

2D ELECTROPHORESIS

POWER SUPPLIES



PROTEIN ELECTROPHORESIS

SPECTROSCOPY

BLOTTING

ELECTROPHORESIS REAGENTS

NUCLEIC ACID ELECTROPHORESIS

PROVEN SOLUTIONS FOR ELECTROPHORESIS

RADIATION PROTECTION

Providing the Quality Tools You Need and Can Rely On to Get the Results you Expect

Hoefer has consistently brought high quality and reliable equipment, instrumentation, and consumables to meet and exceed the demands of the most discerning scientists. With budgets getting tighter and timelines shorter, it has become increasingly crucial to eliminate the delays and waste caused by inferior equipment.

Since Hoefer brought electrophoresis to the world in 1967, we continue to develop the tools and innovations that are giving scientists the edge they need in this increasingly competitive world. Our expertise and years of experience allow us to provide the best solutions for the most demanding applications.

- The world's fastest and easiest 2D Electrophoresis—Superior quality 2D gels the first time and every time (pages 3-6)
- High Throughput nucleic acid analysis—SUBHT (pages 52-53)
- Intelligent Semi-Dry Blotting units that take much of the guess-work out of blotting—TE70XP or TE77XP (page 58)
- A large range of vertical and horizontal electrophoresis solutions to meet every application and budget (pages 7-55)
- A complete offering of Auxiliary Electrophoresis products that ensure you get the results you expect (pages 130-143)

We look forward to partnering with you for all of your electrophoresis needs and thank you in advance for your support.

For technical assistance please contact us toll free at (800) 227-4750 or +1 (508) 893-8999, reach us by e-mail at support@hoeferinc.com, or visit www.hoeferinc.com



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**PROTEIN
ELECTROPHORESIS**

2-D Electrophoresis Selection Guide

First-dimension Unit

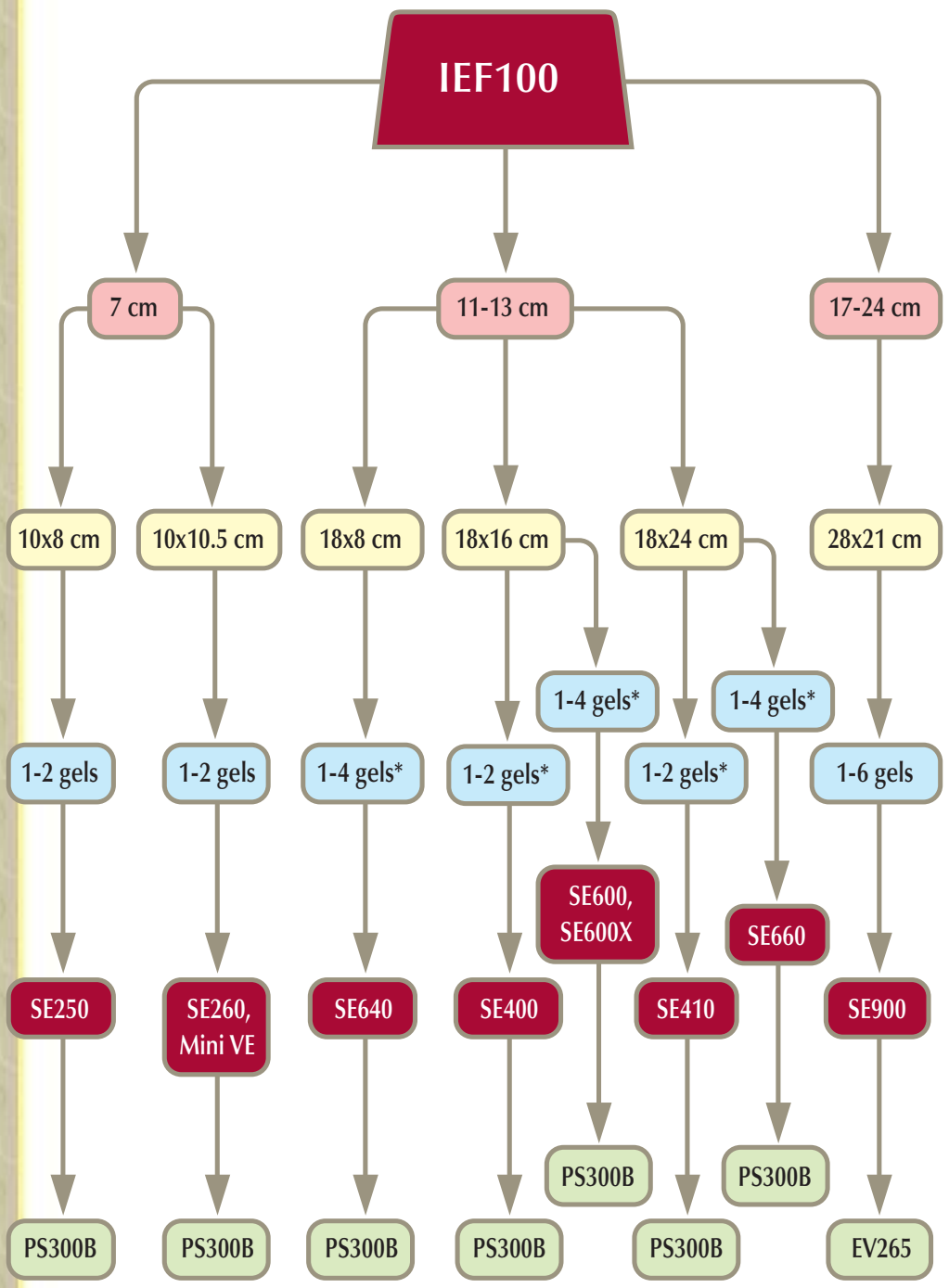
IPG Length

Glass Plate Size
(W x H)

Gel Capacity

Second-dimension Unit

Power Supply



*With optional divider plate

IEF100 First-dimension Isoelectric Focusing Unit

Monitor current flow for each individual IPG strip in real time

- Flexible first-dimension IEF can be run with up to six 7 to 24 cm IPG strips simultaneously, or twelve 7 cm IPG strips using the included dual electrode accessory
- Turn and click intuitive user interface with graphical display
- Capable of faster run times with an integrated 12,000 V power supply that has the highest voltage and current commercially available
- Easily accessible Ethernet and RS232 ports

The IEF100 is the only first dimension instrument that controls the current and voltage applied to the IPG strips to prevent overheating.

Technical Specifications

Voltage	12,000 V
Resolution	1 μ A
Sample Cup Capacity	240 μ l
Unit Dimensions (w x h x d)	38 x 19 x 27 cm
Data Connectivity	Ethernet / RS232
Current	10 mA (999 μ A/strip)
Platform Temperature	15-25°C (Peltier Controlled)
Trays	Running and Rehydration Tray
Weight	6 kg
Safety Certifications	EN61010-1, UL61010-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
IEF100	Isoelectric Focusing Unit

Includes:

- Bag of 252 Wicks
- Running Tray
- Small Rehydration Tray
- Large Rehydration Tray
- Cleaning Brush
- Forceps
- Ten Sets of Running Cups—(6 cups/set)

Accessories and Replacement Parts

Cat. #	Description
IEF106	Two Sealed Bags of 252 Wicks per Bag
IEF109	Small Rehydration Tray
IEF111	Medium Rehydration Tray
IEF110	Large Rehydration Tray
IEF108	Ten Sets of Running Cups (Each Set Containing Six Sample Cups)



Features and Benefits

Cup-loading or rehydration-loading—versatility to accommodate individual sample requirements

Instrument control through LAN—remote control and data acquisition possible

Integrated power supply and Peltier cooling—minimizes footprint

Constant power mode—minimizes overheating risks

Ultra high voltage and current—reduces focusing time and enhances focusing results

Focusing tray clamped to cooling plate—ensures efficient heat transfer

Electrodes lock into place on strips—ensures good contact during run

Front data ports—enable recording of instrument performance if required by GLP

Entire protocol can be seen on screen—easy to read and edit

Large display—provides real-time graphical results

Stores multiple protocols each with multiple steps—flexible programming for precise results

Complete 2-D Electrophoresis Packages

Integrated 2-D electrophoresis systems
and combination packages

Mini 2-D Electrophoresis System

Ordering Information

Cat. #	Description
526003	Mini 2-D Combination Package
	Package Includes:
IEF100	Isoelectric Focusing Unit
SE260-10A-.75	Mighty Small II Mini Deluxe Vertical Unit
SE2619T-2-1.0	T-Spacers, 1.0 mm Thick (qty. 2)
PS300B	300 V, 500 mA, 90 W Power Supply

Standard 2-D Electrophoresis System

Ordering Information

Cat. #	Description
560003	Standard 2-D Combination Package
	Package Includes:
IEF100	Isoelectric Focusing Unit
SE600X-15-1.5	Deluxe Dual Cooled Vertical Unit
PS300B	300 V, 500 mA, 90 W Power Supply

Large 2-D Electrophoresis System

Ordering Information

Cat. #	Description
E2DELITE	Large 2-D Combination Package
	Package Includes:
IEF100	Isoelectric Focusing Unit
SE900	Large Format Vertical Electrophoresis Unit
SE9102-1-1.0	Large Hinged Glass Cassettes (qty. 6)
SE915	Large Multiple Gel Caster

Large 2-D Electrophoresis System w/Power Supply

Ordering Information

Cat. #	Description
590003	Large 2-D Combination Package w/P.S.
	Package Includes:
IEF100	Isoelectric Focusing Unit
SE900	Large Format Vertical Electrophoresis Unit
SE9102-1-1.0	Large Hinged Glass Cassettes (qty. 6)
SE915	Large Multiple Gel Caster
PS265-115V	600 V, 500 mA, 150 W Power Supply

For Large 2-D Electrophoresis System with 230 VAC power supply, order part number 590003-230V

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Page 3



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SE900 Large Format Vertical Gel Electrophoresis Unit

For highly reproducible second-dimension separations on up to six 28 cm SDS-PAGE gels

The SE900 was designed as a dedicated unit for second dimension electrophoretic separation. It can accommodate up to six 28 cm SDS-PAGE gels which mirrors the throughput of the IEF100 (6 IPG strips). If desired, the unit will accommodate plates of similar size made by other manufacturers.

Technical Specifications

Gel Plate Size	28 x 21 cm (w x h)
Gel Size	25 x 20 cm (w x h)
Maximum Power Settings	600 V, 1000 mA, 150 W
Maximum Temperature	45°C
Humidity	Up to 80%
Unit Dimensions (w x h x d)	43 x 43 x 20 cm
SE900 Rating	100-240 V, 50-60 Hz, 2A
Buffer Pump	50,000 hour pump life
Weight	13.6 kg
Safety Certifications	EN61010-1, UL61010-1, CSA22.2 1010.1, CE

Ordering Information

Cat #	Description
SE900-1.0	Large Format Vertical Electrophoresis Unit, Complete
SE900	Large Format Vertical Electrophoresis Unit, Basic

Complete Unit Includes:

- Separation Tank
- Lid with High Voltage Leads
- Internal PAGE Rack
- Tubing Kit
- Multiple Gel Caster
- Hinged Glass Cassettes-6 pcs

Basic Unit Includes: The same as above without the multiple gel caster and hinged glass cassettes.

