CHU25
1. Plastic casting gates	✓	✓								
2. Silicone gaskets			✓	✓	✓					
3. Silicone casting gates			✓	✓	✓					
4. Casting gates with integral silicone seals						✓	✓	✓	✓	✓
5. External casting unit			✓	✓	✓					
6. Super-Seals™			✓	✓	✓	✓	✓	✓	✓	✓

The Scie-Plas horozontal range entails five individual series determined by gel tray size and sample throughput: -

The **MINI** and **MINI-PLUS** series, which comprise the HB-SET, H1-SET, HU6 and HU10 units, are ideal for screening and analysis of a wide range of samples, including PCR products, DNA mini-preps, plasmid vectors and restriction fragments. Each unit's compact size optimises the gel conditions and voltage gradient, allowing fast resolution of nucleic acids.

COMPLETE SYSTEM	APPLICATIONS			Part No.
	Teaching	Routine preparatory / analytical gel electrophoresis	Low throughput nucleic acid screening	
MINI				
Battery-powered horizontal mini-gel unit with built-in 6 x 7.5cm (W x L) casting tray	✓			HB-SET
'Easigel' fast-mini horizontal gel unit with built-in 10 x 8cm (W x L) casting tray	✓	✓		H1-SET
Mini horizontal gel unit with removable 6 x 7.5cm (W x L) casting tray		✓		HU6
MINI-PLUS				
Mini-Plus horizontal gel unit with removable 10 x 11.5cm (W x L) casting tray		✓	✓	HU10

The **MIDI** series, which includes the HU13 unit, accommodates standard gels for medium throughput analysis and preparation of nucleic acids, while the **STANDARD** HU15 provides the same comb-throughput and tray size options as industry standard units, with additional casting options.

COMPLETE SYSTEM	APPLICATIONS			Part No.
	Preparatory gel electrophoresis	Analytical gel electrophoresis	Medium throughput nucleic acid screening	
MIDI				
Midi horizontal gel unit with removable 12.8 x 15cm (W x L) casting tray		✓	✓	HU13
STANDARD				
Standard Format Midi horizontal gel unit with removable 15 x 15cm (W x L) casting tray	✓	✓	✓	HU15

The **MAXI** and **MAXI-PLUS** series, available in standard (HU20 and HU25) and cooled (CHU20 and CHU25) formats, are designed for the rapid, medium to high throughput screening of nucleic acids, such as HLA typing in population genetics studies. The cooled bases within the CHU20 and CHU25 units make these units ideal for hospital, university and industrial laboratories, which need to perform fast, large-scale analysis of nucleic acids at high voltage, but without compromising resolution.

COMPLETE SYSTEM	APPLICATIONS		Part No.
	Medium throughput nucleic acid screening	High throughput nucleic acid screening	
MAXI			
Maxi-Standard horizontal gel unit with removable 20 x 20cm (W x L) casting tray	✓		HU20
Maxi-Cooled horizontal gel unit with removable 20 x 20cm (W x L) casting tray	✓		CHU20
MAXI-PLUS			
Maxi-Plus Standard horizontal gel unit with removable 25 x 30cm (W x L) casting tray	✓	✓	HU25
Maxi-Plus Cooled horizontal gel unit with removable 25 x 30cm (W x L) casting tray	✓	✓	CHU25

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BENEFITS INCLUDE

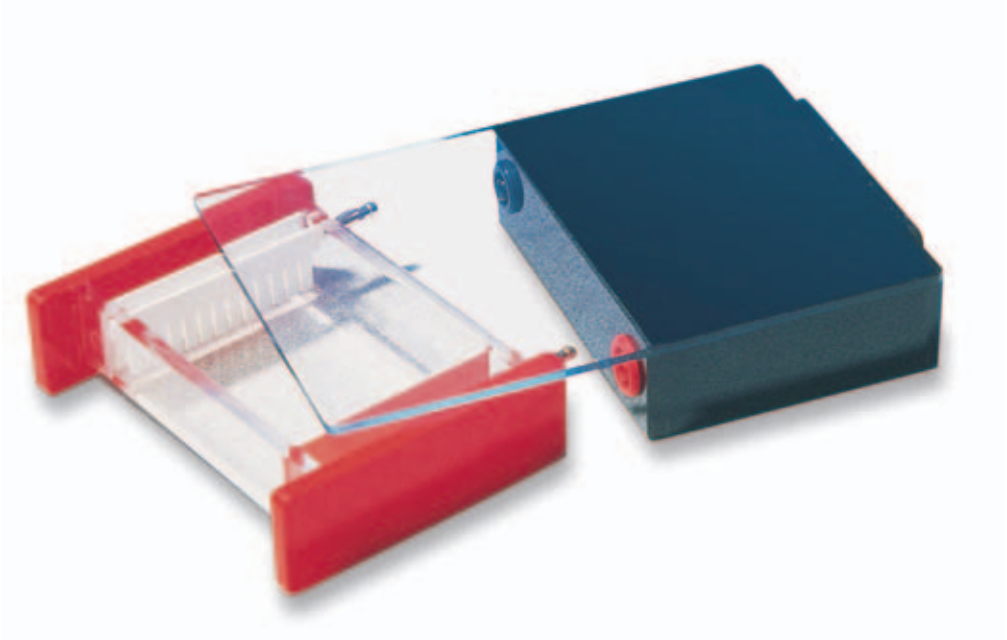
- **Low voltage -** 2 non-rechargeable PP3 batteries, providing a maximum 18-Volt output, make the HB-SET ideal for use in schools and colleges where safety is paramount
- **Integrated safety lid -** ensures that the gel remains inaccessible during use
- **UV-transparent acrylic -** for direct visualisation of the gel within the tank, limiting the user's exposure to hazardous ethidium bromide
- **Ultra-compact tank -** minimises the buffer volume required to cover the gel, providing optimal control over the voltage gradient and run-time
- **Small size -** allows safe and easy transportation from the bench to the transilluminator
- **Cost-effective -** no need for expensive power supplies, while built-in plastic casting gates allow direct gel casting in the tank without additional costly accessories

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	11 x 17 x 3.5cm
Gel Dimensions (W x L)	6 x 7.5cm
Minimum Buffer Volume	50ml
Maximum Sample Capacity	32
Combs	2
Comb Thickness	1mm
Comb Throughput	8 to 12 samples
Comb Slots	2
Migration Distance Between Comb Slots	3.5cm
Running Voltage	18V
Recommended Power Source	2 x (9V) PP3 batteries

DO YOU NEED...?

AGAROSE	SEE PAGE 118
A POWER SUPPLY	SEE PAGES 91-92
A GEL DOCUMENTATION SYSTEM	SEE PAGE 96
GEL ANALYSIS SOFTWARE	SEE PAGE 97
A UV STERILISATION CABINET	SEE PAGE 98



HB-SET Mini-gel

The HB-SET battery mini-gel electrophoresis unit is designed specifically with safety and cost in mind: in that no power supply is necessary.

TECHNICAL | Tip:

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

ORDERING INFORMATION

Complete System	**Part No.**
Horizontal mini-gel unit with built-in casting tray and 2 x 1mm thick, 8-sample combs and 2 x non-rechargeable PP3 batteries	HB-SET
Replacement Parts & Accessories	
2 x casting gates	HB-CG

HB-SET Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
H2-C1-8	1	8	5.25	1	23
H2-C1-12	1	12	3.5	1	15

Easigel H1-SET

The Easigel H1-SET offers a swift and simple horizontal gel electrophoresis solution for standard preparative and analytical studies of nucleic acids.

BENEFITS INCLUDE

- **Plastic casting gates -** for direct gel casting in the tank with no need for costly accessories
- **Colour-coded combs -** 1 and 1.5mm thick, offer flexibility in sample-loading volume to a maximum 40-sample throughput
- **Quick-release lid -** disconnects the tank and lid simultaneously from the power supply for safe gel loading and disposal
- **UV-transparent acrylic -** for direct visualisation of the gel within the tank, limiting the user's exposure to hazardous ethidium bromide
- **Compact design -** minimises the buffer volume required to cover the gel, providing optimal control over the voltage gradient and run-time
- **Small size -** allows safe and easy transportation from the bench to the transilluminator

ORDERING INFORMATION

Complete System	**Part No.**
'Easigel' horizontal gel unit with built-in casting tray and 2 x 1.5mm thick, 8-sample combs	H1-SET
Replacement Parts & Accessories	
2 x casting gates	H1-CG
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4
2 x 0.2mm thick, platinum electrode wire	PT-0.2

H1-SET Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
H1-C1-8	1	8	10	2	45
H1-C1-12	1	12	6	2	27
H1-C1-16	1	16	4	2	18
*H1-C1-20MC	1	20	2.8	2	12
H1-C1.5-8	1.5	8	10	2	65
H1-C1.5-12	1.5	12	6	2	40
H1-C1.5-16	1.5	16	4	2	27
*H1-C1.5-20MC	1.5	20	2.8	2	18

*Multichannel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	13.5 x 15 x 3cm
Gel Dimensions (W x L)	10 x 8cm
Minimum Buffer Volume	50 ml
Maximum Sample Capacity	40
Combs	2
Comb Thickness	1 or 1.5mm
Comb Throughput	8 to 20 samples
Comb Slots	2
Migration Distance Between Comb Slots	3cm
Recommended Running Voltage (power supply)	70 to 90V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV222

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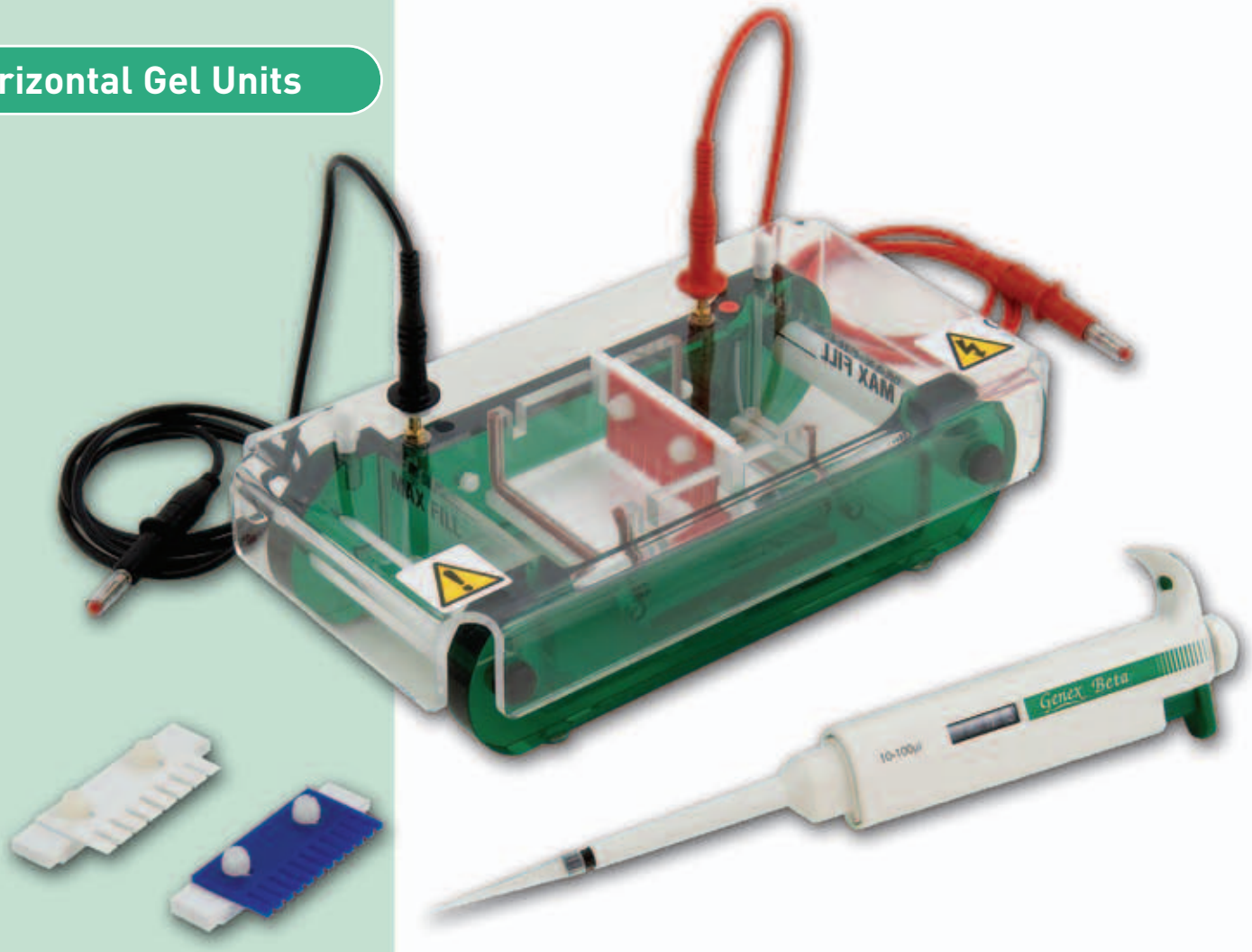


BENEFITS INCLUDE

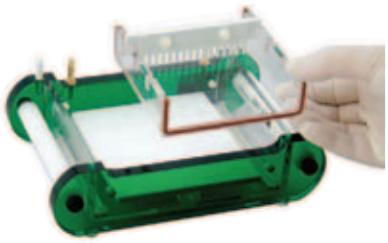
- **Four casting options -** provide total flexibility in gel casting, either directly within the tank or externally when the tank is in use
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth to a maximum 32-sample throughput
- **Coloured loading strips -** for easy well detection when loading
- **Short 6cm gel length -** ideal for rapid separations
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

HU6 Mini Horizontal

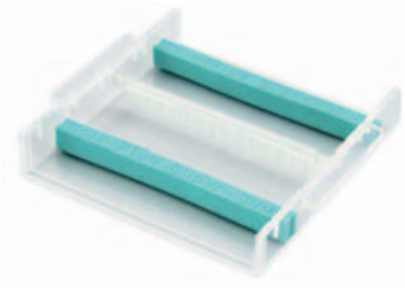
The HU6 mini horizontal gel electrophoresis unit is ideal for routine preparatory and analytical electrophoresis techniques.

HU6 IN-TANK CASTING OPTIONS

HU6-UT - silicone gaskets, lining the HU6 casting tray, form a leak proof seal against the inner walls of the running chamber when the casting tray is turned at 90° to the direction of electrophoresis



HU6-SS - 6cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



Replacement parts and accessories

ORDERING INFORMATION

Complete System	**Part No.**
Mini horizontal gel unit with removable casting tray and 2 x 1mm thick, 8-sample combs and coloured loading strips	HU6

Replacement Parts & Accessories	
1 x gel casting tray 6 x 7.5cm	HU6-UT
2 x silicone casting gates	HU6-SCG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU6-SS
6 x coloured loading strips	HU6-CS
1 x external casting unit for 3 gel casting trays	HU6-CU
1 x gel scoop	HU6-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

HU6 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU6-C1-8	1	8	4.5	2	20
*HU6-C1-12MC	1	12	2.5	2	11
HU6-C1-16	1	16	2.2	1	10
HU6-C1.5-8	1.5	8	4.5	2	30
*HU6-C1.5-12MC	1.5	12	2.5	2	17
HU6-C1.5-16	1.5	16	2.2	1	15
HU6-C2-8	2	8	4.5	2	40
*HU6-C2-12MC	2	12	2.5	2	22
HU6-C2-16	2	16	2.2	1	20

*Multi-channel pipette compatible

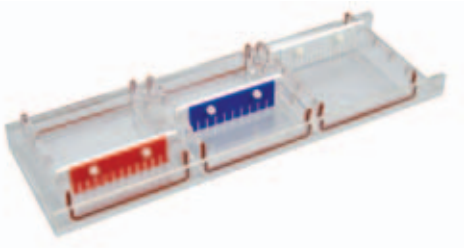
TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	13 x 24 x 6.5cm
Gel Dimensions (W x L)	6 x 7.5cm
Buffer Volume	325ml
Maximum Sample Capacity	32
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	8 to 16 samples
Comb Slots	2
Migration Distance Between Comb Slots	3.5cm
Recommended Running Voltage	70 to 90V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV222

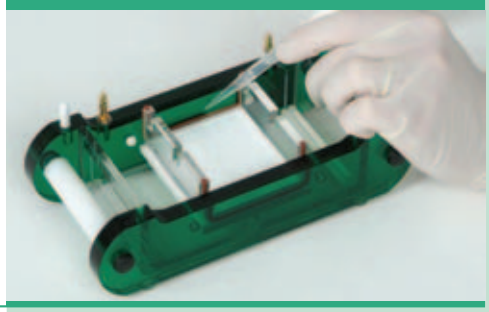
HU6 EXTERNAL CASTING OPTIONS

HU6-SCG - silicone casting gates slot into the grooves at each end of the casting tray to form a leak-free seal

HU6-CU - silicone gaskets, seated in the groove of each casting tray, form a leak-free seal against the walls of the casting unit, allowing 3 gels to be cast simultaneously



CASTING TIP **Regardless of the casting method, ensure leak-free casting by lining the casting unit with agarose and allowing it to set before pouring the remainder of the hand-hot agarose mixture i.e. at approx. 50°C**



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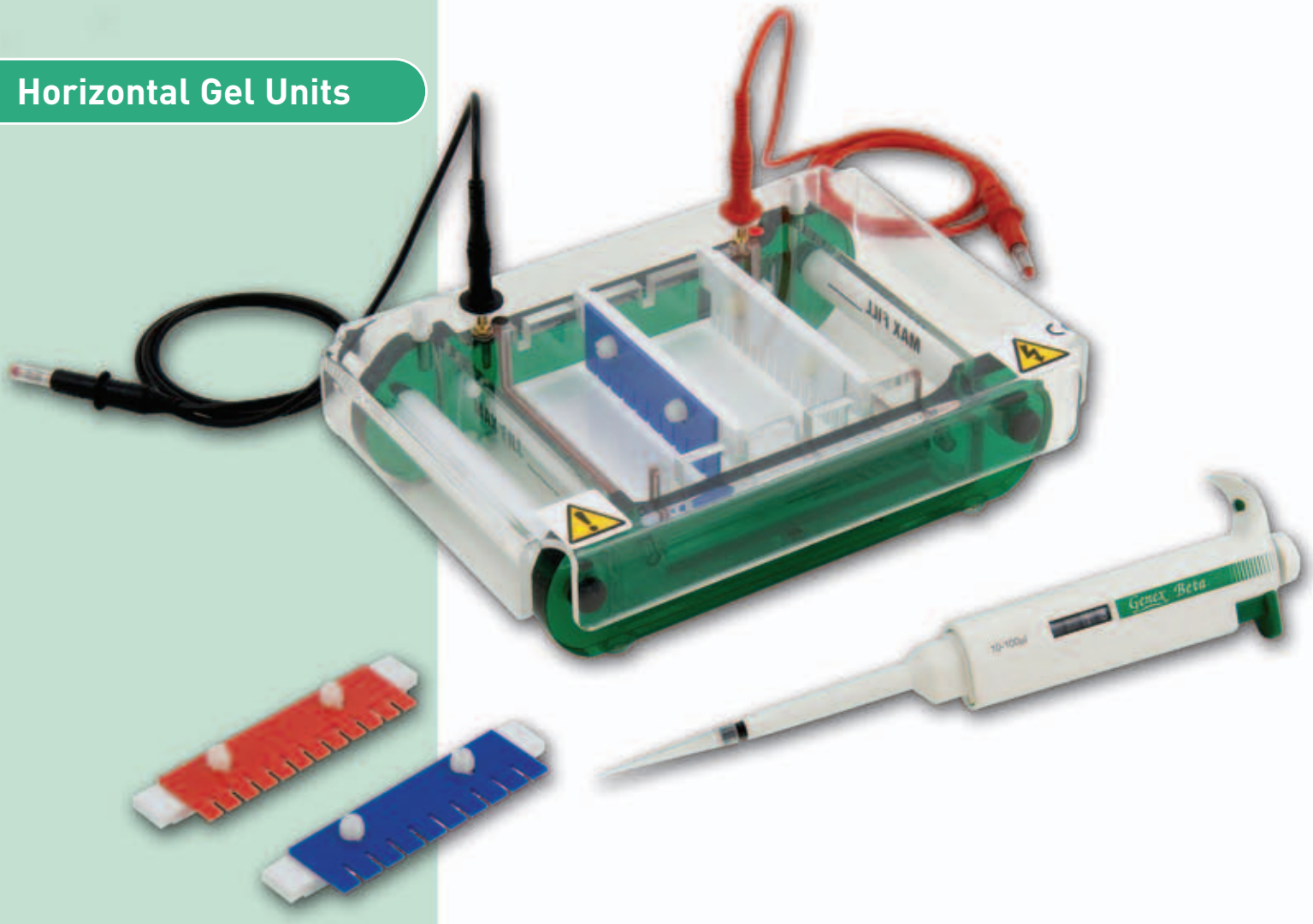


BENEFITS INCLUDE

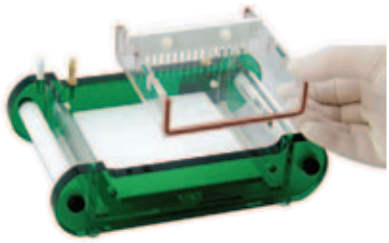
- **Four casting options -** provide total flexibility in gel casting, either directly within the tank or externally when the tank is in use
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth to a maximum 80-sample throughput
- **Four comb positions -** at 2.5cm intervals along the tray for swift separation of multiple samples
- **Coloured loading strips -** for easy well detection when loading
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

HU10 Mini-Plus Horizontal

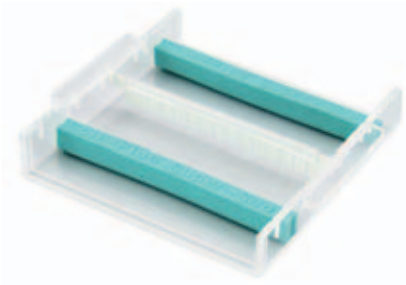
The HU10 mini-plus horizontal gel electrophoresis unit is ideal for routine preparatory and analytical electrophoresis techniques.

IN-TANK CASTING OPTIONS

HU10-UT - silicone gaskets, lining the HU10 casting tray, form a leak proof seal against the inner walls of the running chamber when the casting tray is turned at 90° to the direction of electrophoresis



HU10-SS - 10cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



Replacement parts and accessories

ORDERING INFORMATION

Complete System	**Part No.**
Mini-plus horizontal gel unit with removable casting tray and 2 x 1mm thick, 16-sample combs and coloured loading strips	HU10

Replacement Parts & Accessories

1 x gel casting tray 10 x 11.5cm	HU10-UT
2 x silicone casting gates	HU10-SCG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU10-SS
12 x coloured loading strips	HU10-CS
1 x external casting unit for 3 gel casting trays	HU10-CU
1 x gel scoop	HU10-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

HU10 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU10-C1-8	1	8	9	2.5	40
*HU10-C1-10MC	1	10	7	2	30
HU10-C1-12	1	12	5.5	2	25
HU10-C1-16	1	16	3.6	2	15
*HU10-C1-20MC	1	20	3	1.5	12
HU10-C1.5-8	1.5	8	9	2.5	60
*HU10-C1.5-10MC	1.5	10	7	2	45
HU10-C1.5-12	1.5	12	5.5	2	35
HU10-C1.5-16	1.5	16	3.6	2	25
*HU10-C1.5-20MC	1.5	20	3	1.5	20
HU10-C2-8	2	8	9	2.5	80
*HU10-C2-10MC	2	10	7	2	60
HU10-C2-12	2	12	5.5	2	50
HU10-C2-16	2	16	3.6	2	30
*HU10-C2-20MC	2	20	3	1.5	25

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	16.5 x 23 x 6.5cm
Gel Dimensions (W x L)	10 x 11.5cm
Buffer Volume	450ml
Maximum Sample Capacity	80
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	8 to 20 samples
Comb Slots	4
Migration Distance Between Comb Slots	2.5cm
Recommended Running Voltage	75 to 125V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV222

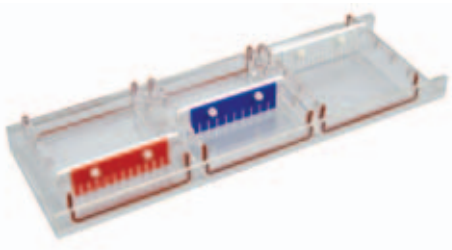
DO YOU NEED...?

AGAROSE	SEE PAGE 118
SUPER-SEALS™	SEE PAGE 33
A GEL LEVELING TABLE	SEE PAGE 34
UV TRANSILLUMINATORS	SEE PAGE 100

HU10 EXTERNAL CASTING OPTIONS

HU10-SCG - silicone casting gates slot into the grooves at each end of the casting tray to form a leak-free seal

HU10-CU - silicone gaskets, seated in the groove of each casting tray, form a leak-free seal against the walls of the casting unit, allowing 3 gels to be cast simultaneously



TECHNICAL TIP | **Gasket too tight or loose? Simply remove the gaskets from the ends of the gel trays and refit into the groove. Refit with the gasket protruding slightly from the ends if the gel tray was too tight or with the gasket fitted below the top edges if the gasket was too loose.**

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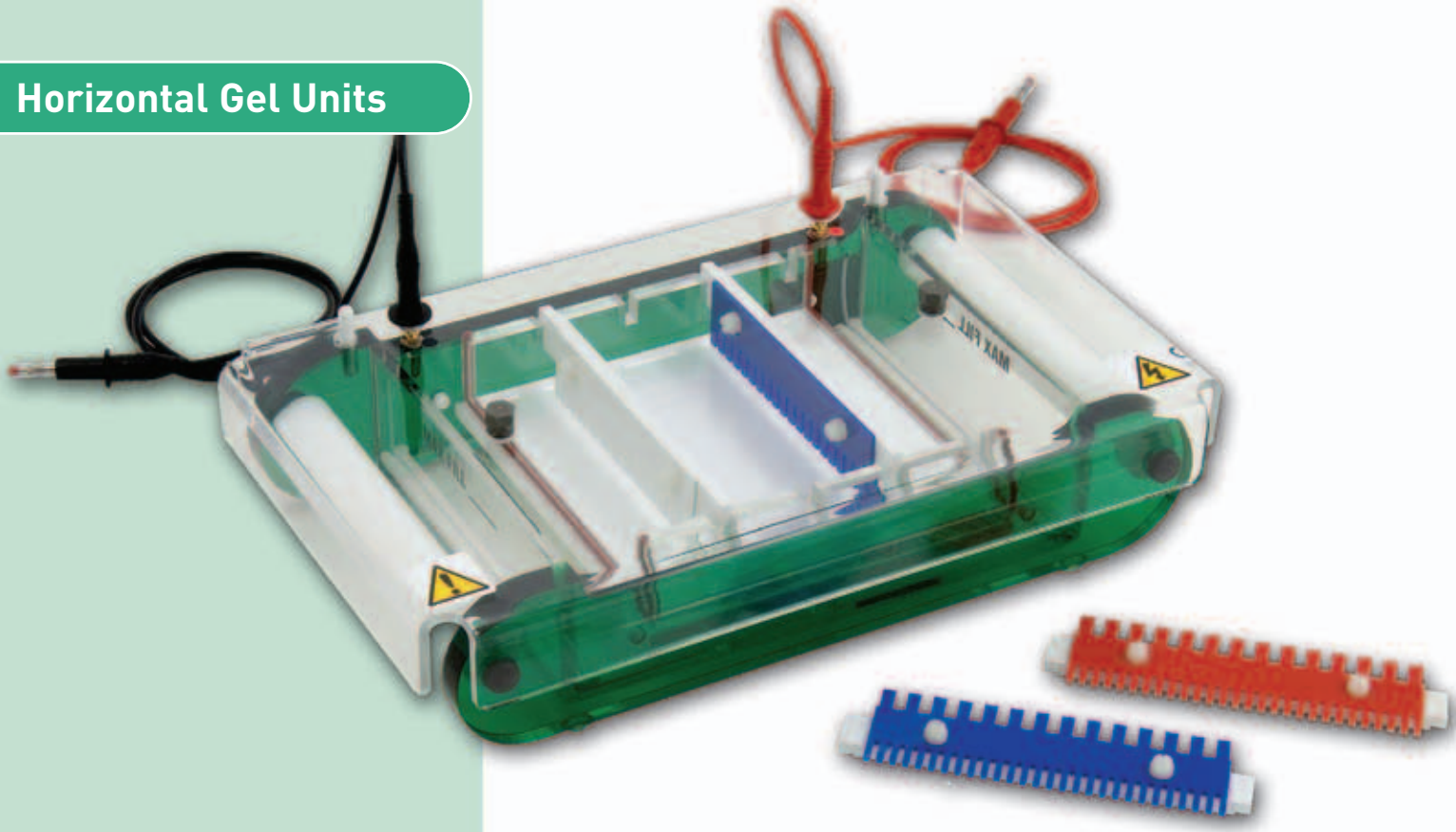
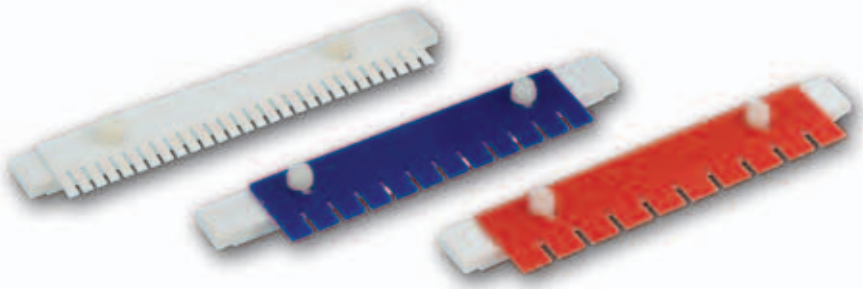


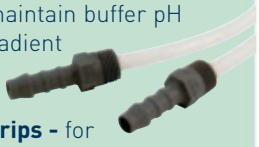


HU13 Midi Horizontal

The HU13 midi horizontal gel electrophoresis unit is ideal for analytical and preparative studies of nucleic acids.

BENEFITS INCLUDE

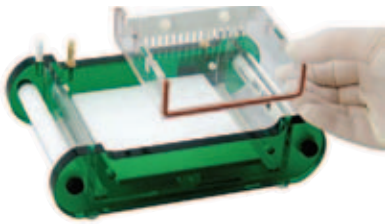
- **Four casting options -** provide total flexibility in gel casting, either directly within the tank or externally when the tank is in use
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth to a maximum 112-sample throughput
- **Four comb positions -** at 3.5cm intervals along the tray for faster separation of multiple samples
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation



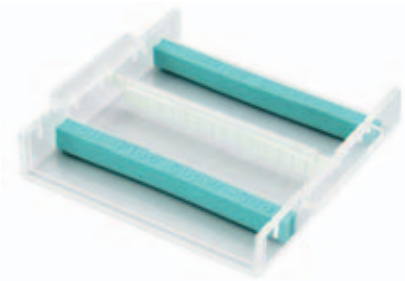
- **Coloured loading strips -** for easy well detection when loading
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

HU13 IN-TANK CASTING OPTIONS

HU13-UT - silicone gaskets, lining the HU10 casting tray, form a leak proof seal against the inner walls of the running chamber when the casting tray is turned at 90° to the direction of electrophoresis



HU13-SS - 13cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



ORDERING INFORMATION

Complete System	Part No.
Midi horizontal gel unit with removable casting tray and 2 x 1mm thick, 16-sample combs, coloured loading strips and buffer recirculation ports	HU13

Replacement Parts & Accessories

1 x gel casting tray 12.8 x 15cm	HU13-UT
2 x buffer recirculation ports	HU-BRP
2 x silicone casting gates	HU13-SCG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU13-SS
12 x coloured loading strips	HU13-CS
1 x external casting unit for 3 gel casting trays	HU13-CU
1 x gel scoop	HU13-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1metre power leads with shrouded 4mm power output connectors	CABLE-4

HU13 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU13-C1-10	1	10	9.5	2.5	40
HU13-C1-12MC	1	12	8	2	35
HU13-C1-16	1	16	5.5	2	25
HU13-C1-20	1	20	4	2	17
HU13-C1-24	1	24	3	2	13
*HU13-C1-28MC	1	28	3	1.5	13
HU13-C1.5-10	1.5	10	9.5	2.5	60
HU13-C1.5-12MC	1.5	12	8	2	50
HU13-C1.5-16	1.5	16	5.5	2	35
HU13-C1.5-20	1.5	20	4	2	25
HU13-C1.5-24	1.5	24	3	2	20
*HU13-C1.5-28MC	1.5	28	3	1.5	20
HU13-C2-10	2	10	9.5	2.5	85
HU13-C2-12MC	2	12	8	2	70
HU13-C2-16	2	16	5.5	2	50
HU13-C2-20	2	20	4	2	35
HU13-C2-24	2	24	3	2	25
*HU13-C2-28MC	2	28	3	1.5	25

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

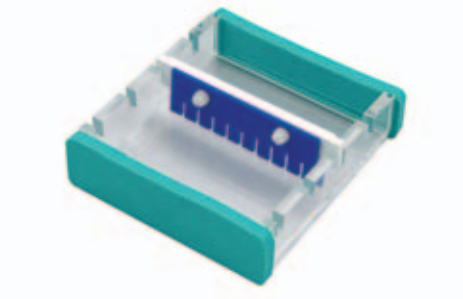
Unit Dimensions (W x L x H)	20 x 32 x 7cm
Gel Dimensions (W x L)	12.8 x 15cm
Buffer Volume	900ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	112
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	10 to 28 samples
Comb Slots	4
Migration Distance Between Comb Slots	3.5cm
Recommended Running Voltage	100 to 125V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

DO YOU NEED...?

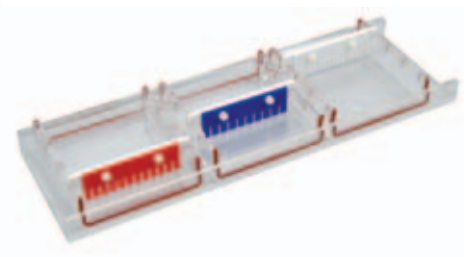
ELECTROPHORESIS BUFFERS	SEE PAGE 119
COLOURED LOADING STRIPS	SEE PAGE 34
A POWER SUPPLY	SEE PAGES 91-92
AN EXTERNAL CASTING UNIT	SEE PAGE 32
A GEL SCOOP	SEE PAGE 34

HU13 EXTERNAL CASTING OPTIONS

HU13-SCG - silicone casting gates slot into the grooves at each end of the casting tray to form a leak-free seal



HU13-CU - silicone gaskets, seated in the groove of each casting tray form a leak-free seal against the walls of the casting unit, allowing 3 gels to be cast simultaneously



TECHNICAL TIP | DNA Mobility: DNA fragments as small as 1kb or less can be separated using agarose gel electrophoresis. For fragments smaller than 0.1kb, polyacrylamide gels are more suitable.