Accessories and Replacement Parts

Cat. #	Description
SE9102-1-1.0	Hinged Glass Cassette, 28 x 21 cm, 1 mm thick
SE915	Large Format PAGE Multiple Gel Caster for Use with SE9102 Cassettes
SE252	Caster Clamps pk/4
SE914	Gel Plate Rack, for Holding up to 14 Large Formal Gel Cassettes
SE908	Tubing Kit
SE6056-HV	Replacement High Voltage Leads
PS12-25	Replacement Power Pack for Buffer Pump
SE9056	Replacement Lid with High Voltage Leads
SE9054	Internal PAGE Rack
SE9150	Lower Buffer Chamber (tank) w/pump assembly
SE917	Drain Filters
SE1514	Wonder Wedge
SE913	Separator Sheets
SE912	Space Saver Plate
SE6070	Gel Seal

Features and Benefits

No upper buffer chamber—no gasket issues and no risk of buffer loss

Utilizes minimal parts—easy to use and reliable

External cooling and internal buffer circulation—ensures an even, constant, and uniform temperature for reproducible results

Up to six 28 cm plates can be run at one time—perfect for high throughput applications

Glass plate sandwiches are hinged cassettes—allows for rapid and easy assembly before use

Built-in draining port—avoids lifting of a heavy buffer-filled tank

Assembly of the tank is easy—no clamps needed

Innovative design enables re-use of tank buffer—decreased buffer consumption for reduced cost

SE660 Tall Standard Dual Cooled Vertical Unit

Taller format accommodates 24 cm long gels for increased resolution

Technical Specifications

Glass Plate Size (w x h) 18 x 24 cm, 18 x 16 cm or 18 x 8 cm
 Spacers 0.75 mm, 1.0 mm, 1.5 mm
 Maximum Power Settings 1000 V, 500 mA, 50 W
 Maximum Temperature 45°C
 Indoor Use 4-40°C
 Humidity Up to 80%
 Unit Dimensions (w x h x d) 32 x 37 x 14 cm
 Safety Certifications EN61010-1, UL61010-1, CSA C22.2 1010.1, CE



Ordering Information

Cat. #	Description
SE660-15-1.5	Tall Standard Dual Cooled Vertical Electrophoresis Unit, Complete

Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber
- Safety Lid w/High Voltage Leads
- Heat Exchanger
- Glass Plates 18 x 24 cm—6 pcs
- Clamp Assemblies, 8 cm—4 pcs
- Clamp Assemblies, 16 cm—4 pcs
- Cams—6 pcs
- Slotted Gaskets for Upper Buffer Chamber—2 pcs
- Dual Gel Casting Stand with Leveling Base
- Bubble Level
- Laminated Gaskets for Caster—2 pcs
- Buffer Dam
- Spacer-Mate—Alignment Template
- Wonder Wedge™—Plate Separation Tool
- Gel Seal
- Combs, 15-well, 1.5 mm thick—2 pcs
- Spacers, 1.5 mm thick (2 cm wide)—4 pcs

Ordering Information

Cat. #	Description
SE660	Tall Standard Dual Cooled Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs and spacers. Order two SE511 combs and two sets of 24 cm long spacers separately, see page 30.

Advantages

Maximum glass plate size 18 x 24 cm

Produce straight lanes and sharp, well-defined bands

Run up to four gels (maximum 112 samples) at one time under identical conditions

Run gels at uniform temperature from 1 to 45°C

Accommodates denaturing and native polyacrylamide gels and 2-D electrophoresis

A wide array of accessories allows you to tailor gel configurations to your needs (see page 30)



SE600X Chroma™ Deluxe Dual Cooled Vertical Unit

Ergonomic design offers easier handling and sample introduction

Technical Specifications

- Glass Plate Size (w x h) 18 x 16 cm or 18 x 8 cm
- Spacers 0.75 mm, 1.0 mm, 1.5 mm
- Maximum Power Settings 1000 V, 500 mA, 50 W
- Maximum Temperature 45°C
- Indoor Use 4-40°C
- Humidity Up to 80%
- Unit Dimensions (w x h x d) 32 x 29 x 14 cm
- Safety Certifications EN61010-1, UL61010-1, CSA C22.2 1010.1, CE

Advantages

Maximum glass plate size 18 x 16 cm

Gels are fully submerged for greater temperature equilibration

Produces straight lanes and sharp, well-defined bands

Run up to four gels (maximum 112 samples) at one time under identical conditions

Accommodates denaturing and native polyacrylamide gels, and the second-dimension of 2-D electrophoresis

Run gels at uniform temperature from 1 to 45°C

A wide array of accessories enables you to tailor gel configurations to your needs (see page 30)

Ordering Information

Cat. #	Description
SE600X-15-1.5	Deluxe Dual Cooled Vertical Electrophoresis Unit, Complete

Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber
- Safety Lid w/High Voltage Leads
- Heat Exchanger
- Glass Plates 18 x 16 cm—6 pcs
- Clamp Assemblies, 16 cm—4 pcs
- Cams – 6 pcs
- Slotted Gaskets for Upper Buffer Chamber—2 pcs
- Dual Gel Casting Stand with Leveling Base
- Bubble Level
- Laminated Gaskets for Caster—2 pcs
- Buffer Dam
- Spacer-Mate—Alignment Template
- Wonder Wedge—Plate Separation Tool
- Gel Seal
- Combs, 15-well, 1.5 mm thick—2 pcs
- Spacers, 1.5 mm thick (2 cm wide)—4 pcs

Cat. #	Description
SE600X	Deluxe Dual Cooled Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs and spacers. Order two SE511 combs and two sets of 16 cm long spacers separately, see page 30.

SE600 Standard Dual Cooled Vertical Unit

Hoefer pioneered the vertical format
for electrophoresis separations

Technical Specifications

Glass Plate Size (w x h) 18 x 16 cm or 18 x 8 cm
 Spacers 0.75 mm, 1.0 mm, 1.5 mm
 Maximum Power Settings 1000 V, 500 mA, 50 W
 Maximum Temperature 45°C
 Indoor Use 4-40°C
 Humidity Up to 80%
 Unit Dimensions (w x h x d) . . 32 x 29 x 14 cm
 Safety Certifications EN61010-1, UL61010-1, CSA C22.2 1010.1, CE



Ordering Information

Cat. #	Description
SE600-15-1.5	Standard Dual Cooled Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber
- Safety Lid w/High Voltage Leads
- Heat Exchanger
- Glass Plates 18 x 16 cm—6 pcs
- Clamp Assemblies, 16 cm—4 pcs
- Cams—6 pcs
- Slotted Gaskets for Upper Buffer Chamber—2 pcs
- Dual Gel Casting Stand with Leveling Base
- Bubble Level
- Laminated Gaskets for Caster—2 pcs
- Buffer Dam
- Spacer-Mate—Alignment Template
- Wonder Wedge—Plate Separation Tool
- Gel Seal
- Combs, 15-well, 1.5 mm thick—2 pcs
- Spacers, 1.5 mm thick (2 cm wide)—4 pcs

Cat. #	Description
SE600	Standard Dual Cooled Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs and spacers. Order two SE511 combs and two sets of 16 cm long spacers separately, see page 30.

Advantages

Maximum glass plate size 18 x 16 cm

Produce straight lanes and sharp, well defined bands

Run up to four gels (maximum 112 samples) at one time under identical conditions

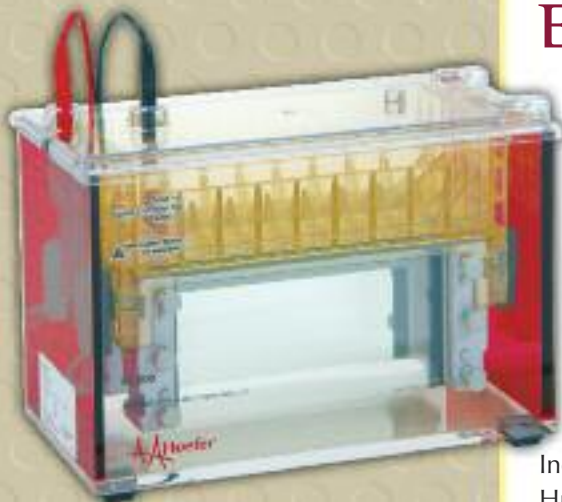
Run gels at uniform temperature from 1 to 45°C

Accommodates denaturing and native polyacrylamide gels and 2-D electrophoresis

A wide array of accessories allows you to tailor gel configurations to your needs (see page 30)

SE640 Wide-Mini Vertical Electrophoresis Unit

Extra wide format ideal for quick, high throughput runs



Technical Specifications

- Glass Plate Size (w x h) 18 x 8 cm
- Spacers 0.75 mm, 1.0 mm, 1.5 mm
- Maximum Power Settings . . . 1000 V, 500 mA, and 50 W
- Maximum Temperature 45°C
- Indoor Use 4-40°C
- Humidity Up to 80%
- Unit Dimensions (w x h x d) 32 x 29 x 14 cm
- Safety Certifications EN61010-1, CSA C22.2 1010.1, CE

Advantages

Maximum glass plate size 18 x 8 cm

Permits rapid screening of up to 112 samples at one time

Design permits gels to be surrounded uniformly by buffer so heat dissipation is efficient. Bands are sharp and lanes are straight

Accommodates denaturing or native polyacrylamide gels

Run up to four second dimension gels using IEF strips or tube gels

Ordering Information

Cat. #	Description
SE640-15-1.5	Wide-Mini Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber
- Safety Lid w/High Voltage Leads
- Glass Plates 18 x 8 cm—6 pcs
- 8 cm Clamp Assemblies—4 pcs
- Cams—6 pcs
- Dual Casting Stand w/Leveling Base
- Laminated Gaskets for Casting Stand—2 pcs
- Slotted Gaskets for Upper Buffer Chamber—2 pcs
- Buffer Dam
- Spacer-Mate—Alignment Template
- Wonder Wedge—Plate Separation Tool
- Gel Seal
- Bubble Level
- Combs, 15-well, 1.5 mm thick—2 pcs
- 1.5 mm Thick Spacers (2 cm wide)—4 pcs

Cat. #	Description
SE640	Wide-Mini Vertical Electrophoresis Unit, Basic

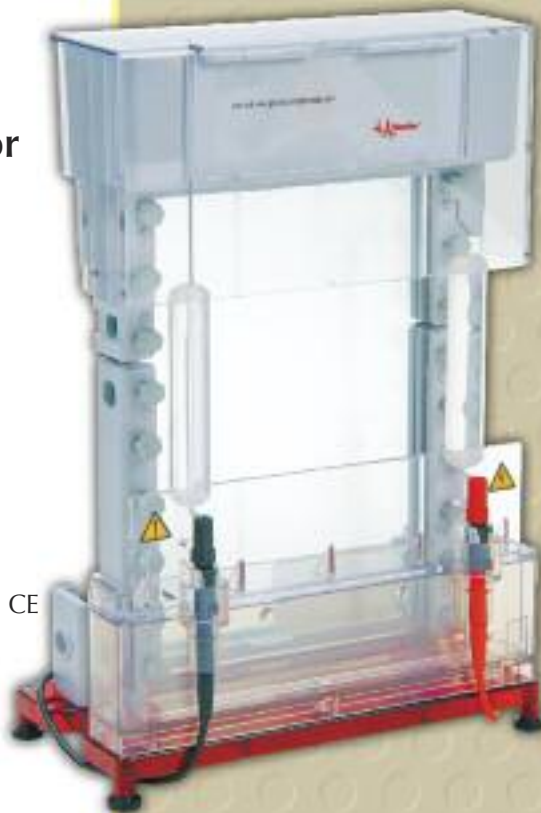
Basic Unit Includes: The same as above without the combs and spacers. Order two SE511 combs and two sets of 8 cm long spacers separately, see page 30.