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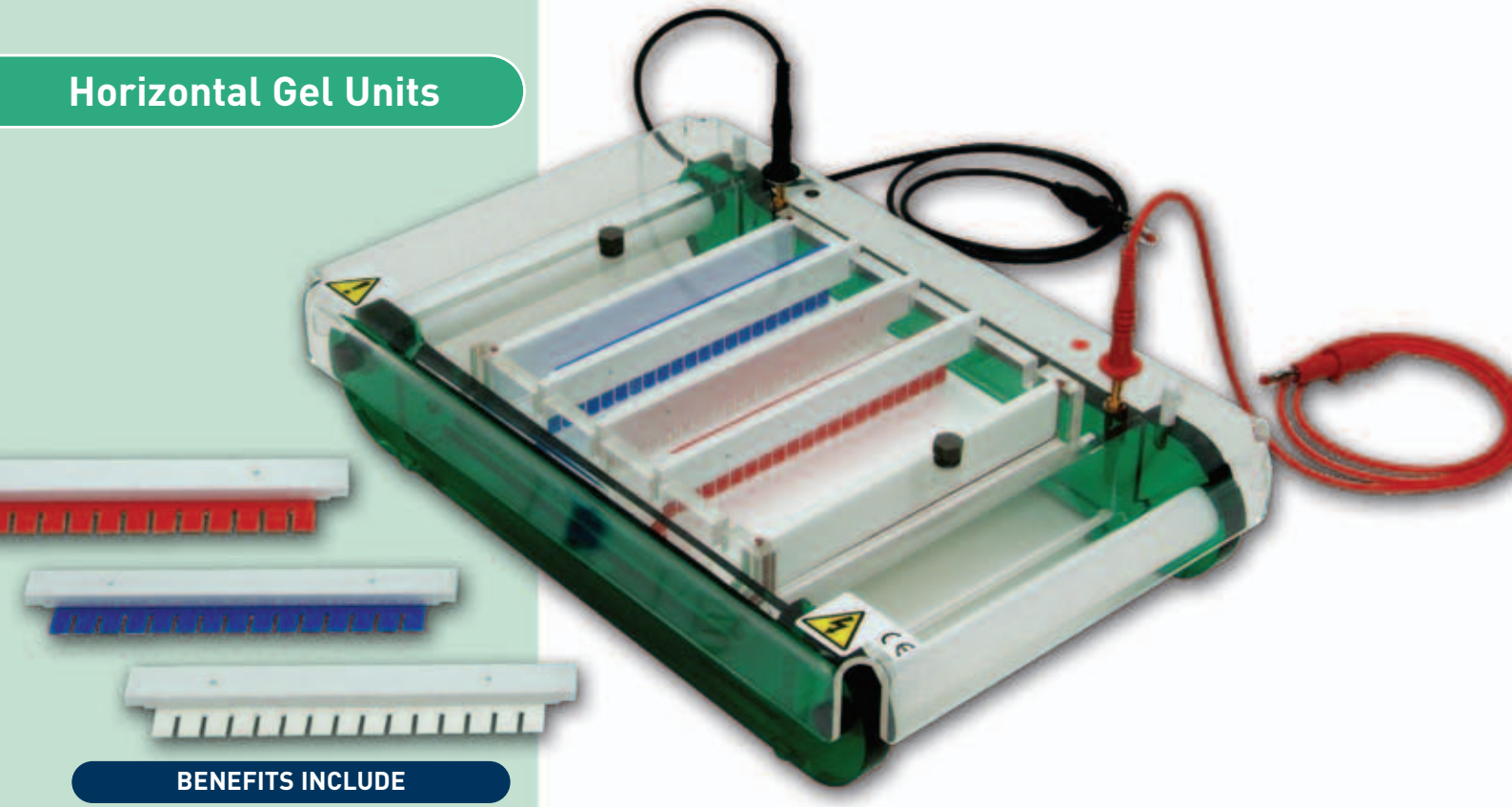


BENEFITS INCLUDE

- **The market standard -** a 15 x 15cm gel tray, with comb options ranging from 1 to 30 samples, is currently the most popular format in today's market
- **Four comb slots -** at 3.5cm intervals along the tray for faster separation of a maximum 120 samples
- **Multi-channel pipette compatible combs -** with a maximum 30-sample throughput reduce gel-loading time, while preparatory combs enable nucleic acids to be scaled-up for cloning

- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

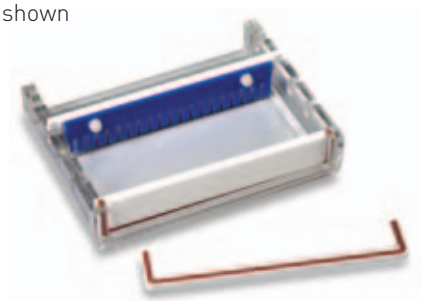
- **Coloured loading strips -** for easy well detection when loading
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

HU15 Standard Horizontal

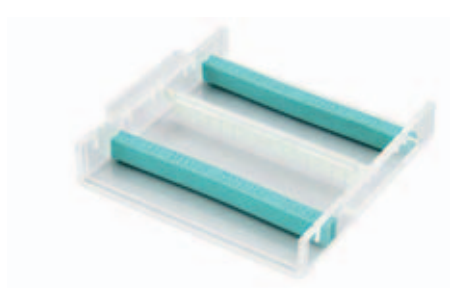
The HU15 standard horizontal gel electrophoresis unit provides the comb throughput and tray-size options most popular in today's market, but with additional casting options.

HU15 CASTING OPTIONS

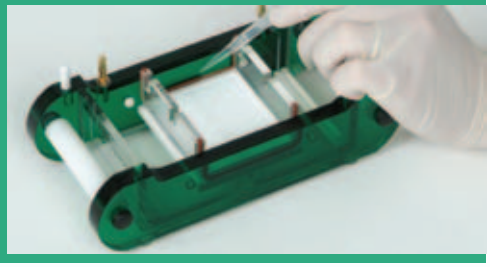
HU15-CG - casting gates with integral silicone seals effectively seal the tray without the need for tape, provided the silicone gasket faces outwards as shown



HU15-SS - 15cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



CASTING TIP **Regardless of the casting method, ensure leak-free casting by lining the casting unit with agarose and allowing it to set before pouring the remainder of the hand-hot agarose mixture i.e. at approx. 50°C**



Replacement parts and accessories

ORDERING INFORMATION

Complete System	Part No.
Standard horizontal gel unit with removable casting tray, including casting gates with integral silicone seals, 2 x 1mm thick, 16-sample combs, coloured loading strips and buffer recirculation ports	HU15

Replacement Parts & Accessories

1 x gel casting tray, 15 x 15cm, including casting gates with integral silicone seals	HU15-UT
2 x buffer recirculation ports	HU-BRP
2 x casting gates with integral silicone seals	HU15-CG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU15-SS
12 x coloured loading strips	HU15-CS
1 x gel scoop	HU15-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

HU15 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU15-C1-10	1	10	12.8	2	64
HU15-C1-15	1	15	7	2	35
*HU15-C1-16MC	1	16	6.4	2	32
HU15-C1-20	1	20	5.9	2	29
HU15-C1-25	1	25	3.5	2	17
*HU15-C1-30MC	1	30	2.5	2	12
HU15-C1.5-10	1.5	10	12.8	2	96
HU15-C1.5-15	1.5	15	7	2	52
*HU15-C1.5-16MC	1.5	16	6.4	2	48
HU15-C1.5-20	1.5	20	5.9	2	43
HU15-C1.5-25	1.5	25	3.5	2	25
*HU15-C1.5-30MC	1.5	30	2.5	2	18
HU15-C2-10	2	10	12.8	2	128
HU15-C2-15	2	15	7	2	70
*HU15-C2-16MC	2	16	6.4	2	64
HU15-C2-20	2	20	5.9	2	58
HU15-C2-25	2	25	3.5	2	34
*HU15-C2-30MC	2	30	2.5	2	24

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	21.5 x 33.5 x 7cm
Gel Size (W x L)	15 x 15cm
Buffer Volume	1200ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	120
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	1 to 30 samples
Comb Slots	4
Migration Distance Between Comb Slots	3.5cm
Recommended Running Voltage	100 to 125V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

ELECTROPHORESIS CHEMICALS SEE PAGES 117-123

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BENEFITS INCLUDE

- **Large format -** 20 x 20cm gel tray is ideal for high-resolution techniques, such as screening PCR® products and RFLP analysis
- **Four comb slots -** at 5cm intervals along the tray for faster separation of a maximum 168 samples
- **Multi-channel pipette compatible combs -** with a maximum 42-sample throughput - reduce gel-loading time

- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

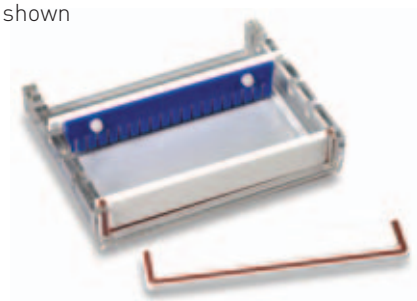
- **Coloured loading strips -** for easy well detection when loading
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory
- **Cooled version available -** see page 18

HU20 Maxi-Standard Horizontal

The HU20 maxi-standard horizontal gel electrophoresis unit is ideal for high-resolution analytical and preparative studies of nucleic acids.

HU20 CASTING OPTIONS

HU20-CG - casting gates with integral silicone seals effectively seal the tray without the need for tape, provided the silicone gasket faces outwards as shown



HU20-SS - 20cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements

Replacement parts and accessories

TECHNICAL TIP | RNA

Mobility: Either before or during electrophoresis, RNA should be denatured. For example:-

a. **RNA fragments which have been denatured with glyoxal and dimethyl sulphoxide can be separated on neutral agarose gels; or**

b. **RNA can be fractionated on agarose gels containing methylmercuric hydroxide or formaldehyde.**

c. **RNA samples usually require longer runs or buffers that are easily depleted, so it is necessary to circulate the buffer. Northern analyses should not be run on a mini-gel tank.**

ORDERING INFORMATION

Complete System	**Part No.**
Maxi-standard horizontal gel unit with removable casting tray, including casting gates with integral silicone seals, 2 x 1mm thick, 16-sample combs, coloured loading strips and buffer recirculation ports	HU20

Replacement Parts & Accessories	
1 x gel casting tray, 20 x 20cm, including casting gates with integral silicone seals	HU20-UT
2 x buffer recirculation ports	HU-BRP
2 x casting gates with integral silicone seals	HU20-CG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU20-SS
12 x coloured loading strips	HU20-CS
1 x gel scoop	HU20-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

HU20 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU20-C1-16	1	16	8.5	3	35
*HU20-C1-20MC	1	20	7	2	30
HU20-C1-28	1	28	5	2	20
*HU20-C1-40MC	1	40	3	2	13
HU20-C1.5-16	1.5	16	8.5	3	55
*HU20-C1.5-20MC	1.5	20	7	2	45
HU20-C1.5-28	1.5	28	5	2	30
*HU20-C1.5-40MC	1.5	40	3	2	19
HU20-C2-16	2	16	8.5	3	75
*HU20-C2-20MC	2	20	7	2	60
HU20-C2-28	2	28	5	2	40
*HU20-C2-40MC	2	40	3	2	25

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	27 x 47.5 x 8cm
Gel Size (W x L)	20 x 20cm
Buffer Volume	2200ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	168
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	16 to 42 samples
Comb Slots	4
Migration Distance Between Comb Slots	5cm
Recommended Running Voltage	150 to 175V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

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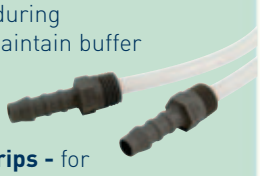
BENEFITS INCLUDE

- **Large format -** 25 x 30cm gel tray is ideal for high-throughput techniques, such as HLA typing and screening PCR® products
- **Twelve comb slots -** at 2cm intervals along the tray for rapid, high throughput separation of a maximum 624 samples
- **Multi-channel pipette compatible combs -** with a maximum 52-sample throughput - allow samples to be loaded quickly and easily from 96 and 384-well thermal cyclers
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation



- **Coloured loading strips -** for easy well detection when loading
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory
- **Cooled version available -** see page 20

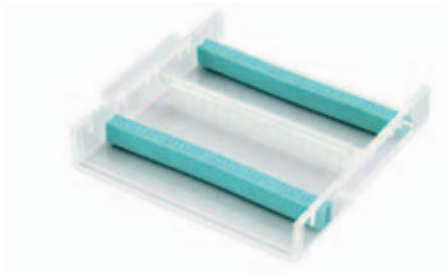
HU25 Maxi-Plus Standard Horizontal

The HU25 maxi-plus standard horizontal gel electrophoresis unit is ideal for high throughput analysis of nucleic acids.

HU25 CASTING OPTIONS

HU25-CG - casting gates with integral silicone seals effectively seal the tray without the need for tape, provided the silicone gasket faces outwards as shown

HU25-SS - 25cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



Replacement parts and accessories

ORDERING INFORMATION

Complete System	**Part No.**
Maxi-plus standard horizontal gel unit with removable casting tray, including casting gates with integral silicone seals, 6 x 1mm thick, 26-sample combs, coloured loading strips and buffer recirculation ports	HU25

Replacement Parts & Accessories	
1 x gel casting tray, 25 x 30cm, including casting gates with integral silicone seals	HU25-UT
2 x buffer recirculation ports	HU-BRP
2 x casting gates with integral silicone seals	HU25-CG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU25-SS
36 x coloured loading strips	HU25-CS
1 x gel scoop	HU25-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

HU25 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
*HU25-C1-26MC	1	26	7	2	30
*HU25-C1-52MC	1	52	3	1.5	13
*HU25-C1.5-26MC	1.5	26	7	2	45
*HU25-C1.5-52MC	1.5	52	3	1.5	20
*HU25-C2-26MC	2	26	7	2	60
*HU25-C2-52MC	2	52	3	1.5	25

*Multi-channel pipette compatible

TECHNICAL TIP |

Electrophoresis Buffer Selection: TAE buffer provides optimal resolution of fragments >4kb in length, while for 0.1 to 3kb 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.

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	33 x 56 x 9cm
Gel Size (W x L)	25 x 30cm
Buffer Volume	3000ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	624
Combs	6
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	26 to 52 samples
Comb Slots	12
Migration Distance Between Comb Slots	2cm
Recommended Running Voltage	150 to 200V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

DO YOU NEED...?

SUPER-SEALS™	SEE PAGE 33
A POWER SUPPLY	SEE PAGES 91-92
A GEL SCOOP	SEE PAGE 34
UV TRANSILLUMINATORS	SEE PAGE 100

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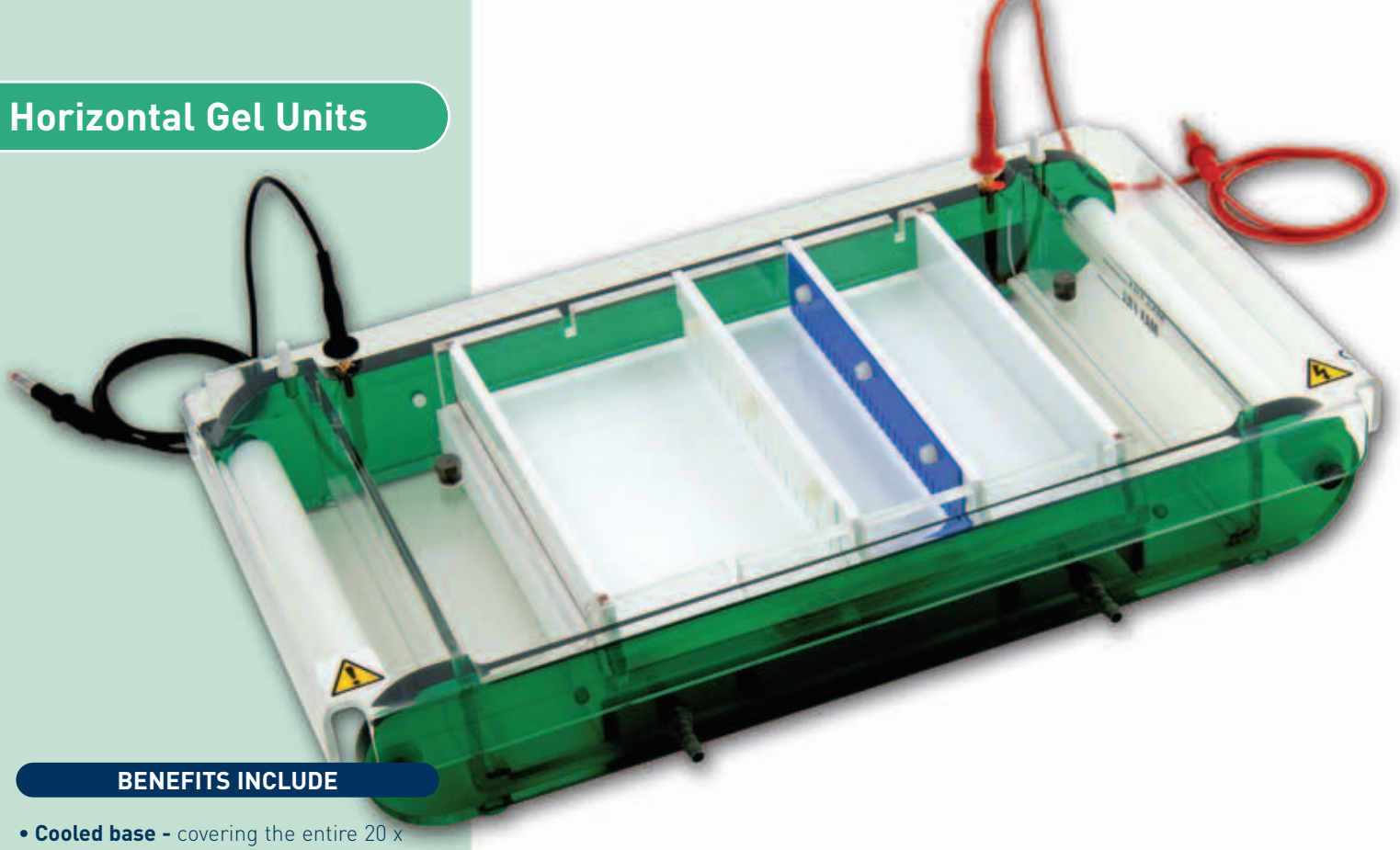

BENEFITS INCLUDE

- **Cooled base -** covering the entire 20 x 20cm gel tray - allows separations to be performed faster and at higher voltage, without loss of resolution
- **Cooling ports -** connect the cooled base either to the laboratory water supply or the optional external chiller (Page 82) for enhanced cooling

- **Four comb slots -** at 5cm intervals along the tray for faster separation of a maximum 168 samples
- **Multichannel pipette compatible combs -** with a maximum 42-sample throughput - reduce gel-loading time
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation
- **Coloured loading strips -** for easy well detection when loading
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

CHU20 Maxi-Cooled Horizontal

The CHU20 maxi-cooled horizontal gel electrophoresis unit allows analytical and preparative studies of nucleic acids to be performed quickly at high voltage without compromising resolution.