SE410 Tall Air-Cooled Vertical Electrophoresis Unit

Compact, rugged, and economical units ideal for educational laboratories with multiple users

Technical Specifications

Glass Plate Size (w x h)	18 x 24 cm
Spacers	0.75 mm, 1.0 mm, 1.5 mm
Maximum Power Settings	500 V, 60 mA, 20 W
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x h x d)	24 x 36 x 15 cm
Safety Certifications	EN61010-1, UL3101-1, CSA C22.2 1010.1, CE



Ordering Information

Cat. #	Description
SE410-15-1.5	Tall Air-Cooled Vertical Electrophoresis Unit, Complete

Includes:

- Lower Buffer Chamber/Casting Stand on Leveling Base with High Voltage Leads
- Upper Buffer Chamber
- Safety Lid with Electrodes
- Glass Plates, 18 x 24 cm—2 pcs
- Clamp Assemblies, 8 cm—2 pcs
- Clamp Assemblies, 16 cm—2 pcs
- Cams—2 pcs
- Slotted Gasket for Upper Buffer Chamber
- Bubble Level
- Laminated Gasket for Casting Stand
- Spacer-Mate—Alignment Template
- Wonder Wedge—Plate Separation Tool
- Gel Seal
- Comb, 15-well, 1.5 mm thick
- Spacers, 1.5 mm thick (2 cm wide)—2 pcs

Cat. #	Description
SE410	Tall Air-Cooled Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs and spacers. Order one SE511 comb and one set of 24 cm long spacers separately, see page 30.

Advantages

- Maximum glass plate size 18 x 24 cm
- The rugged injection molded construction is durable and assembles easily
- Run two gels with the addition of a divider plate (see page 22)
- Built-in casting stand seals leak free
- Choose from a wide variety of accessories (see page 30)
- Plates, clamps, spacers, and combs are interchangeable with the SE600 Series

SE400 Air-Cooled Vertical Electrophoresis Unit

Compact, rugged, and economical units ideal for educational laboratories with multiple users



Technical Specifications

Glass Plate Size (w x h)	18 x 16 cm
Spacers	0.75 mm, 1.0 mm, 1.5 mm
Maximum Power Settings	500 V, 60 mA, 20 W
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x h x d)	24 x 28 x 15 cm
Safety Certifications	EN61010-1, UL3101-1, CSA C22.2 1010.1, CE

Advantages

Maximum glass plate size 18 x 16 cm

The rugged injection molded construction is durable and assembles easily

Run two gels with the addition of a divider plate (see page 22)

Built-in casting stand seals leak free

Choose from a wide variety of accessories (see page 30)

Plates, clamps, spacers, and combs are interchangeable with the SE600 Series

Ordering Information

Cat. #	Description
SE400-15-1.5	Air-Cooled Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber/Casting Stand on Leveling Base with High Voltage Leads
- Upper Buffer Chamber
- Safety Lid with Electrodes
- Glass Plates, 18 x 16 cm—2 pcs
- Clamp Assemblies, 16 cm—2 pcs
- Cams—2 pcs
- Slotted Gasket for Upper Buffer Chamber
- Bubble Level
- Laminated Gasket for Casting Stand
- Spacer-Mate—Alignment Template
- Wonder Wedge—Plate Separation Tool
- Gel Seal
- Comb, 15-well, 1.5 mm thick
- Spacers, 1.5 mm thick (2 cm wide)—2 pcs

Cat. #	Description
SE400	Air-Cooled Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs and spacers. Order one SE511 comb and one set of 16 cm long spacers separately, see page 30.

SE300 miniVE™ Integrated Vertical Electrophoresis and Blotting Unit

Perform both electrophoresis and electro transfer in one sturdy, compact unit

Technical Information

Glass Plate Size (w x h) 10 x 10.5 cm or 10 x 8 cm
 Spacers 0.75 mm, 1.0 mm, 1.5 mm
 Maximum Power Settings
 for Electrophoresis 500 V and 25 W per module
 for Blotting 400 mA and 15 W per module
 Maximum Temperature 45°C
 Indoor Use 4-40°C
 Humidity Up to 80%
 Unit Dimensions (w x h x d) 19.2 x 17.2 x 18.8 cm
 Safety Certifications EN61010-1, UL61010A-1, CSA C22.2 1010.1, CE



Ordering Information

Cat. #	Description
SE300-10A-1.0	miniVE Integrated Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber (tank)
- Gel Modules with Gaskets–2 assemblies
- Safety Lid with High Voltage Leads
- Glass Plates, Rectangular, 10 x 10.5 cm–3 pcs
- Glass Plates, Notched, 10 x 10.5 cm–3 pcs
- Combs, 10-well, 1.0 mm thick–2 pcs
- T-Spacers, 1.0 mm thick–4 pcs
- Well-Locating Decals–2 pcs
- Wonder Wedge Plate Separation Tool
- Gel Seal

Cat. #	Description
SE300	miniVE Integrated Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs, spacers, and glass plates. Order two SE211A combs, two sets of 10.5 cm long spacers, and 10 x 10.5 cm rectangular and notched glass plates separately, see pages 20 and 29.

Cat. #	Description
SE302	miniVE Blot Module

Includes:

- Blot Module
- Blotter Paper–25 sheets
- Dacron Sponges, 6 mm thick–4 pcs

Advantages

- Quick, excellent results using minimal buffer
- Passive cooling produces gels with straight lanes and sharp bands
- Cast your own or use precast gels from a variety of manufacturers
- Transfer up to 4 gels in 45 minutes with only 300 ml buffer using optional SE302 Blot Modules
- Designed for use with a wide variety of precast gels





SE260 Mighty Small II Deluxe Mini Vertical Electrophoresis Unit

Combines the advantages of small format and efficient cooling for rapid screening of proteins and nucleic acids

Technical Specifications

- Glass Plate Size (w x h) . . . 10 x 10.5 cm or 10 x 8 cm
- Spacers 0.75 mm, 1.0 mm, 1.5 mm
- Maximum Power Settings . 500 V, 500 mA, 12 W
- Maximum Temperature 45°C
- Indoor Use 4-40°C
- Humidity Up to 80%
- Unit Dimensions (w x h x d) . . . 16.5 x 18 x 16 cm
- Safety Certifications EN61010-1, UL61010A-1, CSA C22.2 1010.1, CE

Advantages

Maximum glass plate size 10 x 10.5 cm

Flexible design, additionally able to accommodate 10 x 8 cm format with optional accessories

Supports a wide variety of precast gels

Efficient active cooling ensures sharp bands

Run up to two gels (maximum 30 samples) at one time under identical conditions

Quick and easy to assemble

Choose from a wide variety of accessories (see page 31)

Ordering Information

Cat. #	Description
SE260-10A-.75	Mighty Small II Deluxe Mini Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber/Cooling Core
- Safety Lid with High Voltage Leads
- Casting Cradle w/Sealing Gasket Set
- Casting Clamp Assemblies–2 pcs
- Cams–4 pcs
- Glass Plates, Rectangular, 10 x 10.5 cm–10 pcs
- Alumina Plates, Notched, 10 x 10.5 cm–5 pcs
- Spring Clamps–4 pcs
- Combs, 10 well, 0.75 mm thick–2 pcs
- T-Spacers, 0.75 mm thick–4 pcs
- Well Locating Decals–2 pcs
- Gel Seal

Cat. #	Description
SE260-10A-1.5	Mighty Small II Deluxe Mini Vertical Electrophoresis Unit, Complete

Complete Unit Includes: The same as above with 1.5 mm thick combs and spacers.

Cat. #	Description
SE260B	Mighty Small II Deluxe Mini Vertical Electrophoresis System, Basic

Basic Unit Includes: The same as above without the combs, spacers, plates, and caster. Order two SE211A combs, two sets of 10.5 cm long spacers, 10 x 10.5 cm rectangular glass and notched alumina plates, and a gel caster, see pages 20, 22 and 31.

SE250 Mighty Small II Mini Vertical Electrophoresis Unit

Designed for quick screening and rapid separation

Technical Specifications

Glass Plate Size (w x h)	10 x 8 cm
Spacers	0.75 mm, 1.0 mm, 1.5 mm
Maximum Power Settings	500 V, 500 mA, 12 W
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimension (w x h x d)	16.5 x 16 x 16 cm
Safety Certifications	EN61010-1, UL61010A-1, CSA C22.2 1010.1, CE



Ordering Information

Cat. #	Description
SE250-10A-.75	Mighty Small II Mini Vertical Electrophoresis Unit, Complete

Complete Unit Includes:

- Lower Buffer Chamber
- Upper Buffer Chamber/Cooling Core
- Safety Lid with High Voltage Leads
- Casting Cradle w/Sealing Gasket Set
- Casting Clamp Assemblies–2 pcs
- Cams–4 pcs
- Glass Plates, Rectangular, 10 x 8 cm–10 pcs
- Alumina Plates, Notched, 10 x 8 cm–2 pcs
- Spring Clamps–4 pcs
- Combs, 10 well, 0.75 mm thick–2 pcs
- T-Spacers, 0.75 mm thick–4 pcs
- Well locating Decals–2 pcs
- Gel Seal

Cat. #	Description
SE250	Mighty Small II Mini Vertical Electrophoresis Unit, Basic

Basic Unit Includes: The same as above without the combs, spacers, and caster.

Order two SE211A combs, two sets of 8 cm long spacers, and a gel caster, see pages 20 and 31.

Advantages

Maximum glass plate size 10 x 8 cm

Efficient active cooling ensures sharp bands

Quick and easy to assemble

Requires minimal buffer

Easily upgradable to the SE260 (with optional accessories) resulting in the additional capability of accommodating both 10 x 8 and 10 x 10.5 cm gels, enabling a wider variety of precast gel options

Choose from a wide variety of accessories (see page 31)

SQ33 Sequencer

Ideal for high resolution techniques which require a longer separation distance



The Hoefer SQ33 Sequencer offers a wide gel format for increased sample capacity and Shark's Tooth combs to ensure optimal band resolution. The SQ33 Sequencer is perfect for DNA sequencing, DNase and RNase footprinting, and heteroduplex or oligonucleotide analysis. The removable lower buffer chamber combined with the upper buffer chamber drainage tap make buffer disposal easy and safe.

Technical Specifications

Glass Plate Size (w x h) 33 x 41 cm
 Spacers 0.35 mm
 Maximum Power Settings 1000 V, 100 mA, and 55 W
 Maximum Temperature 45°C
 Indoor Use 4-40°C
 Humidity Up to 80%
 Unit Dimensions (w x h x d) 63 x 50 x 21.5 cm

Features and Benefits

Aluminum back plate—serves as a heat sink to prevent band distortion

Spring-loaded plate clamps—act in conjunction with counterbalanced gaskets to maintain uniform gel thickness and even distribution of pressure

Ventilation grille—aids in heat dispersal during electrophoresis and can be replaced by the optional thermostatic fan kit

Optional Fan Sensor Kit—an adjustable, thermostatically controlled fan kit powered independently to maintain gel temperature

Ordering Information

Cat. #	Description
SQ33	SQ33 Sequencer, Complete

Complete Unit Includes:

- Single plate vertical gel electrophoresis unit
- Lower Buffer Chamber
- Upper Buffer Chamber
- Safety Lid w/High Voltage Leads
- Glass Plates, Rectangular, 33 x 41 cm—2 pcs
- Glass Plates, Notched, 33 x 41 cm—2 pcs
- Spacers, 0.35 mm thick—2 pcs
- Comb, 48-well Shark's Tooth, 0.35 mm thick

SQ33 Sequencer Accessories and Replacement Parts

Shark's Tooth Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Depth (mm)	Well Volume (µl per 1 mm depth)
SQ33-C35-48K	48	0.35	3	10	5
SQ33-C35-60KMC	60*	0.35	2.5	10	4
SQ33-C35-96K	96	0.35	2.5	9	3.5

Standard Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Depth (mm)	Well Volume (µl per 1 mm depth)
SQ33-C35-40	40	0.35	4	5	7
SQ33-C35-60MC	60*	0.35	2	5	3.5

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SQ33-GPLT	Glass Plates, Rectangular, 33 x 41 cm—2 pcs
SQ33-NGPLT	Glass Plates, Notched, 33 x 41 cm—2 pcs
SQ33-SP	Spacers, 0.35 mm thick—2 pcs
SQ33-HS-115V	Fan Sensor Kit, 115 VAC
SQ33-HS-230V	Fan Sensor Kit, 230 VAC

Optional Fan Sensor Kit

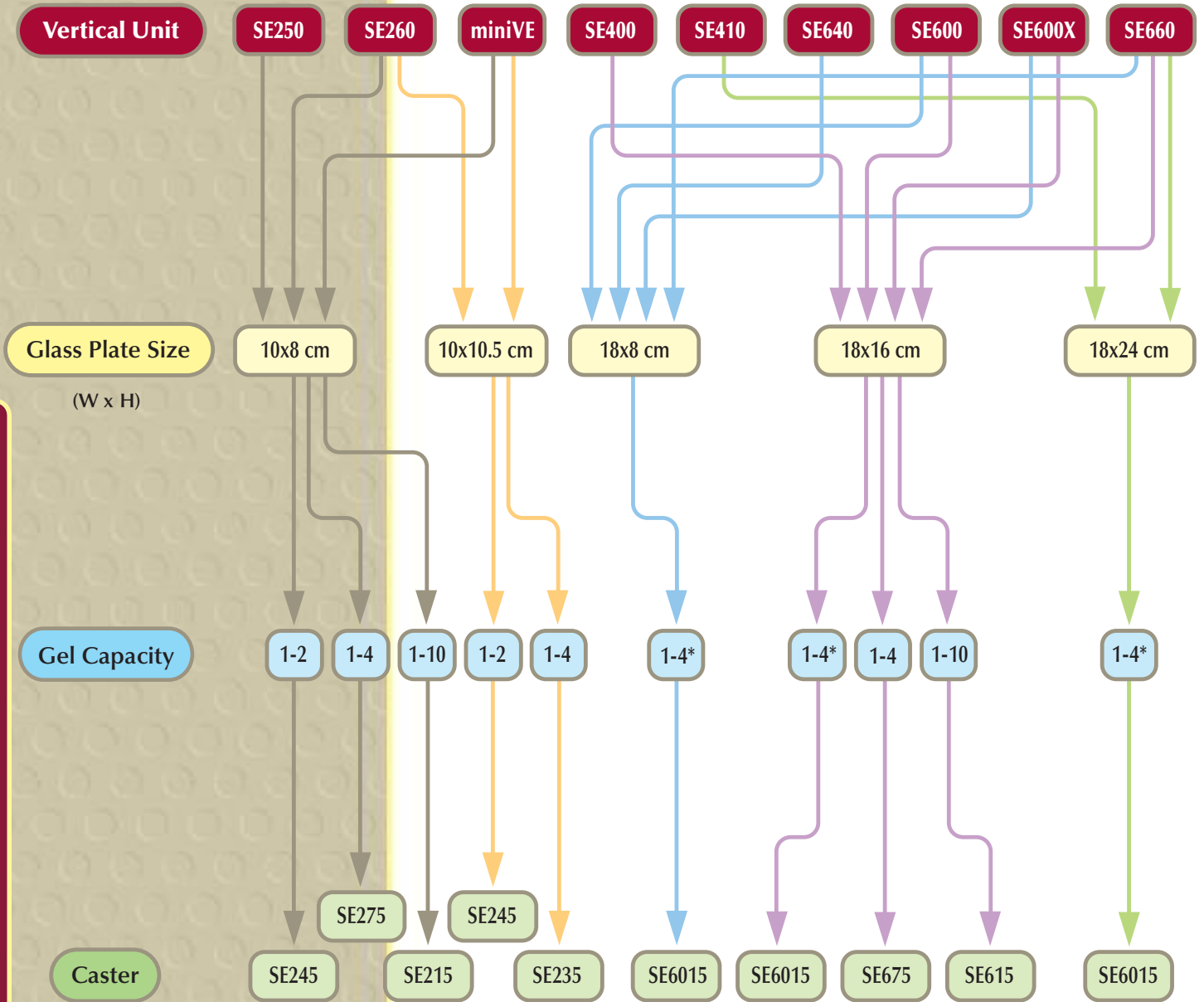
- Comprised of a fan operated by an independently powered heat sensor temperature control unit
- Gel temperature is set by manual adjustment of the dial on the front panel of the control unit
- Fan is screwed onto the lid of the SQ33 in place of the ventilation grill
- Fan is activated within 4°C of the preset temperature



Technical Specifications

Unit Dimensions (w x h x d) 9.6 x 8 x 14 cm
 Temperature Control Range 0 - 100°C
 Temperature Control Accuracy ±2%
 Fan Dimensions (w x h x d) 12 x 3.8 x 12 cm
 Fan Operating Speed 2700 rpm
 Flow Rate >84 CFM
 Noise Rating 36 dBA

Vertical Electrophoresis Caster Selection Guide



*With optional divider plate

Gel Casters for SE600 and SE400 Series Vertical Electrophoresis Units

Enables several gradient or homogenous gels to be cast simultaneously

Multiple Gel Casters

- SE675 casts up to four 16 cm long gels
- SE615 casts up to ten 16 cm long gels
- Easy to use and leak free
- Cast homogenous or gradient gels—Pour homogenous gels directly into the top of the casting chamber; pump gradient gels through an inlet port at the bottom

Ordering Information

Cat. #	Description
SE675	Four Gel Caster Includes Glass Plates, 18 x 16 cm—8 pcs
SE615	Ten Gel Caster Includes Glass Plates, 18 x 16 cm—20 pcs

Includes:

- Caster Body with Gasket
- Face Plate
- Clamps—4 pcs
- Glass Plates
- Filter Sheets—5 pcs
- Wax Paper—100 Sheets, Precut
- Spacer-Mate—Alignment Template
- Thumbscrews—2 pcs
- Filler Plug Set
- Black Vinyl Cap
- Gel Seal
- Bubble Level

Order SE511 combs and sets of spacers separately, see page 30.

Dual Gel Caster

SE6015 Dual Gel Caster is included when you order an SE600 Series unit. It can also be ordered separately.

- Casts two 8, 16, or 24 cm long gels at a time
- Double the capacity with optional divider plates (see page 22)
- Easy to use and leak free
- Glass sandwiches seal into the casting cradle with a simple twist of the cams

Ordering Information

Cat. #	Description
SE6015	Dual Gel Caster

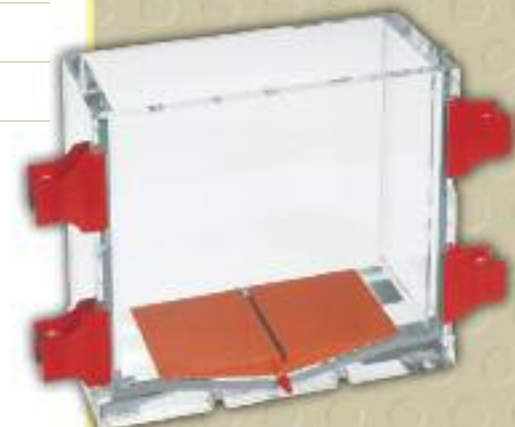
Includes:

- Caster Stand with 2 Cradles and Leveling Feet
- Laminated Gaskets—2 pcs

Order glass plates, SE511 combs and sets of spacers separately, see pages 22 and 30.