CHU20 CASTING OPTIONS

HU20-CG - casting gates with integral silicone seals effectively seal the tray without the need for tape, provided the silicone gasket faces outwards as shown

HU20-SS - 20cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements

TECHNICAL TIP |

Temperature: 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 Volts, as heat build up can generate gel artefacts 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.

Replacement parts and accessories

ORDERING INFORMATION

Complete System	**Part No.**
Maxi-cooled horizontal gel unit with removable casting tray, including casting gates with integral silicone seals, 2 x 1mm thick, 16-sample combs, coloured loading strips and buffer recirculation ports	CHU20

Replacement Parts & Accessories	
1 x gel casting tray, 20 x 20cm, including casting gates with integral silicone seals	HU20-UT
2 x buffer recirculation ports	HU-BRP
2 x casting gates with integral silicone seals	HU20-CG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU20-SS
12 x coloured loading strips	HU20-CS
1 x gel scoop	HU20-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

CHU20 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
HU20-C1-16	1	16	8.5	3	35
*HU20-C1-20MC	1	20	7	2	30
HU20-C1-28	1	28	5	2	20
*HU20-C1-40MC	1	40	3	2	13
HU20-C1.5-16	1.5	16	8.5	3	55
*HU20-C1.5-20MC	1.5	20	7	2	45
HU20-C1.5-28	1.5	28	5	2	30
*HU20-C1.5-40MC	1.5	40	3	2	19
HU20-C2-16	2	16	8.5	3	75
*HU20-C2-20MC	2	20	7	2	60
HU20-C2-28	2	28	5	2	40
*HU20-C2-40MC	2	40	3	2	25

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	27 x 47.5 x 8cm
Gel Size (W x L)	20 x 20cm
Buffer Volume	2200ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	168
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	16 to 42 samples
Comb Slots	6
Cooling Ports	2
Migration Distance Between Comb Slots	5cm
Recommended Running Voltage	150 to 225V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

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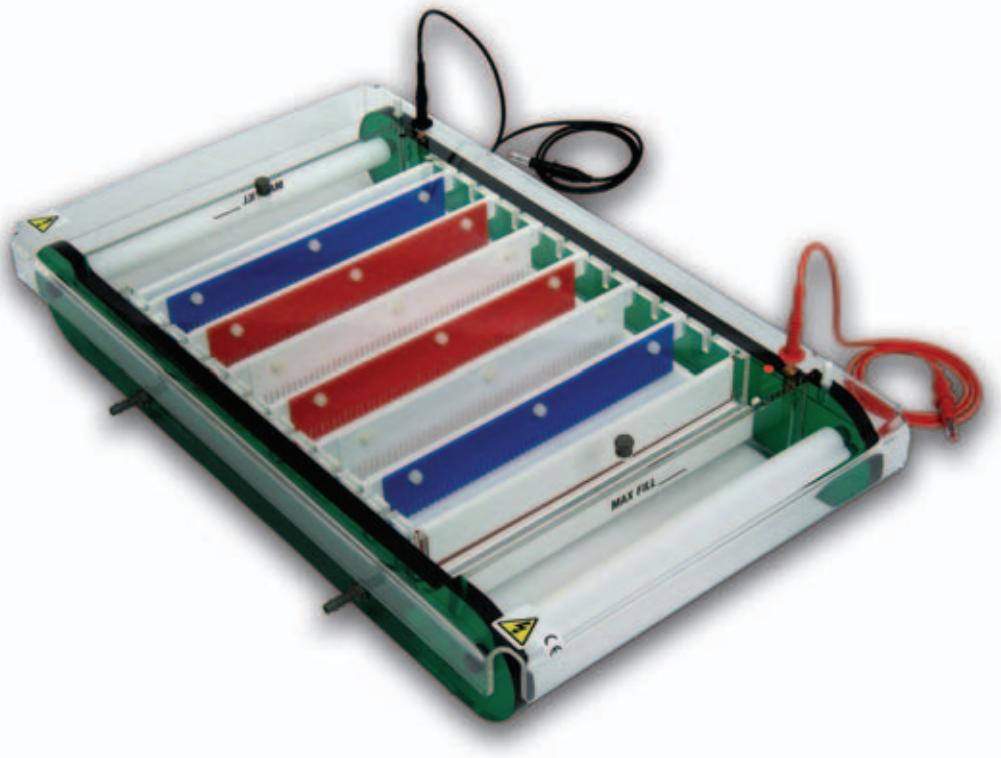


CHU25 Maxi-Plus Cooled Horizontal

The CHU25 maxi-plus cooled horizontal gel electrophoresis unit allows high throughput screening of nucleic acids to be performed quickly at high voltage without compromising resolution.

BENEFITS INCLUDE

- **Cooled base -** covering the entire 25 x 30cm gel tray - allows separations to be performed faster and at higher voltage, without loss of resolution
- **Cooling ports -** connect the cooled base either to the laboratory water supply or the optional external chiller (Page 82) for enhanced cooling

- **Twelve comb slots -** at 2cm intervals along the tray for rapid, high throughput separation of a maximum 624 samples
- **Multi-channel pipette compatible combs -** with a maximum 52-sample throughput - allow samples to be loaded quickly and easily from 96 and 384-well thermal cyclers

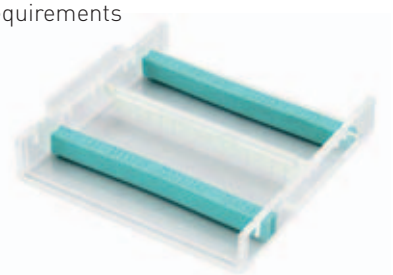
- **Combs -** colour-coded and height-adjustable - offer complete control over loading volume and well depth
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

- **Coloured loading strips -** for easy well detection when loading
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Side handles -** for safe and easy transportation around the laboratory

CHU25 CASTING OPTIONS

HU25-CG - casting gates with integral silicone seals effectively seal the tray without the need for tape, provided the silicone gasket faces outwards as shown

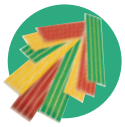
HU25-SS - 25cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



CASTING TIP **Regardless of the casting method, ensure leak-free casting by lining the casting unit with agarose and allowing it to set before pouring the remainder of the hand-hot agarose mixture i.e. at approx. 50°C**

TECHNICAL TIP | Separation Performance: Gel concentration, running buffer, voltage, temperature, nucleic acid conformation and the presence of ethidium bromide all affect separation results. To establish the progress of double stranded DNA, ethidium bromide (0.5µg/ml) is often added to the running buffer. The dye's fluorescent properties allow the bands to be visualised under a UV lamp. However, ethidium bromide may slow down the DNA migration rate by approx. 15%. As an alternative, after electrophoresis, the gel may be stained in an ethidium bromide solution (0.5µg/ml H_2O) for 15 to 60 minutes and then viewed or photographed on a UV transilluminator. Note: The staining time should be minimised to prevent small nucleic acid fragments from diffusing out of the gel. Background fluorescence of unbound ethidium bromide can be minimised through destaining by soaking the gel for 5 minutes in 0.01M $MgCl_2$, or for 30 minutes in de-ionised water.

Replacement parts and accessories



ORDERING INFORMATION

Complete System	**Part No.**
Maxi-plus cooled horizontal gel unit with removable casting tray, including casting gates with integral silicone seals, 6 x 1mm thick, 26-sample combs, coloured loading strips and buffer recirculation ports	CHU25

Replacement Parts & Accessories	
1 x gel casting tray, 25 x 30cm, including casting gates with integral silicone seals	HU25-UT
2 x buffer recirculation ports	HU-BRP
2 x casting gates with integral silicone seals	HU25-CG
1 x silicone gasket, 1 metre	HU-SG
2 x Scie-Plas Super-Seals	HU25-SS
36 x coloured loading strips	HU25-CS
1 x gel scoop	HU25-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

CHU25 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
*HU25-C1-26MC	1	26	7	2	30
*HU25-C1-52MC	1	52	3	1.5	13
*HU25-C1.5-26MC	1.5	26	7	2	45
*HU25-C1.5-52MC	1.5	52	3	1.5	20
*HU25-C2-26MC	2	26	7	2	60
*HU25-C2-52MC	2	52	3	1.5	25

*Multi-channel pipette compatible

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	33 x 56 x 9cm
Gel Size (W x L)	25 x 30cm
Buffer Volume	3000ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	624
Combs	6
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	26 to 52 samples
Comb Slots	12
Cooling Ports	2
Migration Distance Between Comb Slots	2cm
Recommended Running Voltage	150 to 250V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

DO YOU NEED...?

A UV STERILISATION CABINET SEE PAGE 98
A THERMAL CYCLER SEE PAGE 99
A RECIRCULATING CHILLER SEE PAGE 82
A BUFFER RECIRCULATION PUMP SEE PAGE 35
A GEL DOCUMENTATION SYSTEM SEE PAGE 96

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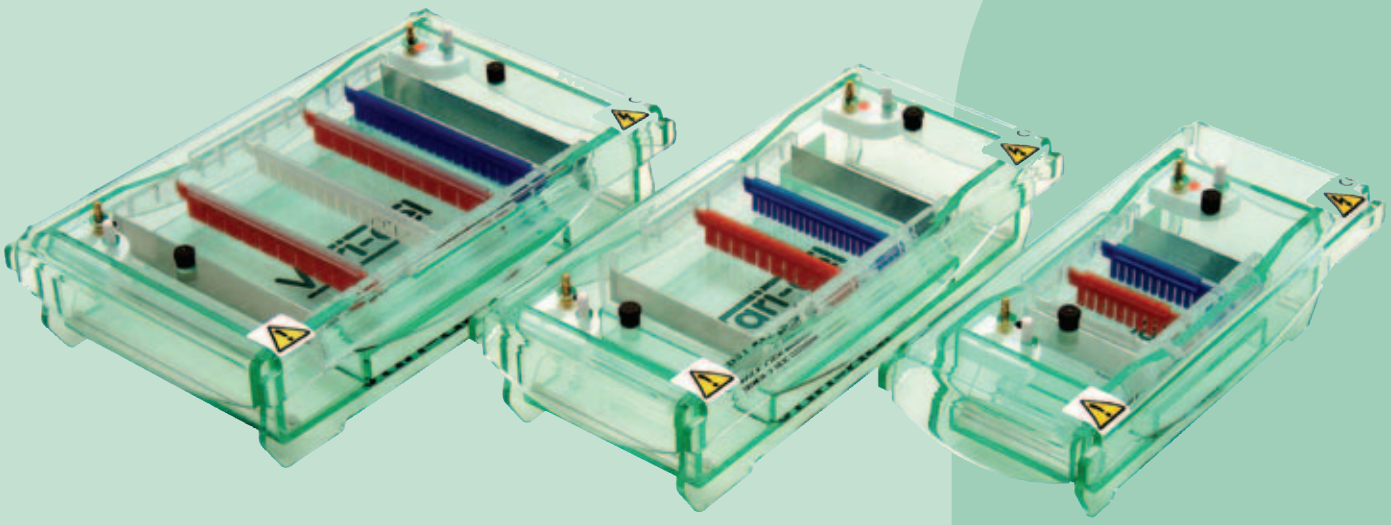

The Vari-gel Range

The Vari-gel Range is designed to provide a low cost electrophoresis solution that not only offers several gel tray options within one tank but also retains the quality and features of the popular Green Range horizontal units.

The Vari-gel Range is available in MINI, MIDI and MAXI formats, each format determined by the width and number of gel-casting trays.

ORDERING INFORMATION

Complete System	**Part No.**
MINI A 7cm wide Vari-gel unit, which includes two gel-casting trays: 7 x 7cm and 7 x 10cm (W x L)	SVG-SYS
MIDI A 10cm wide Vari-gel unit, which includes three gel-casting trays: 10 x 7cm, 10 x 10cm and 10 x 15cm (W x L)	TVG-SYS
MAXI A 15cm wide Vari-gel unit, which includes four gel-casting trays: 15 x 7cm, 15 x 10cm, 15 x 15cm and 15 x 20cm (W x L)	VG-SYS

Each unit is fabricated from 5mm acrylic sheet as standard and comprises two combs, buffer recirculation ports, gel trays with aluminium casting gates and platinum electrodes 0.2mm in diameter.

BENEFITS INCLUDE

- **Robust acrylic tank construction**
- **Safety lid with integral power leads**
- **Shrouded 4mm power output connectors universally compatible with modern-day low to medium voltage power supplies**
- **Long-life, 99.99 % pure platinum electrodes**
- **Gold-plated terminals with corrosion-free stainless steel washers**
- **Durable high-impact polystyrene (HIPS) combs**
- **UV-transparent acrylic gel-casting trays**
- **Offset asymmetric electrodes**
- **Colour-coded combs corresponding to 1, 1.5 and 2mm thicknesses**

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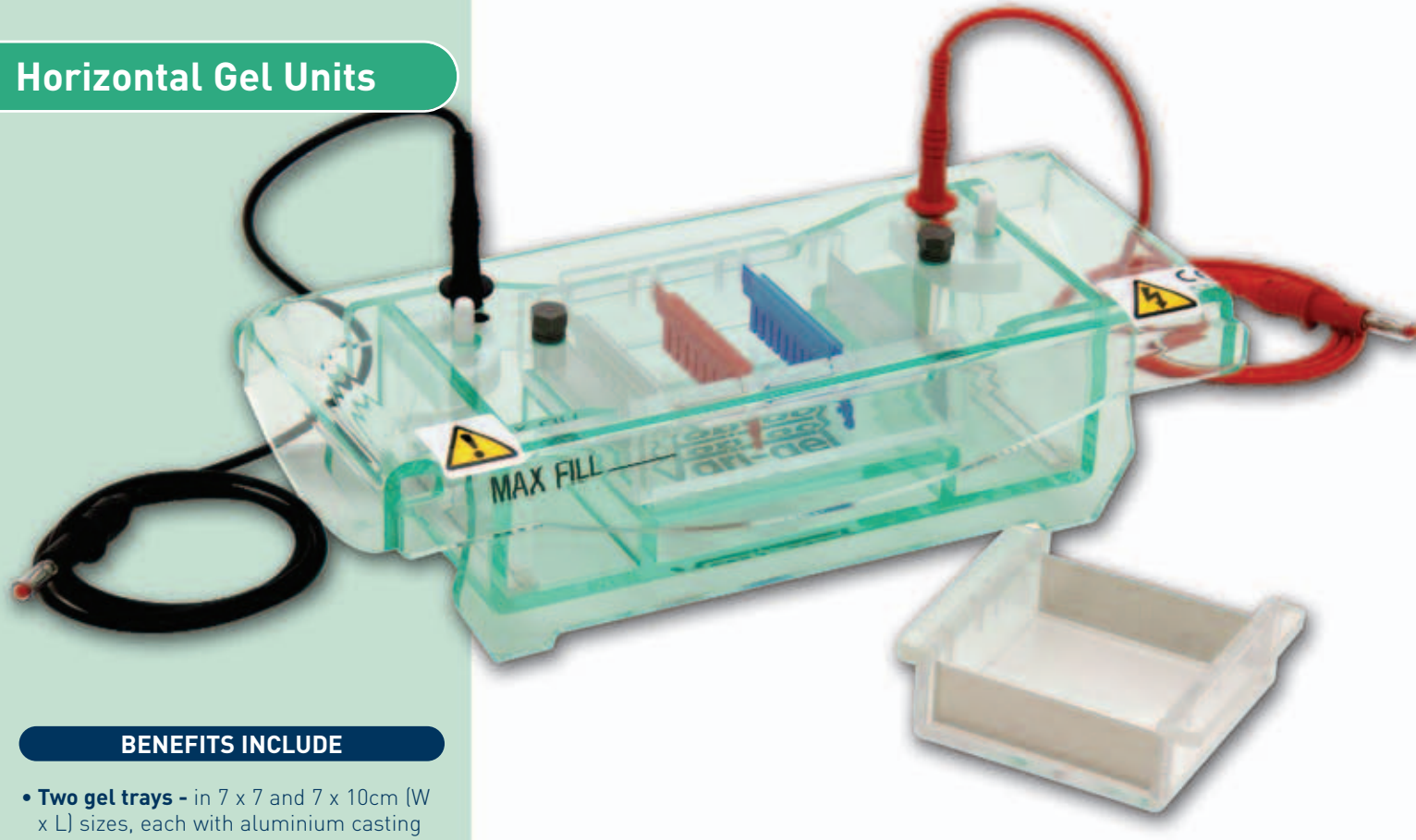


BENEFITS INCLUDE

- **Two gel trays -** in 7 x 7 and 7 x 10cm (W x L) sizes, each with aluminium casting gates
- **Multiple comb slots -** regularly positioned along the gel tray and corresponding to each comb thickness - allow the user to adjust the sample migration distance according to their own personal preference
- **Colour-coded combs -** 1, 1.5 and 2mm thick
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

- **Coloured loading strips -** for easy well detection when loading
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Scie-Plas Super-Seals -** available as an accessory for flexible casting

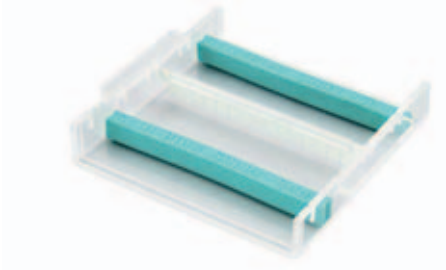
SVG-SYS Vari-gel MINI System

The SVG-SYS Vari-gel mini system is ideal for standard preparatory and analytical electrophoresis techniques.

SVG-SYS CASTING OPTIONS

SVG-GT-ALCG - aluminium casting gates at each end of the gel tray guarantee leak-free casting when they are first lined with agarose

SVG-SS - 7cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements



CASTING TIP **Regardless of the casting method, ensure leak-free casting by lining the casting unit with agarose and allowing it to set before pouring the remainder of the hand-hot agarose mixture i.e. at approx. 50°C**

ORDERING INFORMATION

Complete System	**Part No.**
A complete 7cm wide Vari-gel system with 2 removable gel trays, 7 x 7 and 7 x 10cm (W x L); 2 x 1mm, 15-sample combs; aluminium casting gates and coloured loading strips	SVG-SYS

Replacement Parts & Accessories	
1 x gel casting tray, 7 x 7cm, including aluminium casting gates	SVG-GT-7
1 x gel casting tray, 7 x 10cm, including aluminium casting gates	SVG-GT-10
2 x buffer recirculation ports	HU-BRP
2 x aluminium casting gates	SVG-GT-ALCG
2 x Scie-Plas Super-Seals	SVG-SS
6 x coloured loading strips	SVG-CS
1 x gel scoop	SVG-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

SVG-SYS Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
SVG-C1-8	1	8	5.5	2	27
SVG-C1-12	1	12	3	2	15
SVG-C1-15	1	15	2	2	10
*SVG-C1-16MC	1	16	1.75	2	8
SVG-C1.5-8	1.5	8	5.5	2	40
SVG-C1.5-12	1.5	12	3	2	22
SVG-C1.5-15	1.5	15	2	2	15
*SVG-C1.5-16MC	1.5	16	1.75	2	12
SVG-C2-8	2	8	5.5	2	54
SVG-C2-12	2	12	3	2	30
SVG-C2-15	2	15	2	2	20
*SVG-C2-16MC	2	16	1.75	2	16

*Multi-channel pipette compatible

TRAY OPTIONS

Part No.	**Tray 1 SVG-GT-7**	**Tray 2 SVG-GT-10**
Gel Size (W x L)	7 x 7cm	7 x 10cm
Combs Slots	4 (2 slots for 1mm combs; 2 slots for 1.5 and 2mm combs)	6 (3 slots for 1mm combs; 3 slots for 1.5 and 2mm combs)
Migration Distance Between Comb Slots	2.8cm	3.0cm
Maximum Sample Capacity	32	48

*each tray includes 2 x aluminium casting gates

TECHNICAL SPECIFICATION

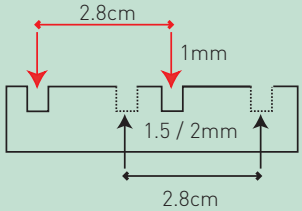
Unit Dimensions (W x L x H)	25 x 11 x 7cm
Gel Size (W x L)	see Trays
Buffer Volume	350ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	48
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	8 to 20 samples
Recommended Running Voltage	75 to 100V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV222

DO YOU NEED...?

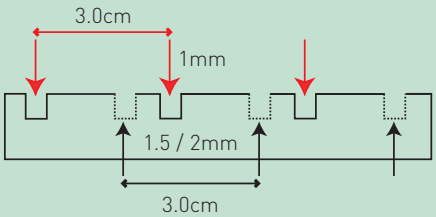
AGAROSE	SEE PAGE 118
A GEL LEVELING TABLE	SEE PAGE 34
A POWER SUPPLY	SEE PAGES 91-92
SUPER-SEALS™	SEE PAGE 33

Migration distances between comb slots, for either 1mm or 1.5 and 2mm combs, in the SVG-SYS gel-casting trays

SVG-GT-7



SVG-GT-10



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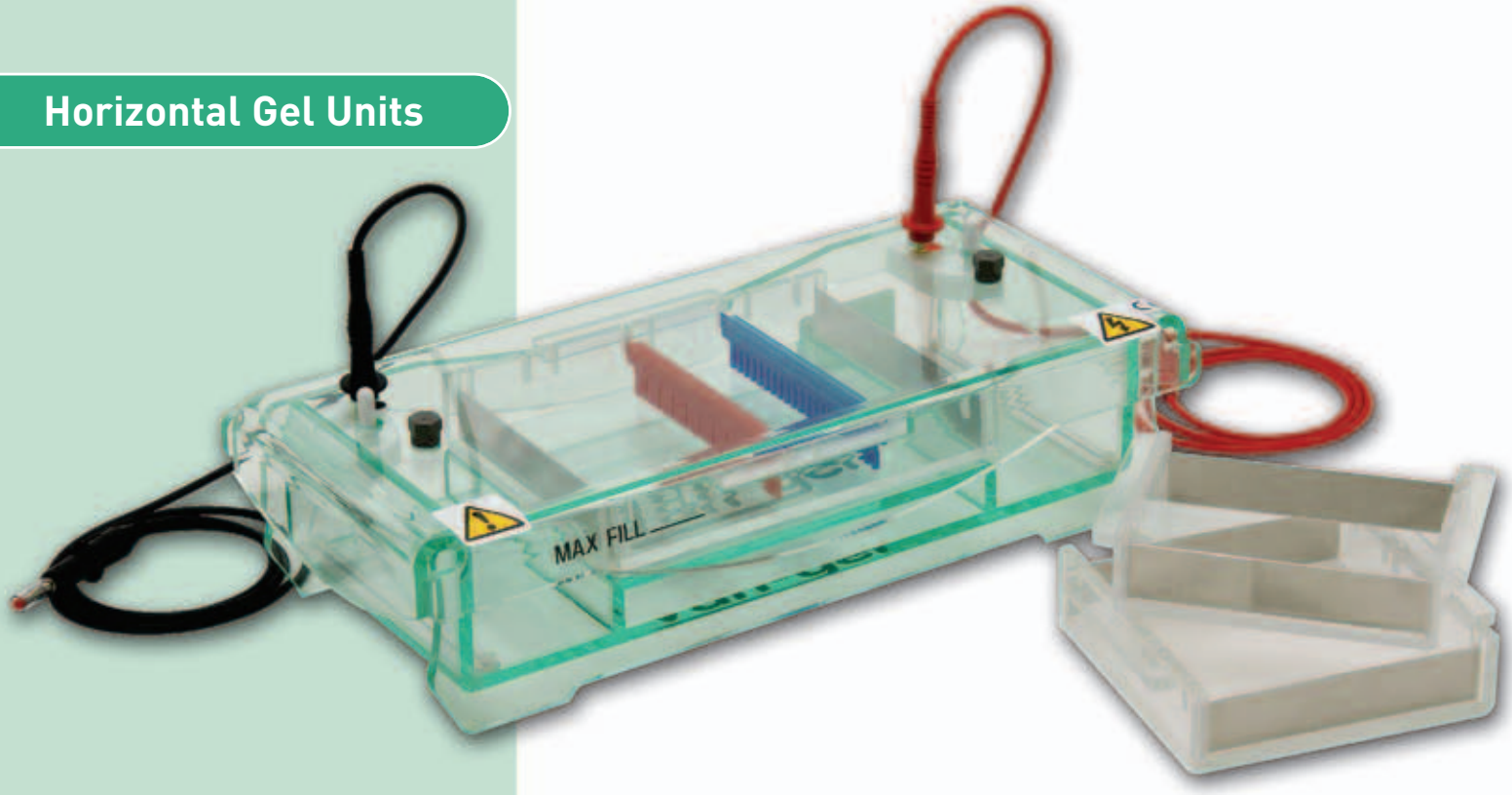


BENEFITS INCLUDE

- **Three gel trays -** in 10 x 7, 10 x 10 and 10 x 15cm (W x L) sizes, each with aluminium casting gates
- **Multiple comb slots -** regularly positioned along the gel tray and corresponding to each comb thickness - allow the user to adjust the sample migration distance according to their own personal preference
- **Colour-coded combs -** 1, 1.5 and 2mm thick
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

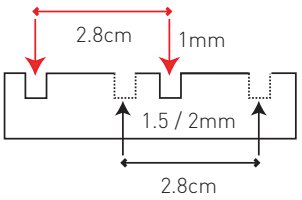
- **Coloured loading strips -** for easy well detection when loading
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Scie-Plas Super-Seals -** available as an accessory for flexible casting

TVG-SYS Vari-gel MIDI System

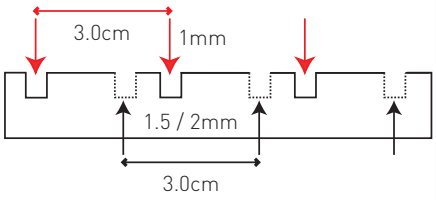
The TVG-SYS Vari-gel midi system is ideal for standard preparatory and analytical electrophoresis techniques.

Migration distances between comb slots, for either 1mm or 1.5 and 2mm combs, in the TVG-SYS gel-casting trays

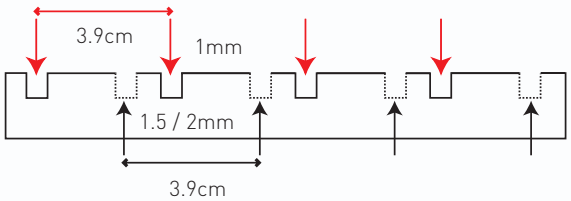
TVG-GT-7



TVG-GT-10



TVG-GT-15



TRAY OPTIONS

Part No.	Tray 1 TVG-GT-7	Tray 2 TVG-GT-10	Tray 3 TVG-GT-15
Gel Size (W x L)	10 x 7cm	10 x 10cm	10 x 15cm
Combs Slots	4 (2 slots for 1mm combs; 2 slots for 1.5 and 2mm combs)	6 (3 slots for 1mm combs; 3 slots for 1.5 and 2mm combs)	8 (4 slots for 1mm combs; 4 slots for 1.5 and 2mm combs)
Migration Distance Between Comb Slots	2.8cm	3.0cm	3.9cm
Maximum Sample Capacity	40	60	80

*each tray includes 2 x aluminium casting gates

ORDERING INFORMATION

Complete System	Part No.
A complete 10cm wide Vari-gel system with 3 removable gel trays, 10 x 7, 10 x 10 and 10 x 15cm (W x L); 2 x 1mm, 15-sample combs; aluminium casting gates and coloured loading strips	TVG-SYS

Replacement Parts & Accessories

1 x gel casting tray, 10 x 7cm, including aluminium casting gates	TVG-GT-7
1 x gel casting tray, 10 x 10cm, including aluminium casting gates	TVG-GT-10
1 x gel casting tray, 10 x 15cm, including aluminium casting gates	TVG-GT-15
2 x buffer recirculation ports	HU-BRP
2 x aluminium casting gates	TVG-GT-ALCG
2 x Scie-Plas Super-Seals	TVG-SS
10 x coloured loading strips	TVG-CS
1 x gel scoop	TVG-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

TVG-SYS Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
TVG-C1-8	1	8	9.25	2	45
TVG-C1-12	1	12	5.5	2	25
TVG-C1-15	1	15	4	2	20
*TVG-C1-16MC	1	16	3.62	2	15
TVG-C1-20	1	20	2.5	2	10
TVG-C1.5-8	1.5	8	9.25	2	65
TVG-C1.5-12	1.5	12	5.5	2	35
TVG-C1.5-15	1.5	15	4	2	30
*TVG-C1.5-16MC	1.5	16	3.62	2	20
TVG-C1.5-20	1.5	20	2.5	2	15
TVG-C2-8	2	8	9.25	2	90
TVG-C2-12	2	12	5.5	2	50
TVG-C2-15	2	15	4	2	40
*TVG-C2-16MC	2	16	3.62	2	30
TVG-C2-20	2	20	2.5	2	20

*Multi-channel pipette compatible

TVG-SYS CASTING OPTIONS

TVG-GT-ALCG - aluminium casting gates at each end of the gel tray guarantee leak-free casting when they are first lined with agarose

TVG-SS - 10cm long Scie-Plas Super-Seals offer total versatility in casting, allowing the gel length to be tailored to each user's personal requirements

TECHNICAL TIP | Caution: Ethidium bromide is a known mutagen. Always wear gloves when handling. Wear UV safety goggles and protect skin when using any UV light source.

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	31.5 x 14.5 x 7cm
Gel Size (W x L)	see Trays
Buffer Volume	650ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	80
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	8 to 20 samples
Recommended Running Voltage	75 to 125V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV222

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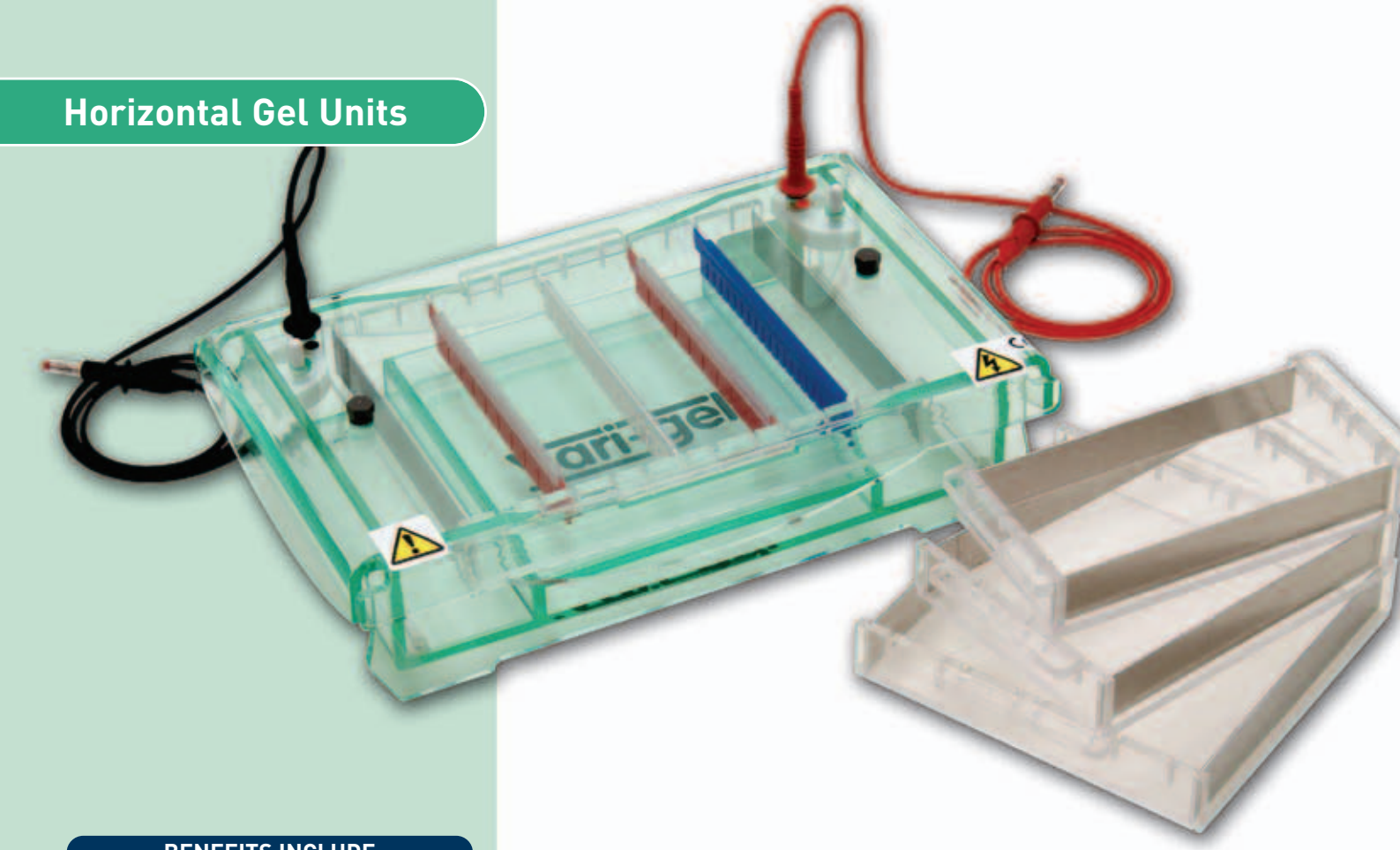


VG-SYS Vari-gel MAXI System

The VG-SYS Vari-gel maxi system is ideal for standard preparatory and analytical electrophoresis techniques.