SE675



SE615



SE6015

Gel Casters—Small Format Vertical Electrophoresis

Enables several gradient or homogenous gels to be cast simultaneously



Multiple Gel Casters

- Pour uniform gels from the top; pump gradient gels into an inlet port at the bottom of the unit
- Sandwiches fill at the same time at the same rate from the same solution. The result: identical gels.
- Glass plate sandwiches seal leak free without the use of messy grease or tape
- Once cast, gels can be wrapped in plastic and refrigerated for several weeks

Ordering Information

Cat. #	Description
SE215	Ten Gel Caster for 10 x 8 cm plates Includes: 10 x 8 cm Rectangular Glass Plates—20 pcs 10 x 8 cm Notched Alumina Plates—10 pcs Spring Clamps—2 pcs
SE275	Four Gel Caster for 10 x 8 cm plates Includes: 10 x 8 cm Rectangular Glass Plates—10 pcs 10 x 8 cm Notched Alumina Plates—4 pcs Spring Clamps—2 pcs
SE235	Four Gel Caster for 10 x 10.5 cm plates Includes: 10 x 10.5 cm Rectangular Glass Plates—5 pcs 10 x 10.5 cm Notched Alumina Plates—4 pcs Spring Clamps—4 pcs

All three above include:

- Caster Body with Gasket
- Face Plate with Inlet Port
- Rectangular Glass Plates—size and qty varies
- Notched Alumina Plates—size and qty varies
- Spring Clamps—qty varies
- Wax Paper—100 sheets
- Space-Saver Plate
- Polycarbonate Filler Sheets—5 pcs
- Black Vinyl Cap
- Filler Plug Set

Order SE211A combs and spacers separately, see page 31.



Dual Gel Caster

- Cast one or two gels
- Accommodates both 10 x 8 cm and 10 x 10.5 cm plates
- Uses the same rugged and effective clamp/cam casting method as used with the SE600 and SE400 Series casters

Ordering Information

Cat. #	Description
SE245	Dual Gel Caster

Includes:

- Casting Cradle
- Casting Clamp Assemblies—2 pcs
- Sealing Gasket Set
- Cams—4 pcs

Order glass plates, SE211A combs, and spacers separately, see pages 22 and 31.

Vertical Gel Caster Replacement Parts

Multiple Gel Casters

	SE275	SE215	SE235	SE675	SE615
Wax Paper (100/pk)	SE201	SE201	SE231	SE614	SE614
Polycarbonate Filler Sheets (5/pk)	SE213	SE213	SE233	SE613	SE613
Space-Saver Plate	SE217	SE217	SE237	SE612	SE612
Face Plate	SE218	SE218	SE238	SE616-2	SE616-2
Filler Plug Set	SE279	SE209	SE279	SE678	SE618
Foam Gasket (61 cm)	SE208	SE208	SE208	SE208	SE208
Spring Clamps (4/pk)	SE252	SE252	SE252	SE253	SE253
Red Inlet/Outlet Fitting	XPO10	XPO10	XPO10	XPO10	XPO10

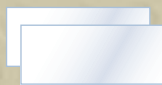
Dual Gel Casters

	SE245	SE6015
Sealing Gasket-2/pk	SE246	SE6009
Cams-4/pk	SE6005L	SE6005L
Casting Clamp Assembly-1 each	SE249	N/A
Casting Clamp Assemblies-1 pair	N/A	18 x 8 cm: SE6403U 18 x 16 cm: SE6003U 18 x 24 cm: SE6403U and SE6003U
Thumbscrews-12/pk	SE6003U-2	SE6003U-2

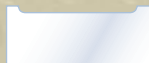
See page 27 for SE400 Series caster replacement parts.



SE6402, SE6402LF



SE6402D



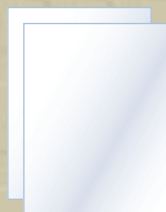
SE6102, SE6102LF



SE6102D



SE6602, SE6602LF



SE6602D

Glass Plates:

For SE660, SE600X Chroma, SE600, SE640, SE410, and SE400

Ordering Information

Cat. #	Description
SE6402	18 x 8 cm Regular-2 pcs
SE6402LF	18 x 8 cm Low Fluorescence-2 pcs
SE6402D	18 x 8 cm Divider Plate, Notched
SE6102	18 x 16 cm Regular-2 pcs
SE6102LF	18 x 16 cm Low Fluorescence-2 pcs
SE6102D	18 x 16 cm Divider Plate, Notched
SE6602	18 x 24 cm Regular-2 pcs
SE6602LF	18 x 24 cm Low Fluorescence-2 pcs
SE6602D	18 x 24 cm Divider Plate, Notched



Divider Plates Double Gel Capacity

Run as many as four 0.75, 1.0, or 1.5 mm thick gels on SE600 Series units and two gels on the SE400 Series at one time under identical conditions.

How it works: Insert a divider plate between the glass plates that make up a single gel sandwich. Place spacers on each side of the divider plate to form two gel cavities for pouring gels. This two gel "club sandwich" fits into the same casting stand and seals perfectly.

SE202P-10



SE202GN-5



SE262P-5

SE262GN-5

SE202N



SE202N-10



SE262N-5



Glass and Alumina Plates:

For miniVE™, SE260, and SE250

Glass Plates

Ordering Information

Cat. #	Description
SE202P-10	10 x 8 cm Rectangular Glass Plates-10 pcs
SE202GN-5	10 x 8 cm Notched Glass Plates-5 pcs
SE262P-5	10 x 10.5 cm Rectangular Glass Plates-5 pcs
SE262GN-5	10 x 10.5 cm Notched Glass Plates-5 pcs

Alumina Plates (not recommended for use with miniVE)

Ordering Information

Cat. #	Description
SE202N	10 x 8 cm Notched Alumina Plate
SE202N-10	10 x 8 cm Notched Alumina Plates-10 pcs
SE262N-5	10 x 10.5 cm Notched Alumina Plates-5 pcs

SE660 Vertical Electrophoresis System

Replacement Parts

SE6005L
Cams

SE6403U
8 cm Clamp Assembly

SE6160
Heat Exchanger

SE6650
Lower Buffer Chamber



Ordering Information

Cat. #	Description
SE6056	Lid for SE660 w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE6005L	Cams-4 pcs
SE6054	Upper Buffer Chamber for SE600 Series
SE6008B	Slotted Gaskets-2 pcs for Upper Buffer Chamber
SE6032	Buffer Dam
SE6403U	Clamp Assembly 8 cm-2 pcs
SE6003U	Clamp Assembly 16 cm-2 pcs
SE6003UK	Clamp and Cam Kit Includes: Clamp Assembly 16 cm-4 pcs Cams-8 pcs
SE6160	Heat Exchanger for SE600 Series
SE6650	Lower Buffer Chamber for SE660

For glass plates, see page 22. For combs and spacers, see page 30.

SE6056-HV
High Voltage Leads

SE6056X
Lid w/High Voltage Leads

SE6054
Upper Buffer Chamber

SE6005L
Cams

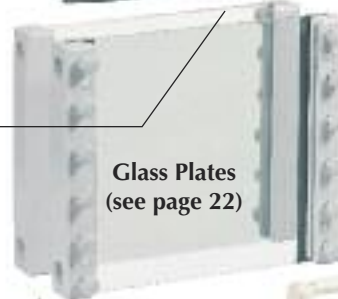
SE6032
Buffer Dam

SE600X Chroma Electrophoresis System

Replacement Parts



SE6008B
Slotted Gasket



SE6003U
16 cm Clamp Assembly



SE6160
Heat Exchanger



SE6150X
Lower Buffer Chamber

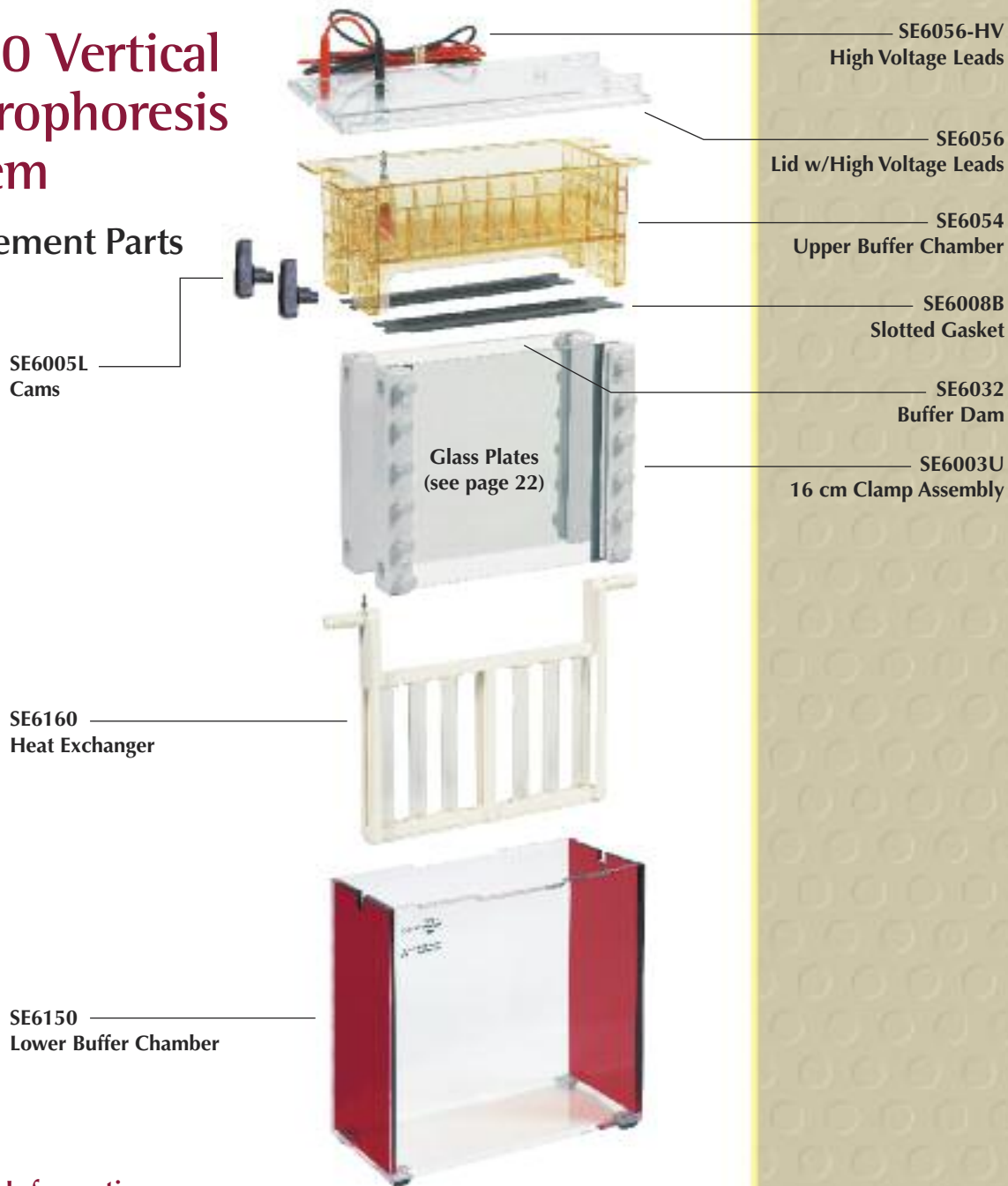
Ordering Information

Cat. #	Description
SE6056X	Lid for SE600X Chroma w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE6005L	Cams—4 pcs
SE6054	Upper Buffer Chamber for SE600 Series
SE6008B	Slotted Gaskets—2 pcs for Upper Buffer Chamber
SE6032	Buffer Dam
SE6003U	Clamp Assembly 16 cm—2 pcs
SE6003UK	Clamp and Cam Kit Includes: Clamp Assembly 16 cm—4 pcs Cams—8 pcs
SE6160	Heat Exchanger for SE600 Series
SE6150X	Lower Buffer Chamber for SE600X Chroma

For glass plates, see page 22. For combs and spacers, see page 30.

SE600 Vertical Electrophoresis System

Replacement Parts



Ordering Information

Cat. #	Description
SE6056	Lid for SE600 w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE6005L	Cams—4 pcs
SE6054	Upper Buffer Chamber for SE600 Series
SE6008B	Slotted Gaskets—2 pcs for Upper Buffer Chamber
SE6032	Buffer Dam
SE6003U	Clamp Assembly 16 cm—2 pcs
SE6003UK	Clamp and Cam Kit Includes: Clamp Assembly 16 cm—4 pcs Cams—8 pcs
SE6160	Heat Exchanger for SE600 Series
SE6150	Lower Buffer Chamber for SE600

For glass plates, see page 22. For combs and spacers, see page 30.

SE640 Wide-Mini Electrophoresis System

Replacement Parts

SE6056-HV
High Voltage Leads

SE6056
Lid w/High Voltage Leads

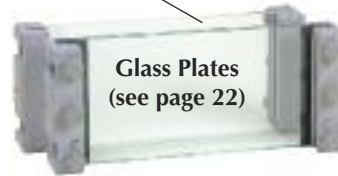
SE6454
Upper Buffer Chamber

SE6005L
Cams

SE6432
Buffer Dam



SE6008B
Slotted Gasket



SE6403U
8 cm Clamp Assembly



SE6450
Lower Buffer Chamber

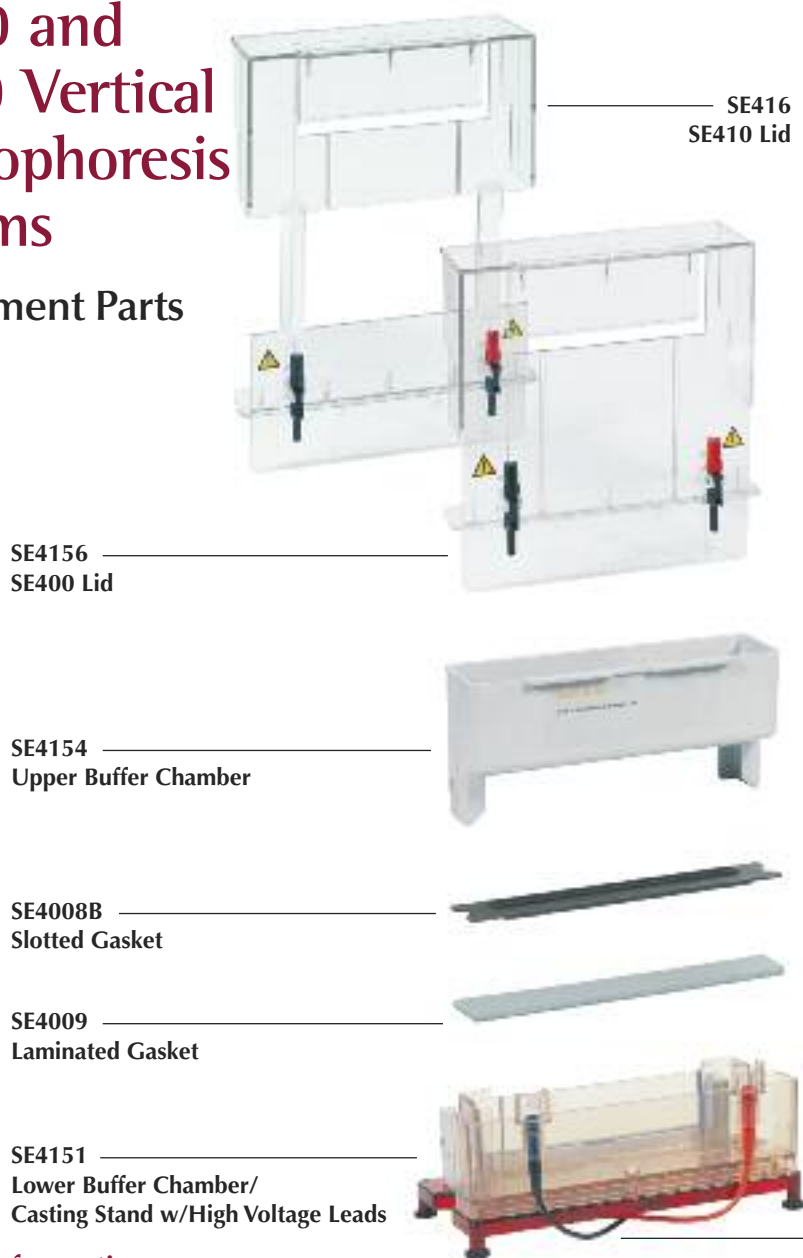
Ordering Information

Cat. #	Description
SE6056	Lid w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE6005L	Cams-4 pcs
SE6454	Upper Buffer Chamber w/Dual Electrode Assembly
SE6008B	Slotted Gaskets-2 pcs for Upper Buffer Chamber
SE6432	Buffer Dam
SE6403U	Clamp Assembly 8 cm-2 pcs
SE6450	Lower Buffer Chamber for SE640

For glass plates, see page 22. For combs and spacers, see page 30.

SE400 and SE410 Vertical Electrophoresis Systems

Replacement Parts



SE4156
SE400 Lid

SE4154
Upper Buffer Chamber

SE4008B
Slotted Gasket

SE4009
Laminated Gasket

SE4151
Lower Buffer Chamber/
Casting Stand w/High Voltage Leads



SE6003U
16 cm Clamp Assembly

SE400
Glass Plate Sandwich

Glass Plates
(see page 22)

SE6403U
8 cm Clamp Assembly

SE410
Glass Plate Sandwich

Glass Plates
(see page 22)

SE6056-HV
High Voltage Leads

SE6003U
16 cm Clamp Assembly

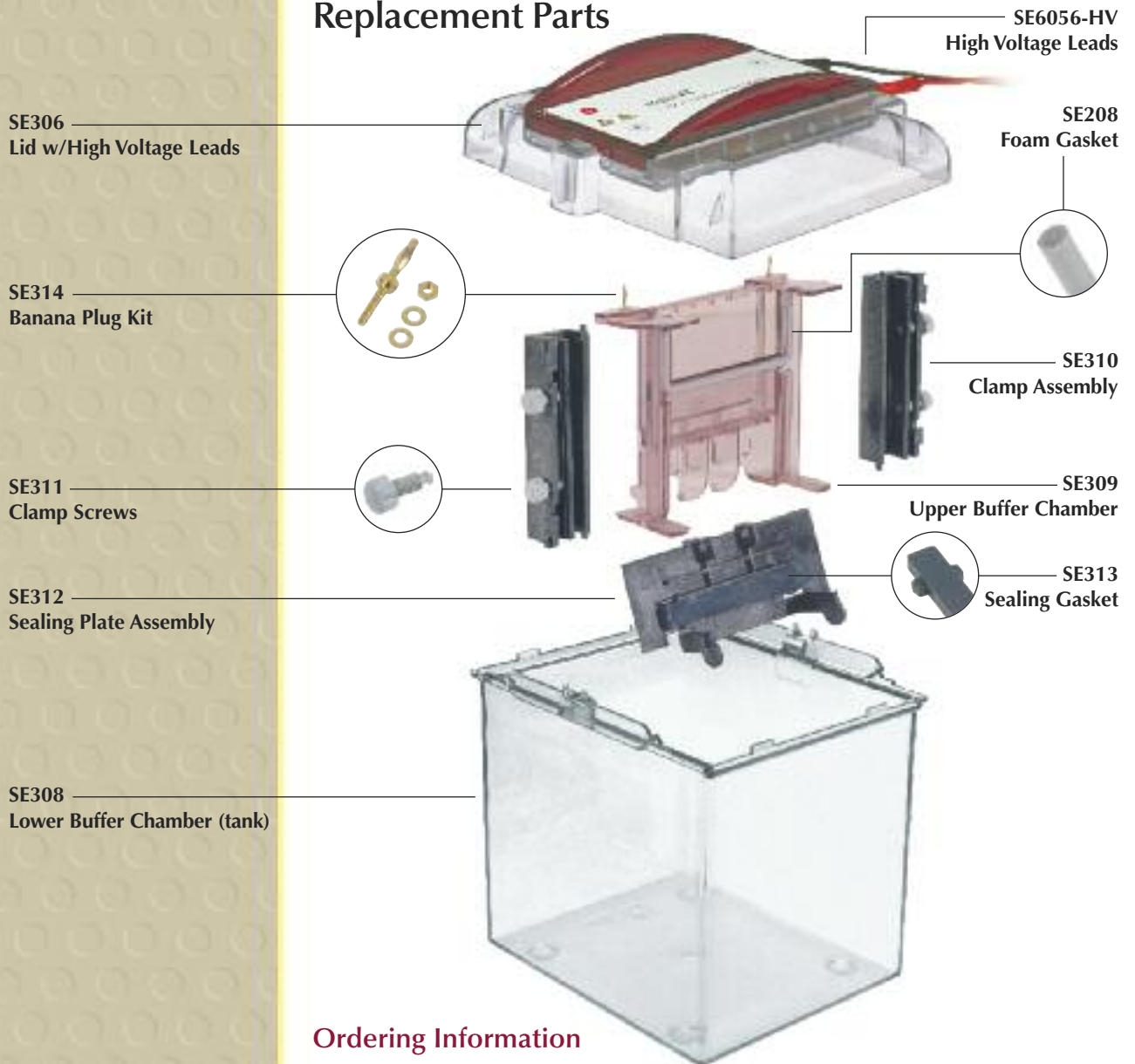
Ordering Information

Cat. #	Description
SE416	SE410 Lid w/Electrodes
SE4156	SE400 Lid w/Electrodes
SE6056-HV	High Voltage Leads
SE6003U	Clamp Assembly 16 cm—2 pcs
SE6403U	Clamp Assembly 8 cm—2 pcs
SE6005L	Cams—4 pcs
SE6003UK	Clamp and Cam Kit Includes: Clamp Assembly 16 cm—4 pcs Cams—8 pcs
SE4154	Upper Buffer Chamber for SE400 Series
SE4008B	Slotted Gasket (for Upper Buffer Chamber)
SE4009	Laminated Gasket (for Casting Stand)
SE4151	Lower Buffer Chamber/Casting Stand on Leveling Base w/High Voltage Leads

For glass plates, see page 22. For combs and spacers, see page 30.