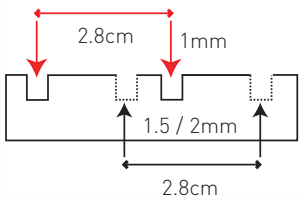
BENEFITS INCLUDE

- **Four gel trays -** in 15 x 7, 15 x 10, 15 x 15 and 15 x 20cm (W x L) sizes, each with aluminium casting gates
- **Multiple comb slots -** regularly positioned along the gel tray and corresponding to each comb thickness - allow the user to adjust the sample migration distance according to their own personal preference
- **Colour-coded combs -** 1, 1.5 and 2mm thick
- **Buffer recirculation ports -** may be connected to a peristaltic pump for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation
- **Coloured loading strips -** for easy well detection when loading

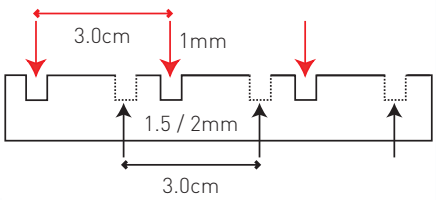
- **Compact tank -** reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **UV-transparent acrylic casting tray -** allows the user to image the gel without risk of damage due to handling
- **Scie-Plas Super-Seals -** available as an accessory for flexible casting

Migration distances between comb slots, for either 1mm or 1.5 and 2mm combs, in the VG-SYS gel-casting trays

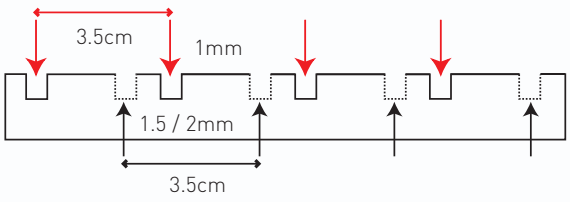
VG-GT-7



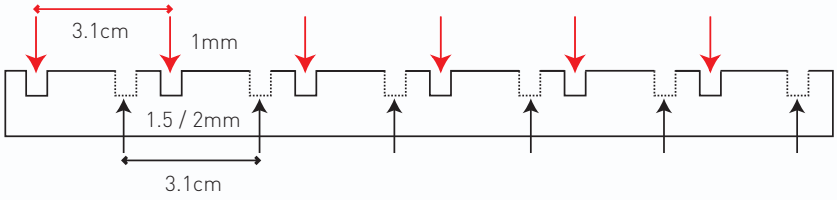
VG-GT-10



VG-GT-15



VG-GT-20



ORDERING INFORMATION

Complete System	**Part No.**
A complete 15cm wide Vari-gel system with 4 removable gel trays, 15 x 7, 15 x 10, 15 x 15 and 15 x 20cm (W x L); 2 x 1mm, 15-sample combs; aluminium casting gates and coloured loading strips	VG-SYS

Replacement Parts & Accessories	
1 x gel casting tray, 15 x 7cm, including aluminium casting gates	VG-GT-7
1 x gel casting tray, 15 x 10cm, including aluminium casting gates	VG-GT-10
1 x gel casting tray, 15 x 15cm, including aluminium casting gates	VG-GT-15
1 x gel casting tray, 15 x 20cm, including aluminium casting gates	VG-GT-20
2 x buffer recirculation ports	HU-BRP
2 x aluminium casting gates	VG-GT-ALCG
2 x Scie-Plas Super-Seals	VG-SS
12 x coloured loading strips	VG-CS
1 x gel scoop	VG-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

VG-SYS Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
VG-C1-10	1	10	12.8	2	64
*VG-C1-16MC	1	16	6.4	2	32
VG-C1-20	1	20	5.9	2	29
VG-C1-25	1	25	3.5	2	17
*VG-C1-30MC	1	30	2.5	2	12
VG-C1.5-10	1.5	10	12.8	2	96
*VG-C1.5-16MC	1.5	16	6.4	2	48
VG-C1.5-20	1.5	20	5.9	2	43
VG-C1.5-25	1.5	25	3.5	2	25
*VG-C1.5-30MC	1.5	30	2.5	2	18
VG-C2-10	2	10	12.8	2	128
VG-C2-16MC	2	16	6.4	2	64
VG-C2-20	2	20	5.9	2	58
VG-C2-25	2	25	3.5	2	34
*VG-C2-30MC	2	30	2.5	2	24

*Multi-channel pipette compatible

TRAY OPTIONS

	Tray 1	Tray 2	Tray 3	Tray 4
Part No.	**VG-GT-7**	**VG-GT-10**	**VG-GT-15**	**VG-GT-20**
Gel Size (W x L)	15 x 7cm	15 x 10cm	15 x 15cm	15 x 20cm
Combs Slots	4 (2 slots for 1mm combs; 2 slots for 1.5 and 2mm combs)	6 (3 slots for 1mm combs; 3 slots for 1.5 and 2mm combs)	8 (4 slots for 1mm combs; 4 slots for 1.5 and 2mm combs)	12 (6 slots for 1mm combs; 6 slots for 1.5 and 2mm combs)
Migration Distance Between Comb Slots	2.8cm	3.0cm	3.5cm	3.1cm
Maximum Sample Capacity	60	90	120	180

*each tray includes 2 x aluminium casting gates

TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	31.5 x 19 x 7cm
Gel Size (W x L)	see Trays
Buffer Volume	950ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	180
Combs	2
Comb Thickness	1, 1.5 or 2mm
Comb Throughput	10 to 30 samples
Recommended Running Voltage	75 to 150V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

ELECTROPHORESIS CHEMICALS SEE PAGES 117-123

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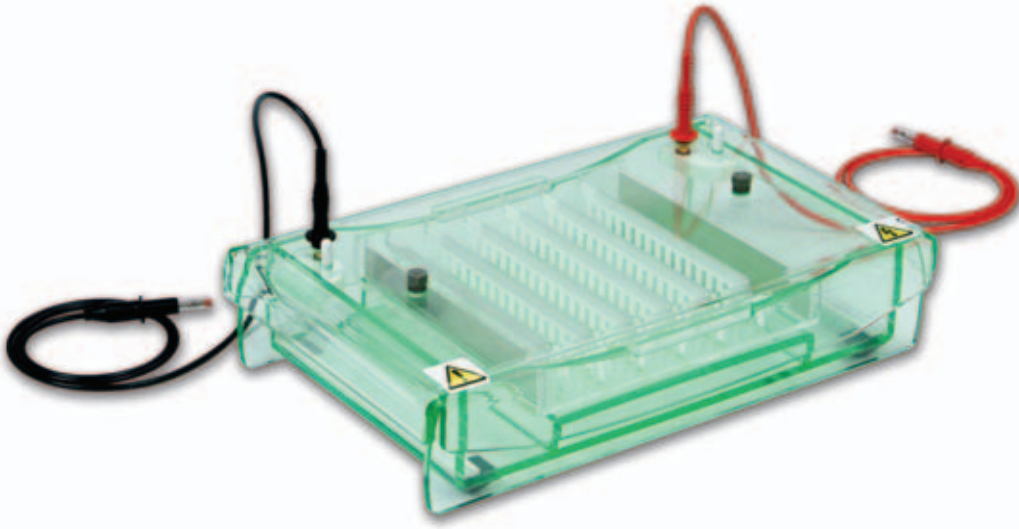


BENEFITS INCLUDE

- **Single gel tray with fluorescent numbering** - allows up to 96 SSPs to be loaded directly onto the tray, so that each SSP is automatically numbered for gel photography, simplifying post-electrophoretic analysis
- **6 comb slots** - positioned at 25mm intervals along the gel tray allow SSPs to be separated in less than 30 minutes using the appropriate running conditions (see Technical Specification)
- **Six 17-sample combs** - with each marker lane positioned centrally - enables SSPs to be loaded onto the gel quickly, 8 at a time by multi-channel pipette
- **Compact tank** - reduces the buffer volume required to cover the gel, providing greater control over the voltage gradient and run-time
- **Robust acrylic casting tray** - UV-transparent for visualisation with fluorescent numbering for SNP recognition and traceability
- **Ideal for use** - either with 96-well microtitre plates or 96-well blocks
- **Buffer recirculation ports** - may be connected to a peristaltic pump for buffer recirculation during electrophoresis

VG-FAST96 High Throughput Vari-gel MAXI System

The VG-FAST96 high throughput Vari-gel maxi system is the latest addition to the Scie-Plas Vari-gel product range, providing a swift and simple solution for the screening and analysis of up to 96 single-strand polymorphisms (SSP) following PCR® amplification. Under the appropriate running conditions, SSPs, 50 to 1000 base pairs in size, can be separated in less than 30 minutes.

ROBUST ACRYLIC CASTING TRAY

Fluorescent visualisation of the lanes for the markers and samples 1-96 on the VG-FAST-GT high throughput gel-casting tray, using the Scie-Plas Vision gel documentation system.

ORDERING INFORMATION

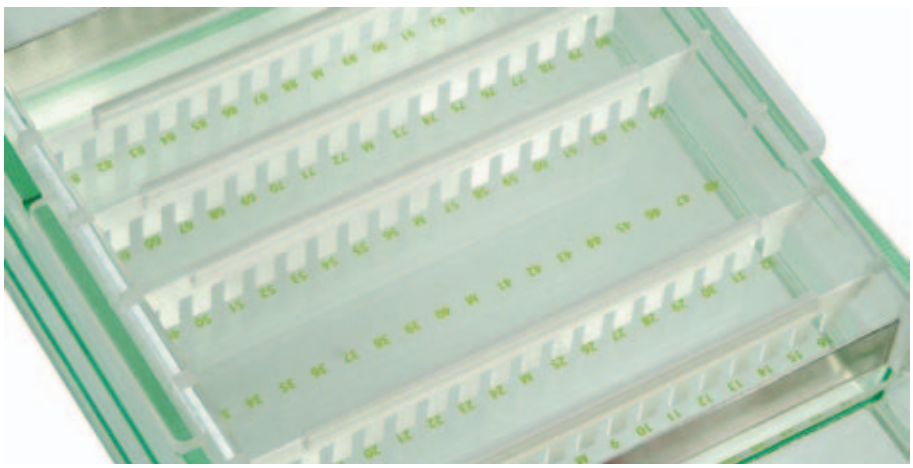
Complete System	**Part No.**
A complete 16cm wide high throughput Vari-gel system with 1 removable UV-transparent and UV-fluorescent gel tray, 16 x 17.5cm (W x L); 6 x 1mm, 17-sample combs and aluminium casting gates	VG-FAST96

Replacement Parts & Accessories	
1 x removable UV-transparent and UV-fluorescent gel casting tray, 16 x 17.5cm, including aluminium casting gates	VG-FAST-GT
2 x aluminium casting gates	VG-FAST-ALCG
2 x buffer recirculation ports	HU-BRP
1 x gel scoop	VG-FAST-GS
2 x 0.2mm thick, platinum electrode wire	PT-0.2
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4

VG-FAST 96 Combs

Part No.	Thickness (mm)	Sample Throughput	Tooth Width (mm)	Max. Spacing (mm)	Sample Volume in a 5mm Deep Well (µl)
VG-FAST-C1-17MC	1	17	5	3.5	25

*Multi-channel pipette compatible



TECHNICAL SPECIFICATION

Unit Dimensions (W x L x H)	33 x 19.5 x 7.5cm
Gel Size (W x L)	16 x 17.5cm
Buffer Volume	950ml
Buffer Recirculation Ports	2
Maximum Sample Capacity	96 + 8
Combs	6
Comb Thickness	1mm
Comb Throughput	17 samples: 2 x 8 loaded by multi-channel pipette; 1 x marker
Comb Slots	6
Migration Distance Between Comb Slots	2.5cm
Recommended Running Voltage	100 to 150V
Power Output Connectors (diameter)	Shrouded, 4mm
Recommended Power Supply	Consort EV243

TECHNICAL TIP | Photography: If the gel needs to be photographed, thin gels (2 to 3mm) with low-percentage agarose are better than thick or high-percentage gels. The latter produce increased opaqueness and autofluorescence.

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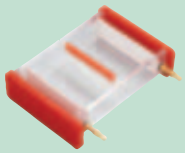
Horizontal Gel Units

Today's laboratory scientists can take advantage of many gel-casting methods, ranging from the traditional, homemade solution of sealing the ends of the gel tray with tape to flexible gel casting, at any position within the tray, with Scie-Plas Super-Seals™.

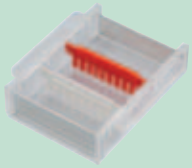
SCIE-PLAS CASTING OPTIONS

Plastic casting gates



- Available with the HB-SET and H1-SET units only
- Slot into preformed grooves within the gel tank

Aluminium casting gates

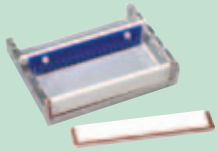


- Available with the SVG-SYS, TVG-SYS and VG-SYS units only
- Slot into preformed grooves within the gel-casting tray

Silicone gasket

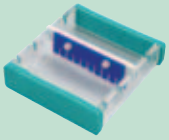
- Available with the HU6, HU10 and HU13 units only
- Slot into preformed grooves at each end of the gel-casting tray, which is then turned at 90° to the direction of electrophoresis to form a leak-free seal against the walls of the gel tank

Casting gates with integral silicone seals



- Available with the HU15, HU20, HU25, CHU20 and CHU25 units
- By slotting into preformed grooves, casting gates with integral silicone seals effectively seal the tray, provided the silicone gasket faces outwards as shown

Silicone casting gates



- Available for the HU6, HU10 and HU13 units
- Slot into grooves at each end of the casting tray to form a leak-free seal

External casting units

- Available for the HU6, HU10 and HU13 units for simultaneous casting of up to 3 gels
- Silicone gaskets, seated in the groove of each casting tray, form a leak-free seal against the walls of the casting unit

Horizontal Gel Casting Products

Scie-Plas currently provides a variety of gel-casting options with its horizontal units, all of which will ensure reliable casting.

Always line the casting gates with a small amount of agarose, allowing it to set before pouring the remainder of the cooled, hand-hot agarose mixture i.e. at approx. 50°C.

ORDERING INFORMATION

Description	Part No.
2 x plastic casting gates for the HB-SET	HB-CG
2 x plastic casting gates for the H1-SET	H1-CG

N.B. Casting only performed directly in the unit, without casting trays

Description	Part No.
2 x aluminium casting gates for the SVG-SYS	SVG-GT-ALCG
2 x aluminium casting gates for the TVG-SYS	TVG-GT-ALCG
2 x aluminium casting gates for the VG-SYS	VG-GT-ALCG

N.B. For individual gel trays with aluminium casting gates, please see the SVG-SYS, TVG-SYS and VG-SYS product literature.

Description	Part No.
1 x silicone gasket for the HU6, HU10 & HU13, 1 metre	HU-SG

N.B. For individual gel trays with silicone gaskets, please see the HU6, HU10 and HU13 product literature.

Description	Part No.
2 x casting gates with integral silicone seals for HU15	HU15-CG
2 x casting gates with integral silicone seals for CHU20 & HU20	HU20-CG
2 x casting gates with integral silicone seals for CHU25 & HU25	HU25-CG

N.B. For individual gel trays with casting gates with integral silicone seals, please see the respective product literature for each unit

Description	Part No.
2 x silicone casting gates for HU6	HU6-SCG
2 x silicone casting gates for HU10	HU10-SCG
2 x silicone casting gates for HU13	HU13-SCG

Description	Part No.
1 x external casting unit for 3 gel trays, HU6	HU6-CU
1 x external casting unit for 3 gel trays, HU10	HU10-CU
1 x external casting unit for 3 gel trays, HU13	HU13-CU

Scie-Plas Super-Seals™

Throw away all those gel gates and casting units and use our specifically designed and formulated silicone seals, which can be placed anywhere within the casting tray.

Scie-Plas Super-Seals™ offer the ultimate solution in flexible, leak-free gel casting.

BENEFITS INCLUDE

- **Cost-effective and completely versatile -** can be positioned anywhere within the casting tray, allowing the user to generate shorter gel lengths without the need for smaller casting trays
- **Reliable, leak-free casting -** is a certainty, provided the seals are first inserted correctly within the tray and then lined with agarose before pouring the remainder of the cooled gel mixture
- **Still effective - even with boiling agarose -** as long as the seals are inserted properly and lined with agarose
- **Available - for all Scie-Plas horizontal gel-casting trays**

ORDERING INFORMATION

Description	Approximate Dimensions (L x W x H)	Part No.
Green Range		
2 x 6cm long Super-Seals for the HU6	6 x 1 x 1cm	HU6-SS
2 x 10cm long Super-Seals for the HU10	10 x 1.1 x 1cm	HU10-SS
2 x 13cm long Super-Seals for the HU13	13 x 1.1 x 1.4cm	HU13-SS
2 x 15cm long Super-Seals for the HU15	15 x 1.1 x 1.4cm	HU15-SS
2 x 20cm long Super-Seals for the CHU20 & HU20	20 x 2 x 1.2cm	HU20-SS
2 x 25cm long Super-Seals for the CHU25 & HU25	25 x 2 x 1.2cm	HU25-SS
Vari-gel Range		
2 x 7cm long Super-Seals for the SVG-SYS	7 x 1 x 1cm	SVG-SS
2 x 10cm long Super-Seals for the TVG-SYS	10 x 1.1 x 1cm	TVG-SS
2 x 15cm long Super-Seals for the VG-SYS	15 x 1.1 x 1.4cm	VG-SS

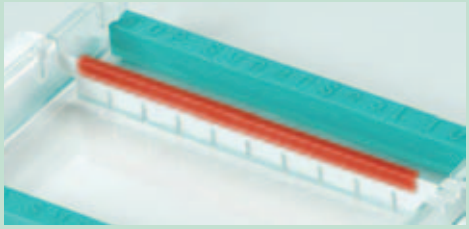
How to cast with Scie-Plas Super-Seals™

1. Place each Scie-Plas Super-Seal™ at the desired position within the gel tray, applying an even pressure along its length

2. Line each Scie-Plas Super-Seal™ with a few millilitres of melted agarose, allowing it to cool and then set to form a leak-proof seal

3. Pour the remainder of the agarose mixture - preferably cooled to hand-heat (i.e. at 50°C) for completely reproducible results - into the gel tray

4. Insert combs and allow the gel to set for at least 30 minutes before removing the comb and loading the samples



Tip: Scie-Plas recommends 0.67ml of agarose per cm² of gel tray area for a minimum 5mm thick gel - e.g. 150ml of melted agarose for a 15 x 15cm gel tray, as shown (Volume ml = W x L x 0.67).