SE300 miniVE™ Electrophoresis System

Replacement Parts



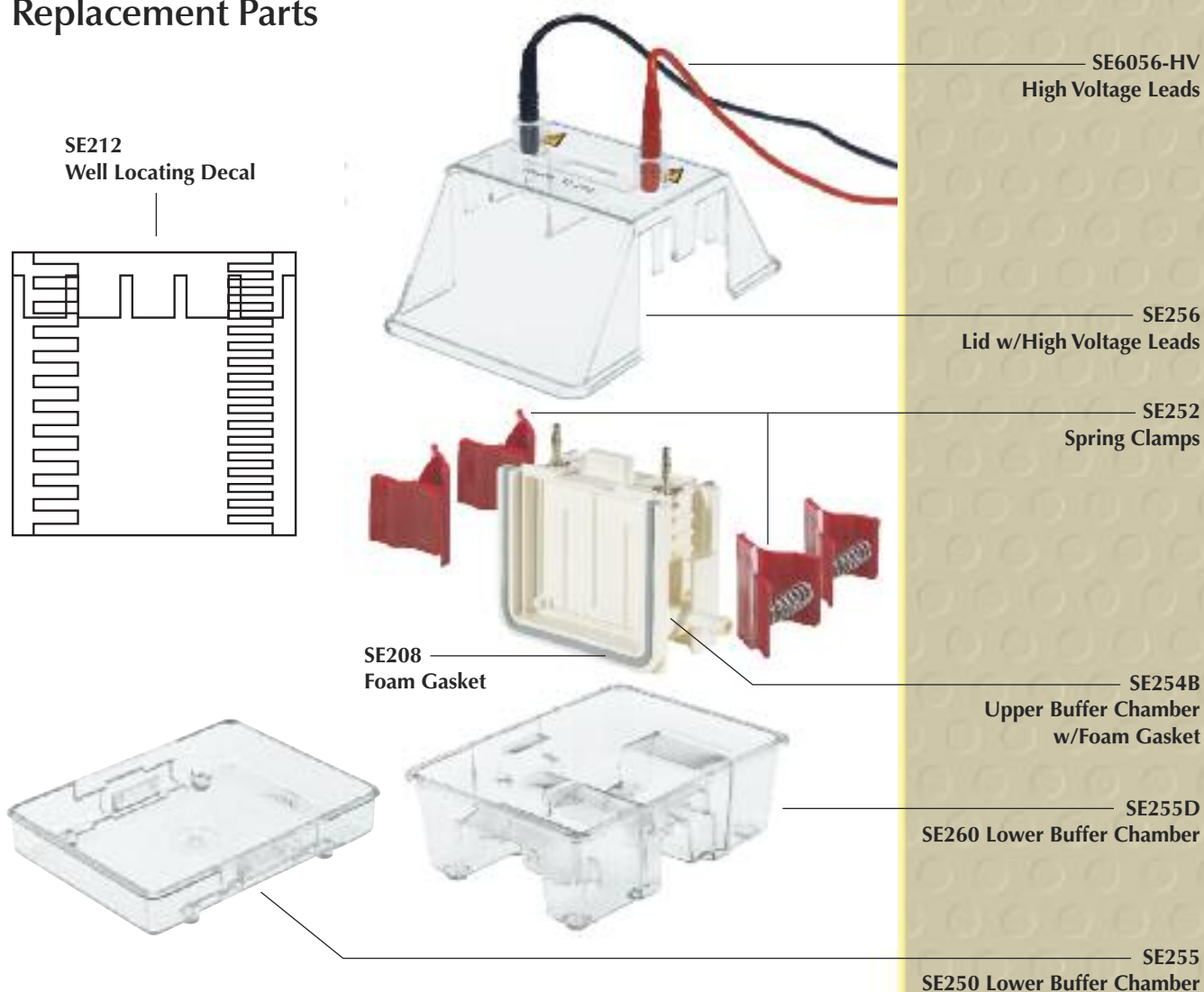
Ordering Information

Cat. #	Description
SE306	Lid w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE314	Banana Plug Kit (2 plugs, 2 nuts, 4 washers)
SE208	Foam Gasket, 61 cm
SE311	Clamp Screws—5 pcs
SE309	Upper Buffer Chamber Assembly with Gasket and Banana Plug Kit
SE310	Clamp Assembly
SE312	Sealing Plate Assembly (includes Sealing Gasket)
SE313	Sealing Gasket
SE308	Lower Buffer Chamber (tank)

For glass plates, see page 22. For combs and spacers, see page 31.

SE260 and SE250 Small Format Vertical Electrophoresis Systems

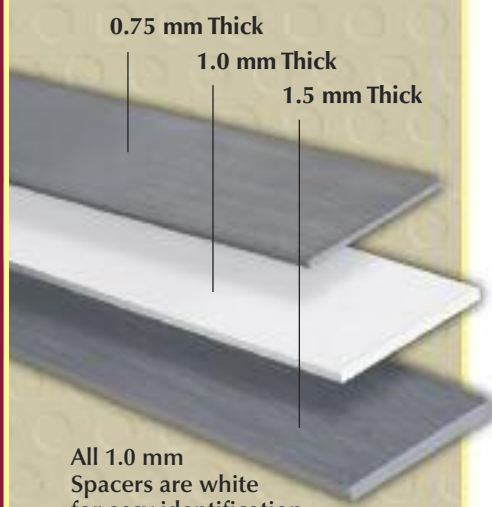
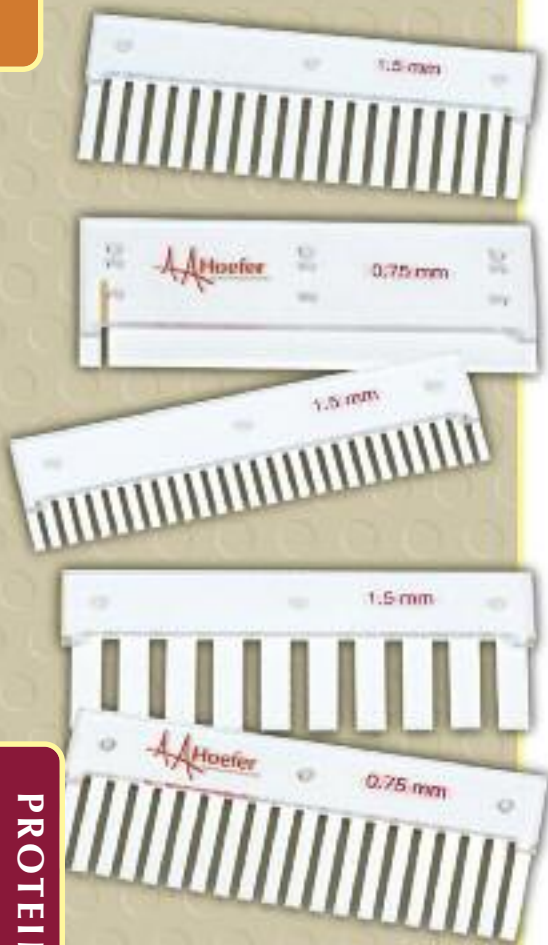
Replacement Parts



Ordering Information

Cat. #	Description
SE256	SE250/SE260 Lid w/High Voltage Leads
SE6056-HV	High Voltage Leads
SE212	Well Locating Decal-2 pcs
SE252	Spring Clamps-4 pcs
SE254B	Upper Buffer Chamber Cooling Core (includes Foam Gasket)
SE250RK-1	Hardware Repair Kit-(2 Banana plugs, 6 Washers, 2 Nuts, Teflon® Tubing 3" (3 pcs), 4 Acetyl Rivets)
SE208	Foam Gasket, 61 cm
SE255	Lower Buffer Chamber for SE250
SE255D	Lower Buffer Chamber for SE260

For glass plates, see page 22. For combs and spacers, see page 31.



All 1.0 mm Spacers are white for easy identification.

Accessories: SE660, SE600X Chroma, SE600, SE640, SE410, and SE400

Combs

Our combs are precision machined from Teflon® which is highly resistant to acids, bases, and all commonly used buffer systems. An important benefit of Teflon combs, compared to other types, is that they are easily removed while maintaining gel integrity. They are lightweight and virtually unbreakable when used with reasonable care.

Standard Combs come attached to a standard back, which produces maximum well depths of 25 mm, except for the 28 well combs which produce well depths of 15 mm.

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Volume (µl per 1 mm depth)	Qty.
SE511-10-.75	10	0.75	8.3	6.2	1
SE511-10-1.0	10	1.0	8.3	8.3	1
SE511-10-1.5	10	1.5	8.3	12.4	1
SE511-12-.75	12	0.75	7.6	5.8	1
SE511-12-1.0	12	1.0	7.6	7.7	1
SE511-12-1.5	12	1.5	7.6	11.5	1
SE511-15-.75	15*	0.75	5.7	4.3	1
SE511-15-1.0	15*	1.0	5.7	5.7	1
SE511-15-1.5	15*	1.5	5.7	8.6	1
SE511-20-.75	20	0.75	4.1	3.1	1
SE511-20-1.0	20	1.0	4.1	4.1	1
SE511-20-1.5	20	1.5	4.1	6.2	1
SE511-28-.75	28	0.75	2.7	2.1	1
SE511-28-1.0	28	1.0	2.7	2.7	1
SE511-28-1.5	28	1.5	2.7	4.1	1
SE511-BKA	Adjustable Comb Back (Converts 25 mm deep comb to 10 or 15 mm depth)				1

*Microtiter spacing for use w/multichannel pipette

Preparative Combs have adjustable comb backs (10, 15, and 25 mm depth) and form 1 large preparative well plus 1 or 2 small reference wells.

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Volume (µl per 1 mm depth)	Qty.
SE511-R-.75	1/1	0.75	121/6	90/4	1
SE511-R-1.0	1/1	1.0	121/6	120/6	1
SE511-R-1.5	1/1	1.5	121/6	183/9	1
SE511-DR-.75	1/2	0.75	113/6	85/4	1
SE511-DR-1.0	1/2	1.0	113/6	112/6	1
SE511-DR-1.5	1/2	1.5	113/6	171/9	1

Spacers

Cat. #	Thickness (mm)	Length (cm)	Width (cm)	Qty.
SE6419-2-.75	0.75	8	2	2
SE6419-2-1.0	1.0	8	2	2
SE6419-2-1.5	1.5	8	2	2
SE6119-2-.75	0.75	16	2	2
SE6119-2-1.0	1.0	16	2	2
SE6119-2-1.5	1.5	16	2	2
SE6619-2-.75	0.75	24	2	2
SE6619-2-1.0	1.0	24	2	2
SE6619-2-1.5	1.5	24	2	2
SE6118-2-1.0	1.0	16	1	2
SE6118-2-1.5	1.5	16	1	2

Accessories: miniVE™, SE260, and SE250

Ordering Information

Standard Combs

Standard combs produce maximum well depths of 13 mm.