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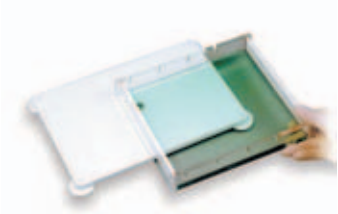
Horizontal Gel Units

BENEFITS INCLUDE

- **Large platform -** 30 x 20cm platform area accommodates all Scie-Plas gel-casting trays from the HU6 to HU25 units
- **Easy to use -** large, thumb-wheel leveling feet at each corner facilitate easy adjustment of the platform
- **Leveling bubble -** in the centre of the platform ensures even gel-pouring

Gel Leveling Table

Allows advance pouring of gels of uniform thickness.



ORDERING INFORMATION

Description	Part No.
1 x gel leveling table, 30 x 20cm	GLT-3020

Coloured Strips

Aid sample visualisation during gel loading.

BENEFITS INCLUDE

- **In 3 different colours -** for easy visualisation of samples mixed with different dyes such as bromophenol and xylene cyanol
- **Adhesive -** each colour strip has an adhesive backing allowing it to be easily affixed and removed with each application
- **Available -** for all horizontal units

ORDERING INFORMATION

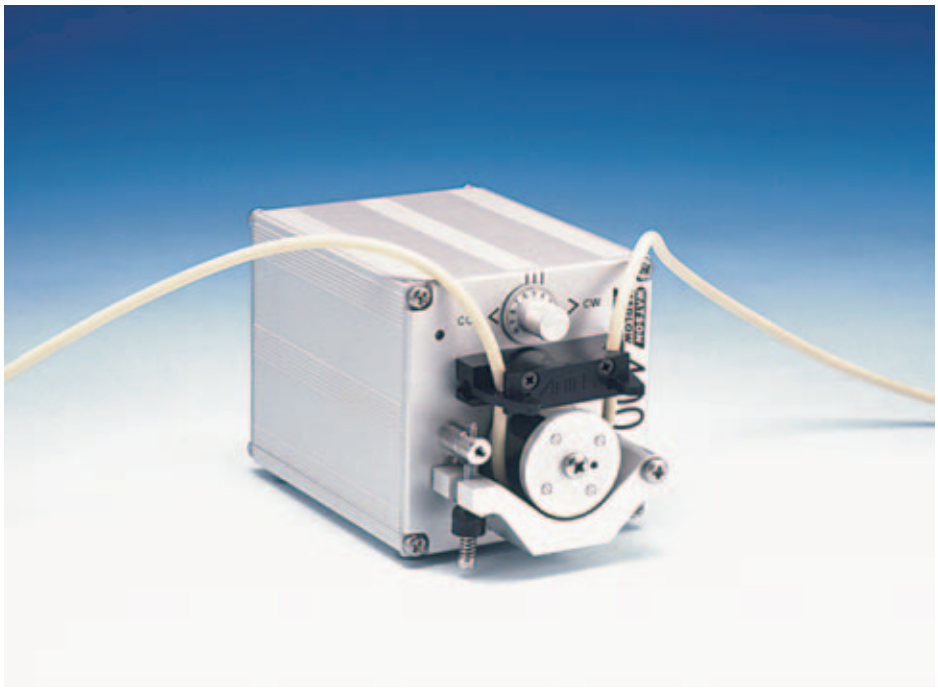
Description	Part No.
Green Range	
12 x coloured loading strips for HU6	HU6-CS
12 x coloured loading strips for HU13	HU13-CS
12 x coloured loading strips for HU15	HU15-CS
12 x coloured loading strips for HU20 and CHU20	HU20-CS
36 x coloured loading strips for HU25 and CHU25	HU25-CS
Vari-gel Range	
6 x coloured loading strips for SVG-SYS	SVG-CS
10 x coloured loading strips for TVG-SYS	TVG-CS
12 x coloured loading strips for VG-SYS	VG-CS

Gel Scoops

Ideal for safe and easy transfer of gels from staining or destaining tanks to a transilluminator or similar surface.

ORDERING INFORMATION

Description	Scoop Area (W x L)	Part No.
Green Range		
1 x gel scoop for HU6	6 x 8.5cm	HU6-GS
1 x gel scoop for HU10	10 x 14.5cm	HU10-GS
1 x gel scoop for HU13	13 x 15cm	HU13-GS
1 x gel scoop for HU15	15 x 15cm	HU15-GS
1 x gel scoop for HU20 and CHU20	20 x 25cm	HU20-GS
1 x gel scoop for HU25 and CHU25	25 x 32.5cm	HU25-GS
Vari-gel Range		
1 x gel scoop for SVG-SYS	7 x 10cm	SVG-GS
1 x gel scoop for TVG-SYS	10 x 15cm	TVG-GS
1 x gel scoop for VG-SYS	15 x 20cm	VG-GS



Buffer Recirculation Pump

The 401/D1 auto/manual control ultra compact buffer recirculation pump is ideal for those users wishing to maintain buffer recirculation during horizontal gel electrophoresis. The pump can be connected to the HU13, HU15, CHU20, HU20, CHU25, HU25, SVG-SYS, TVG-SYS, VG-SYS and COMET units through buffer recirculation ports located within the lid of each unit.

ORDERING INFORMATION

Description	Rpm	Part No.
401U/D1 (15VAC) 220-240V 50/60Hz 1ph single channel standard tubing pump	20-200	040.1S1D.020
Replacement Parts & Accessories		
1 metre platinum silicone tube, bore 4.0mm / wall 1.6mm		913.A040.016

BENEFITS INCLUDE

- **High flow rate** - single channel flows up to 0.01 to120ml/min
- **Highly compact** - with single control potentiometer for direction, speed and start/stop
- **Analogue speed control and remote switching via a 15D connector**
- **Reversible** - for easy fluid recovery
- **Continuous tubing**
- **Adjustable occlusion** (pressure)

TECHNICAL SPECIFICATION

Weight	1.0kg
Dimensions (W x H x D)	80 x 84 x 133mm
Operational Temperature Range	5°C to 40°C
Noise	<70dBA at 1m
Control ratio	10:1
Standards IEC335-1, EN60529 (IP21)	CE, BS0800,
Supply	15 Vac from mains transformer
Materials of Construction	
Drive	Extruded anodised aluminium
Front Support	Anodised aluminium plate
Pumphead Track	Extruded anodised aluminium
Pumphead Rollers	Acetal
Pumphead Rotor	Aluminium

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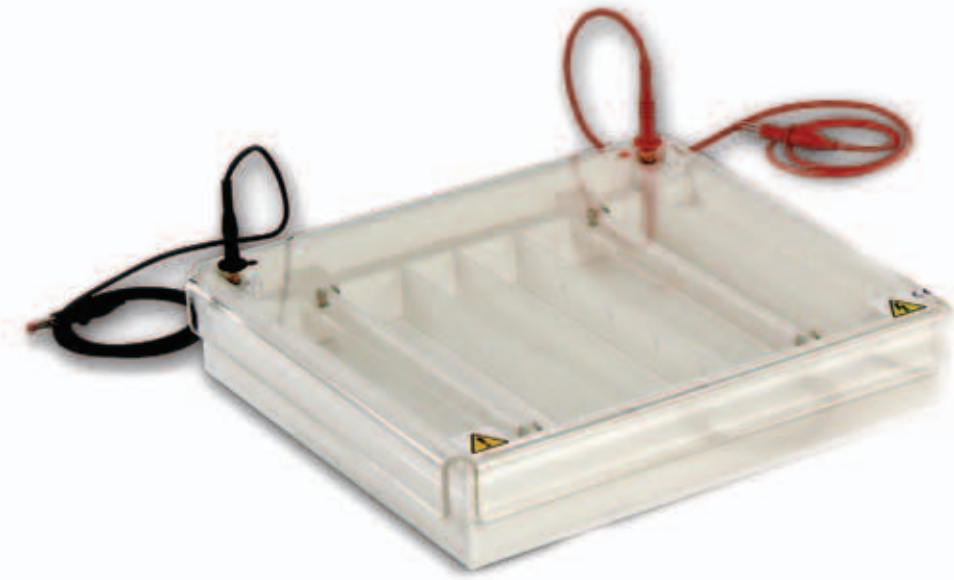
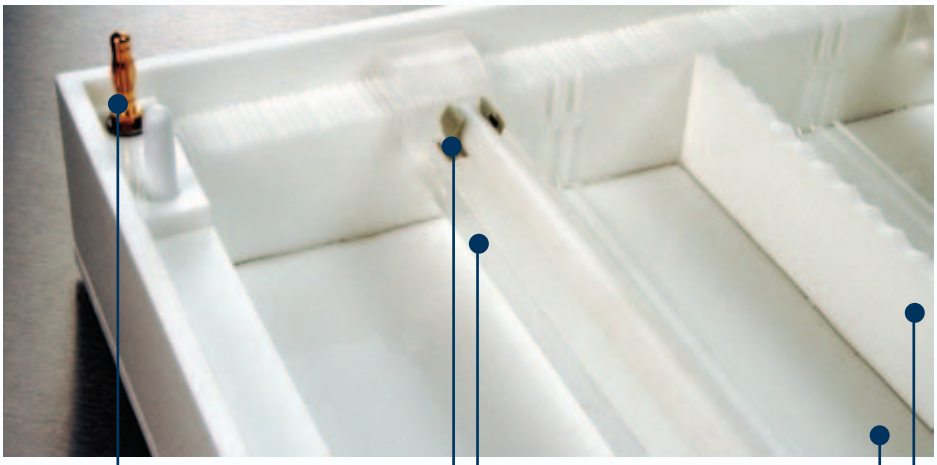


CA-SYS Cellulose Acetate System

The CA-SYS cellulose acetate system has been designed in close collaboration with the UK National Health Service (NHS) to run cellulose acetate membranes and wick-based electrophoresis applications, particularly in the two-dimensional screening of inherited metabolic disorders in children.

BENEFITS INCLUDE

- **Developed in collaboration with end-users -** as with all our gel electrophoresis units, the CA-SYS and units have been designed in close consultation with end-users: in this case NHS biomedical scientists who routinely use cellulose acetate electrophoresis to screen for mucopolysaccharide (MPS) disorders in children
- **Active tank area: -**
  CA-SYS - 24.5 x 26cm (W x L) easily accommodates larger 145 x 192mm membranes, or up to three standard 78 x 75/150mm membranes simultaneously
- **Adjustable bridge prices -** can be located anywhere within the tank to support cellulose acetate membranes or horizontal precast gels
- **Clamping bars within clip holders -** hold the cellulose acetate membrane or paper wick gently in position
- **Asymmetric offset electrodes -** ensure that the membrane is run in the correct polar orientation
- **Transparent lid -** allows electrophoresis to be monitored as it happens as well as maintaining uniform atmospheric conditions
- **A central partition -** separates the buffer and lends additional support to longer membranes and precast gels
- **Membranes available -** in small, standard and large formats



Asymmetric offset electrodes - ensure that the membrane is run in the correct polar orientation

Clamping bars within clip holders - hold the cellulose acetate membrane or paper wick gently in position

Adjustable bridge prices - can be located anywhere within the tank to support cellulose acetate membranes or horizontal precast gels

Active tank area - CA-SYS - accommodates up to **three small/standard** 78 x 75/150mm membranes or **one large** 145 x 192mm membrane

Central partition - separates the buffer and lends additional support to longer membranes and precast gels

Applications Include:

- **Serum Proteins**
- **Lipoproteins**
- **Haemoglobin**
- **Metabolites in Urine and Spinal Fluids**

TECHNICAL SPECIFICATION

	CA-SYS
Unit Dimensions (W x L x H)	30 x 32 x 6.5cm
Active Tank Dimensions (W x L x H)	24.5 x 26 x 3.5cm
Recommended Buffer Volume (ml)	1200ml
Maximum Membrane Length (mm)	230mm
Recommended Power Supply	55V (10mA)
Power Output Connectors (diameter)	Shrouded, 4cm
Recommended Power Supplies	Consort EV243

ORDERING INFORMATION

CA-SYS

Complete System	**Part No.**
Cellulose acetate system, including 30 x 32cm tank with central partition, 2 x adjustable bridge pieces with clamping bars, transparent lid and 4mm power output connectors	CA-SYS

Replacement Parts & Accessories	
2 x adjustable bridge pieces with clamping bars, 27cm in length	CA-ABS
2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4
Platinum Wire - 2 x 0.2mm thick platinum electrode wire	PT-0.2

Membranes	**Part No.**
100 x ATX-micro solid standard, small-format cellulose acetate membranes, 78 x 75mm	CA-MEM-S
50 x ATX-micro solid standard, medium-format cellulose acetate membranes, 78 x 150mm	CA-MEM-M
50 x ATX-micro solid large-format cellulose acetate membranes, 145 x 192mm	CA-MEM-L

Outline Protocol for Two-dimensional (2-D) Electrophoresis of Urinary Glycosaminoglycans - a Diagnostic Indicator of Mucopolysaccharide Disorders

Buffer 1: Pyridine: Acetic Acid: Distilled Water (10:1:89 v/v)

Buffer 2: 0.1M Barium Acetate, pH 6.0

Stain: Alcian Blue

Destain: 5% Acetic Acid (v/v)

i. Spot 2 x 1µl aliquots of extracted urine sample, stained with Alcian Blue, onto a 78 x 75mm cellulose acetate membrane, previously soaked and electrophoresed in Buffer 1 for 10 minutes at 55V (7.5V/cm) using either the CA-SYS or system.

ii. Run the membrane at 55V for a further 75 minutes in Buffer 1.

iii. Remove the cellulose acetate membrane from the CA-SYS or system, allowing it to dry in a fume cupboard for 1 hour.

iv. Float the cellulose acetate membrane face down for 5 seconds in Buffer 2, before rotating it at 90° to its original orientation and then spotting a 0.5µl aliquot of MPS Type III urine as a positive control.

v. Dry and then electrophorese the cellulose acetate membrane at 55V for 3½ hours.

vi. Stain the cellulose acetate membrane face down for 15 minutes, before rinsing it in water and standing it overnight in Destain.

vii. After destaining, rinse the cellulose acetate membrane with water and dry it flat between two sheets of filter paper.

Diagnostic Analysis of Mucopolysaccharide Disorders with the CA-SYS unit. Extracted urine sample was applied to a 78 x 75mm cellulose acetate membrane, electrophoresed at 55V for 75 minutes in the first dimension, and then electrophoresed in the second dimension for a further 3½ hours at same voltage as described in the Outline Protocol. (Courtesy of the NHS)

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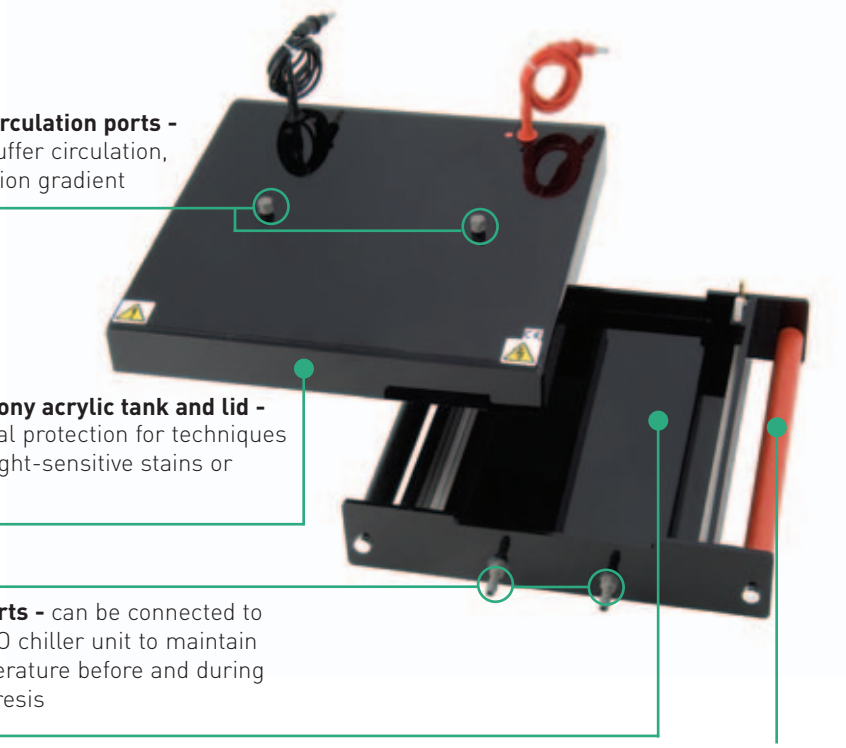
COMET Single Cell Gel Electrophoresis Systems

The COMET single cell gel electrophoresis systems are designed specifically for single cell gel electrophoresis (SCGE). Comet Assays are used to detect and quantify DNA damage and repair within individual cells in genetic toxicology and carcinogenesis studies.

BENEFITS INCLUDE

- **Available in 2 formats -** to accommodate 20 or 40 standard microscope slides respectively
- **Opaque ebony acrylic tank and lid -** provide ideal protection for techniques requiring light-sensitive stains or samples
- **Cooled central platform -** provides a convenient surface for slide preparation in addition to maintaining slide temperature during pre-incubation and electrophoresis (see below)
- **Cooling ports -** can be connected to an external chiller unit: to prevent overheating during SCGE/Comet assays, typically performed at high current settings over 300mA; and to inhibit DNA repair enzyme activity by maintaining the slide temperature at 4°C, either during preparation and mounting or pre-incubation and electrophoresis
- **Buffer recirculation ports -** can be connected to a peristaltic pump to maintain buffer circulation, preventing ion gradient formation
- **Colour-coded handles -** corresponding to the anode and cathode - serve as a visual aid to ensure that the slides are positioned in the correct polar orientation for the assay



Buffer recirculation ports - maintain buffer circulation, preventing ion gradient formation

Opaque ebony acrylic tank and lid - provide ideal protection for techniques requiring light-sensitive stains or samples

Cooling ports - can be connected to the JULABO chiller unit to maintain slide temperature before and during electrophoresis

Cooled central platform - provides a convenient surface for slide preparation in addition to maintaining slide temperature, through a labyrinthine cooling base, during pre-incubation and electrophoresis

Colour-coded handles - corresponding to the anode and cathode - serve as a visual aid to ensure that the slides are positioned in the correct polar orientation for the assay

TECHNICAL SPECIFICATION

	COMET-20	COMET-40
Unit Dimensions (W x L x H)	31 x 32 x 6.5cm	31 x 47.5 x 6.5cm
Active Tank Dimensions (W x L x H)	27.5 x 21.5 x 3.5cm	27.5 x 37 x 3.5cm
Recommended Buffer Volume (ml)	600ml	800ml
Buffer Recirculation Ports	2	2
Slide Capacity (25 x 75mm; W x L)	20	40
Recommended Running Conditions	5V/cm (300mA)	5V/cm (300mA)
Power Output Connectors (diameter)	Shrouded, 4mm	Shrouded, 4mm
Recommended Power Supply	Consort EV261	Consort EV261

THE COMET ASSAY

Background - The Comet Assay/SCGE was pioneered by Östling and Johansson (1) in 1984 as a neutral pH assay to quantify double-stranded DNA breakages (DSBs) in single cells exposed to γ irradiation. Singh et al. (2) then modified the assay in 1988 to a more versatile and sensitive alkaline method to measure both single- (SSBs) and double-stranded DNA breakages. Now, by introducing subtle changes to the assay conditions (pH/temperature), the Comet Assay can be tailored to analyse specific DNA lesions and repair processes.

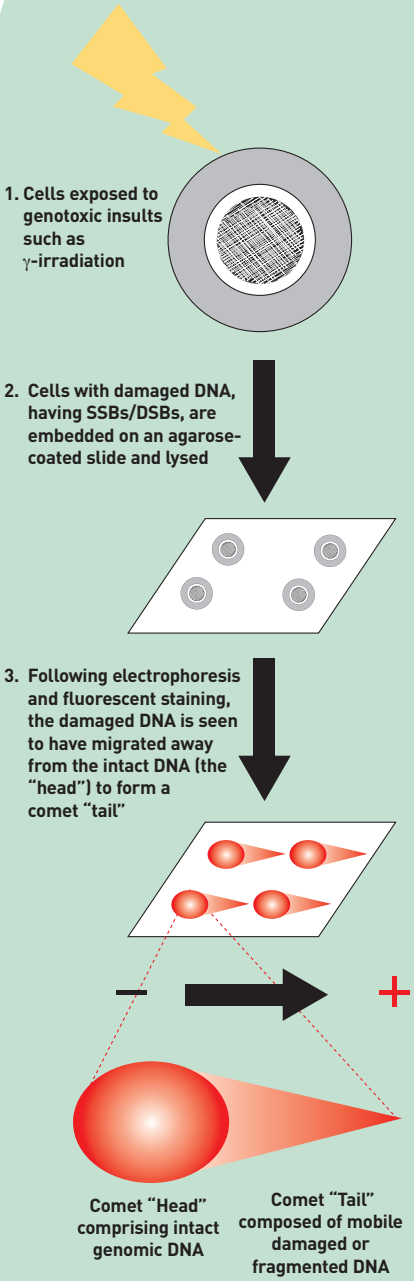
Overview - The Comet Assay is based on the principle that strand breakage of supercoiled duplex DNA reduces the size of the large genomic DNA molecule from which these strands are separated or stretched out by electrophoresis. The high pH of the alkaline lysis step causes denaturation, unwinding of the duplex DNA and the release of alkali labile sites as SSBs. These then become "comets" as the broken ends of the negatively charged DNA molecule migrate towards the anode during electrophoresis.

Method - Cells, previously exposed to a genotoxic insult, are suspended in low melting point agarose (LMP) and embedded within a thin agarose gel on a microscope slide. All cellular proteins are then removed by lysis in detergent solution, when the DNA is allowed to unwind in the neutal/alkaline pH conditions of the detergent. The DNA is electrophoresed and then stained with a DNA-specific fluorescent dye such as acridine orange, ethidium bromide, propidium iodide or 4',6'-diamidino-2-phenylindole (DAPI).

Result - Upon staining cellular DNA is measured for fluorescence, usually with a microscopy imaging system. The resulting image resembles a "comet", with the cellular DNA segregating into a "head" and "tail". The head is composed of largely intact genomic DNA, while the tail comprises damaged (SSBs, DSBs) or fragmented DNA, with the fluorescence intensity and length of the tail being directly proportional to the extent of the DNA damage.

References - 1. Östling, O., and Johanson, K.J., Microelectrophoretic study of radiation-induced DNA damages in individual mammalian cells. Biochem. Biophys. Res. Commun., 123, 291-8 (1984).

2. Singh, N.P, et al., A simple technique for quantitation of low levels of DNA damage in individual cells. Exp. Cell Res., 175, 184-91 (1988).



ORDERING INFORMATION

Comet Single Cell Gel Electrophoresis Systems

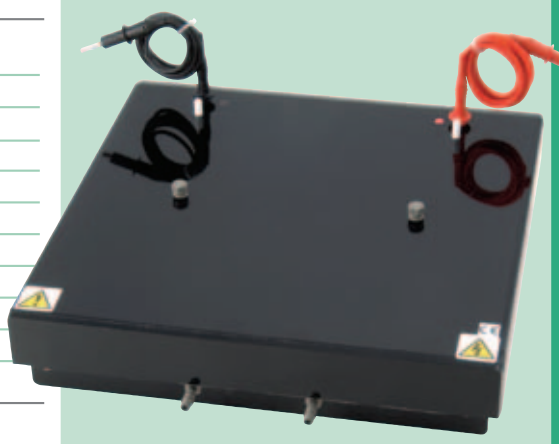
Complete System	Part No.
Comet assay system for twenty 75 x 25mm slides, including 27.5 x 21.5cm tank and lid made in ebony acrylic	COMET-20
Comet assay system for forty 75 x 25mm slides, including 27.5 x 37cm tank and lid made in ebony acrylic	COMET-40

Replacement Parts & Accessories

2 x 1 metre power leads with shrouded 4mm power output connectors	CABLE-4
Platinum Wire - 2 x 0.2mm thick platinum electrode wire	PT-0.2

Chemicals & Reagents

1 x 100g Agarose low melting research grade	11408.03
1 x 100g Ethylenediamine tetraacetic acid.Na_2-salt	11280.01
1 x 1kg Boric acid analytical grade	15165.01
1 x 1kg Tris(hydroxymethyl)aminomethane	37190.02
1 x 250ml Triton® X-100 molecular biology grade	39795.02
1 x 1kg Sodium dodecyl sulphate pellets	20765.03
1 x 50g Acridine orange research grade	10665.02
1 x 5g Ethidium bromide research grade	21238.02
1 x 25mg Propidium iodide research grade	33671.01
1 x 10mg 4',6'-diamidino-2-phenylindole.2HCl.H_20 (DAPI) analytical grade	18860.01



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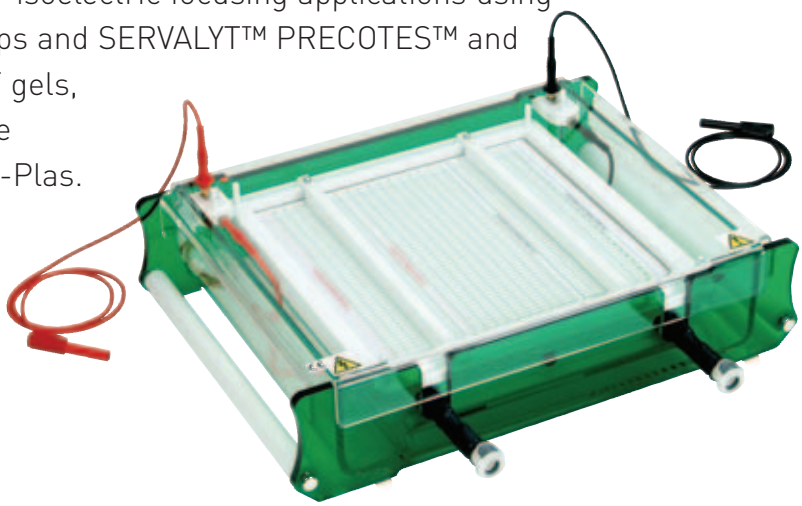
The IEF-SYS Dedicated Isoelectric Focusing Unit

The recently redesigned Scie-Plas IEF-SYS unit has been optimised for isoelectric focusing applications using IPG BlueStrips and SERVALYT™ PRECOTES™ and PreNet™ IEF gels, also available through Scie-Plas.

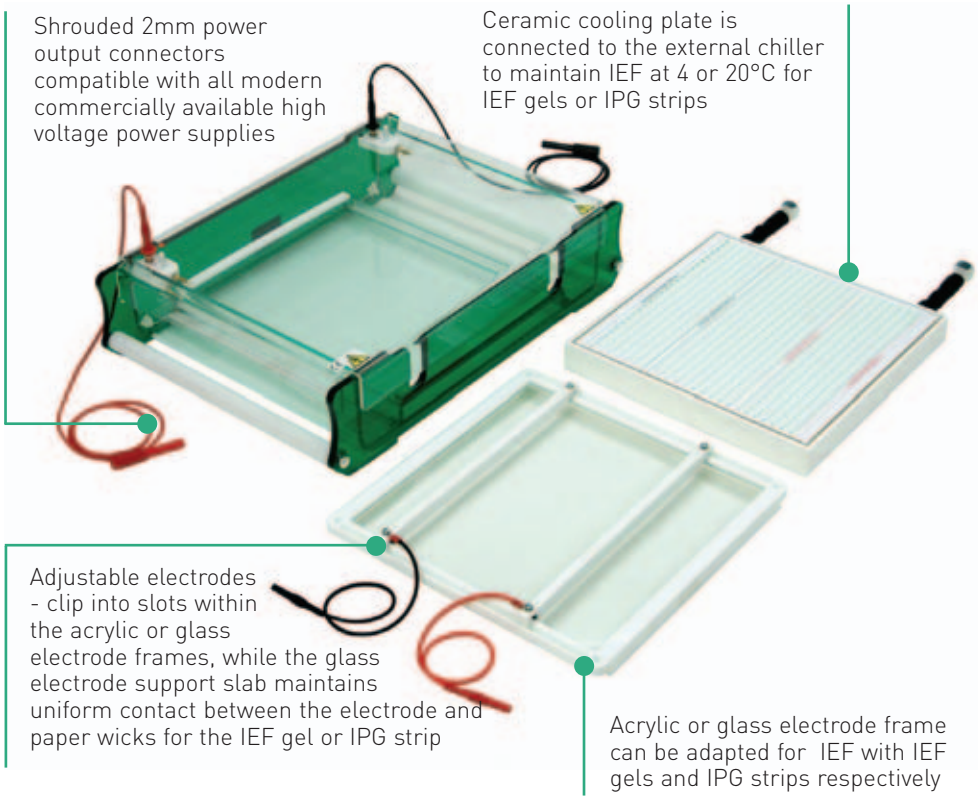


BENEFITS INCLUDE

- **Ceramic cooling plate -** 27 x 27cm (W x L) - can support either...
  - One 245 x 125mm or two 125 x 125mm SERVALYT™ PRECOTES™ IEF gels (see page 121);
  - Or up to a maximum of 30 IPG BlueStrips, each 3mm wide and up to 24cm in length (see page 122)
- Ceramic cooling plate can also be connected to an external chiller to maintain IEF at...
  - 4°C for SERVALYT™ PRECOTES™ and PreNet™ IEF gels
  - 20°C for IPG BlueStrips
- **Acrylic electrode frame -** sits directly on the ceramic cooling plate for IEF with SERVALYT™ PRECOTES™ and PreNet™ IEF gels
- **Glass electrode frame -** sits flush with the ceramic cooling plate for optimal cooling efficiency and minimises mess caused by oil application during IEF with IPG strips
- **Positive and negative electrodes -** made from clear acrylic clip neatly within the acrylic or glass electrode frame, allowing the voltage gradient to be fine-tuned along the entire length of each IPG strip
- **Glass electrode weight -** ensures that the electrodes remain in complete contact with the positive and negative ends of each IPG strip or IEF gel during IEF
- **2mm shrouded power output connectors -** compatible with high voltage power supplies
- **IEF tank or cooling plate -** can also be used for wick-based horizontal gel electrophoresis

TECHNICAL SPECIFICATION

	IEF-SYS Unit					
Maximum Sample Capacity	30 x IPG strips (dimensions ranging from 70 x 3 x 1mm to 240 x 3 x 1mm [L x W x T])					
	1 x 245 x 125mm or 2 x 125 x 125mm (W x L) SERVALYT™ PRECOTES™ IEF gels					
Unit dimensions (W x D x H) inc. cooling coil	46 x 41 x 11.5cm					
Inner Tank Dimensions (W x D x H)	37 x 31 x 8.5cm					
Glass plate active dimensions (W x L x D)	27 x 27 x 0.5cm					
Electrode frame active dimensions (W x L x H)	27 x 27 x 1cm					
Cooling plate dimensions (W x L x D)	27 x 27 x 3cm					
Glass electrode weight active dimensions (W x L x H)	20 x 26.5 x 1cm					
Adjustable electrodes active dimensions (W x L x H)	10 x 265 x 13mm					
Recommended temperature for cooling plate during IEF with IPG strips	20°C					
Recommended temperature for cooling plate during IEF with IEF gels	4°C					
Power Output Connectors (diameter)	Shrouded, 2mm					
Recommended Running Conditions for IEF with 125mm long SERVALYT™ PRECOTES™ IEF gels	Voltage Step	1	2	3	4	5 6 end of run
	Voltage (V)	300	600	1000	1200	1500 2000
	Time (min)	20	20	30	30	30 60
	Volt-hours	100	200	500	600	750 2000
Recommended Running Conditions for IEF of 7cm IPG strips	Voltage Step	1	2	3	4	5 6 end of run
	Voltage (V)	150	300	600	1500	3000 330
	Time (h)	0.5	0.5	0.5	0.5	2.5 <20
	Volt-hours	75	150	300	750	7500 -
Recommended Running Conditions for IEF of 18cm IPG strips	Voltage Step	1	2	3	4	5 end of run
	Voltage (V)	300	600	1500	3000	330
	Time (h)	1	1	1	12.5	<20
	Volt-hours	300	600	1500	37500	-
Snap-lock Connectors for Cooling Coil	Inner Diameter	10mm	Outer Diameter	12mm		
Quick-fit Tubing	Inner Diameter	10mm	Outer Diameter	12mm		



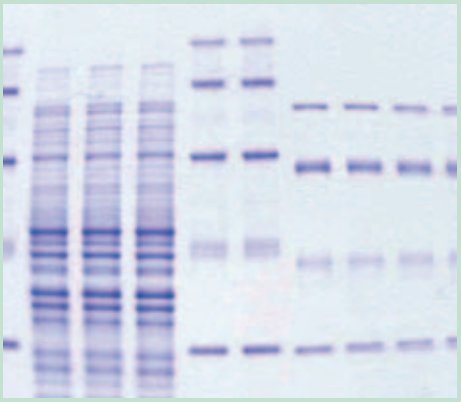
ORDERING INFORMATION

Complete System	Part No.
Flat-bed isoelectric focusing unit includes running tank, lid, 1 x ceramic cooling plate, 1 x glass electrode frame, 1 x electrode frame, 1 x anode electrode, 1 x cathode electrode, 1 x glass electrode weight, 2 x quick-fit tubes and 2 x 2mm power cables	IEF-SYS

Replacement Parts & Accessories	
1 x ceramic cooling plate for IEF-SYS	IEF-CP
1 x glass electrode frame for IEF-SYS	IEF-GF
1 x electrode frame for IEF-SYS	IEF-EF
1 x cathode electrode for IEF-SYS	IEF-CE
1 x anode electrode for IEF-SYS	IEF-AE
1 x glass electrode weight for IEF-SYS	IEF-GS
2 x quick-fit tubes for cooling plate for IEF-SYS	TCS-CC
2 x 1 metre power leads with shrouded 2mm power output connectors	CABLE-2
Platinum Wire	PT-0.2100CM

SERVALYT™ PRECOTES™: OUTLINE PROTOCOL

1. Set the cooling temperature of the external chiller, connected to the cooling plate by quick-fit tubing, to 4ºC at least 10 minutes before using the unit.
2. Place the gel directly on top of the area covered by Bayol F or kerosene and, by using a pipette or electrophoresis roller (42991.01), gently disperse any bubbles underneath the gel.
3. Immerse each electrode wick (42988.01) in its respective electrode solution (Scie-Plas recommends 100µl of electrode solution per cm of wick), depending on whether it is the anode (42984.03) or the cathode (42986.03). The length of the electrode wicks should correspond to the width of the precast gel.
4. Position the electrode wicks at either end of the IEF gel, at least 5mm inside each edge, so that they are aligned parallel with the red and black strips at either end of the gel. The distance between each electrode should be 10cm for SERVALYT™ PRECOTES™ IEF gels.
5. Place a clean, washed applicator strip (42915.01) in the middle of the gel.
6. Load 10µl of protein sample into each well with a pipette, reserving at least one well for a 10µl-aliquot of SERVA Liquid Mix IEF Markers 3-10 (39212.01).
7. After loading the gel, carefully lower the glass electrode weight over the anode and cathode electrodes, so that they remain in contact with the electrode wicks and gel during the application.
8. Perform IEF according to the recommended running conditions in Technical Specification. Once IEF is complete, the SERVALYT™ PRECOTES™ IEF gel is ready for staining.



Protein samples in a SERVALYT™ PRECOTES™ Wide Range pH 3-10 IEF gel following IEF with the IEF-SYS unit and fixation and staining with SERVA Violet 17.

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