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Volume (µl per 1mm depth)	Qty.
SE211A-5-.75	5	0.75	13.0	9.8	1
SE211A-5-1.0	5	1.0	13.0	13.0	1
SE211A-5-1.5	5	1.5	13.0	19.5	1
SE211A-9-1.0	9*	1.0	5.8	5.8	1
SE211A-10-.75	10	0.75	4.8	3.6	1
SE211A-10-1.0	10	1.0	4.8	4.8	1
SE211A-10-1.5	10	1.5	4.8	7.2	1
SE211A-12-1.0	12	1.0	4.75	4.75	1
SE211A-15-.75	15	0.75	2.9	2.2	1
SE211A-15-1.0	15	1.0	2.9	2.9	1
SE211A-15-1.5	15	1.5	2.9	4.4	1
SE211A-18-1.0	18*	1.0	2.9	2.9	1

*Microtiter spacing for use w/multichannel pipette

Preparative Combs

Preparative Combs form 1 large preparative well plus 1 small reference well.

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Well Volume (µl per 1mm depth)	Qty.
SE211A-R-.75	1/1	0.75	68/5	51/3.8	1
SE211A-R-1.0	1/1	1.0	68.5	68/5	1
SE211A-R-1.5	1/1	1.5	68.5	120/7.5	1

T-Spacers

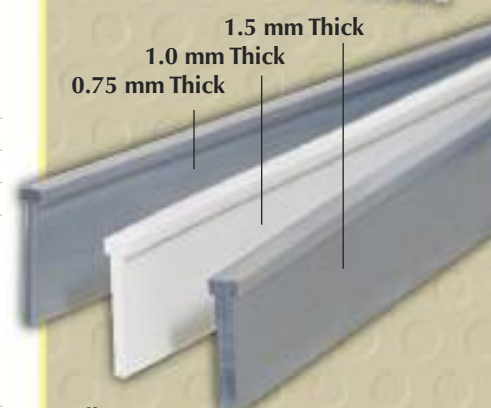
All spacers are precision machined from durable plastics for high chemical resistance and optimum tensile strength.

Cat. #	Thickness (mm)	Length (cm)	Width (cm)	Qty.
SE2119T-2-.75	0.75	8	1	2
SE2119T-2-1.0	1.0	8	1	2
SE2119T-2-1.5	1.5	8	1	2
SE2619T-2-.75	0.75	10.5	1	2
SE2619T-2-1.0	1.0	10.5	1	2
SE2619T-2-1.5	1.5	10.5	1	2

Additional Accessories

Ordering Information

Cat. #	Description
SE6070	Gel Seal–1/4 oz.
SE6003U-2	Clamp Thumbscrews–12 pk (for 8 or 16 cm Clamp)
SE6056-HV	High Voltage Safety Lead Set
SE1514	Wonder Wedge Plate Separation Tool
SER11	Bubble Level



All 1.0 mm T-Spacers are white for easy identification.



SE100 PlateMate™ Glass Plate Washer and Storage Kit

Dramatically reduces glass plate loss due to chipping and cracking

- Glass plates fit securely into the plate holders' grooves for safe washing, rinsing, and storage
- Stainless steel handles let you carry plate holders easily and set them safely into the washing bath
- Accommodates forty 8 cm tall or twenty 18 cm wide places
- Holds as many as twenty 10.5 cm tall plates with the optional SE103 long plate adapter accessory

Technical Specifications

Holders and Adapters

Each holder can support either ten SE600 series glass plates in the long direction, or twenty SE250 glass plates in the short direction. An optional adapter (included in the PlateMate Washer and Storage Kit) is available to enable each holder to accept ten SE260 or miniVE glass plates.

Liquid Capacity of Tank

7 liters to cover 18 x 16 cm plates (for the SE400, SE600X Chroma or SE600) or 5 liters to cover 10 x 8 cm and/or 10 x 10.5 cm plates (for the SE250, SE260, or miniVE).

Materials

Tank and Tank LidHigh-Density Polyethylene
 HoldersPolypropylene
 Dust CoversVinyl
 HandlesStainless Steel
 Operating ConditionsMaximum Temperature 45°C

Ordering Information

Cat. #	Description
SE100	PlateMate Washer and Storage Kit Includes: Polypropylene Washing Tank, Plate Holders w/Handles and Dust Cover–2 sets Long Plate adapters–2 pcs
SE103	Long Plate adapters–2 pcs
SE105	Plate Holder w/Handle and Dust Cover

For large format plate holder (SE914) see page 6.



SE100

SE103

SE105

SG Series Gradient Makers

Ideal for generating gradients of polyacrylamide, sucrose, and cesium chloride

- Milled of heavy acrylic plastic with high quality, leak-free Teflon® valves
- Flat base provides stability on magnetic stir. Comes with a support rod for attaching to a ring stand.
- Takes Luer or 4 mm ID tubing. With included adapters, can also take 2 mm ID or 22 gauge tubing.

Ordering Information

Cat. #	Description
SG15	Gradient maker, 15 ml total volume
SG30	Gradient maker, 30 ml total volume
SG50	Gradient maker, 50 ml total volume
SG100	Gradient maker, 100 ml total volume

Includes:

- Gradient Maker w/Teflon Valves
- Luer Outlet Fitting
- Support Rod
- Adapter Barbed Fitting
- 22 gauge Needle

The 500 ml SG500 Gradient Maker is made of two cylindrical acrylic chambers joined and mounted on a flat acrylic base.

- An easy-to-use push-pull valve opens and closes the passage between the reservoir and mixing chambers
- Suitable for forming polyacrylamide gradients or buffer gradients used with medium to small chromatography columns
- Ideal for use with the SE615 Multiple Gel Caster (page 19)

Ordering Information

Cat. #	Description
SG500	Gradient Maker, 500 ml total volume

Includes:

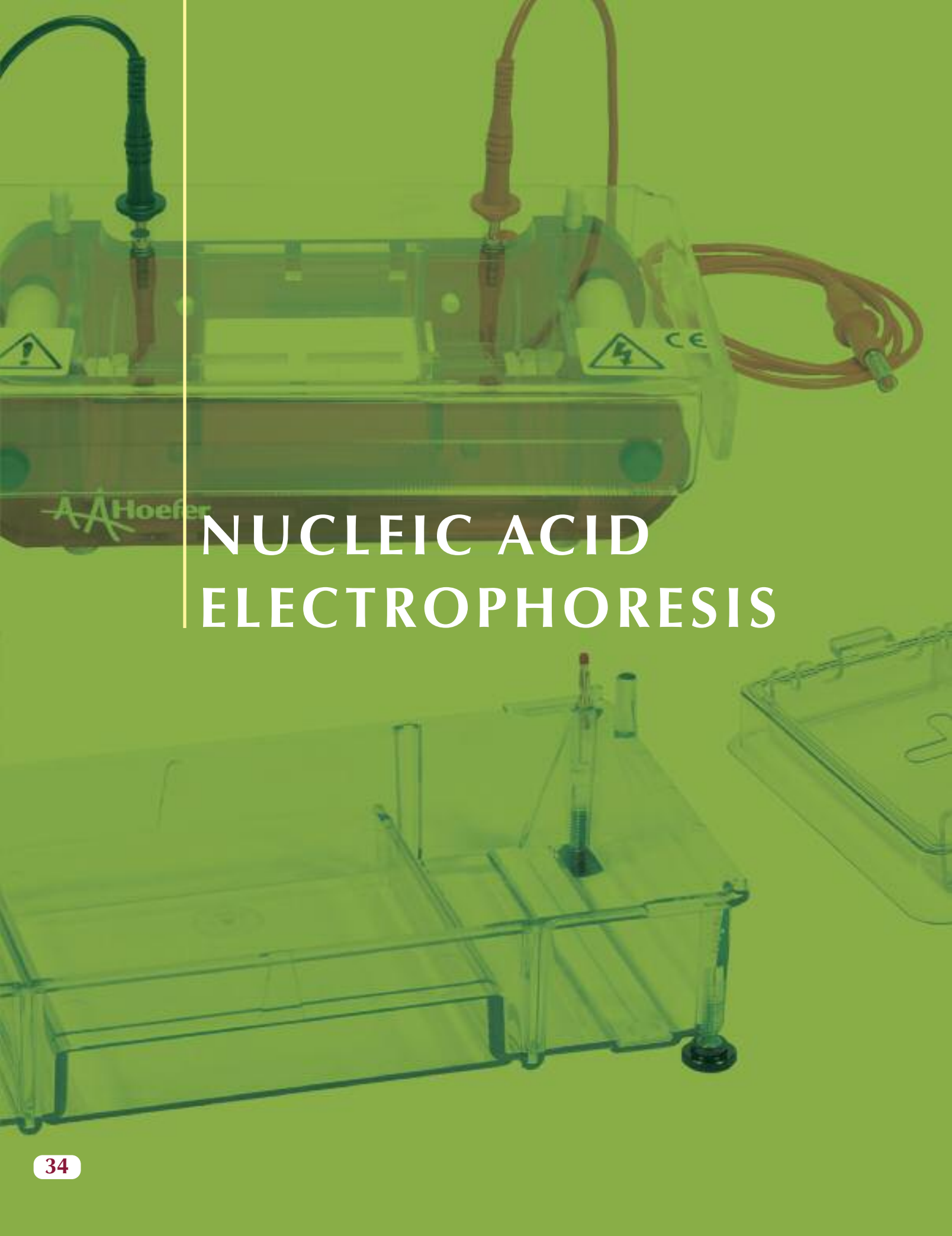
- Gradient Maker w/Push-Pull Valve
- Hose Clamps—4 pcs

Gradient Maker Selection Guide

NOTE: To calculate the volume required for each gel to be cast multiply the gel width (cm) x height (cm) x gel thickness (cm). Multiply this number by the number of gels to be cast and that will determine the volume gradient maker required.

Gel Caster (pages 6, 19 and 20)	Gradient Maker
SE275, 4 gel caster, 10 x 8 cm plate size	SG15 or SG 30
SE235, 4 gel caster, 10 x 10.5 cm plate size	SG30 or SG50
SE215, 10 gel caster, 10 x 8 cm plate size	SG50 or SG100
SE6015, single gel, 18 x 16 cm plate size	SG15 or SG30
SE675, 4 gel caster, 18 x 16 cm plate size	SG100 or SG500
SE615, 10 gel caster, 18 x 16 cm plate size	SG500
SE915, 6 gel caster, 18 x 16 cm plate size	SG500





NUCLEIC ACID ELECTROPHORESIS

Horizontal Electrophoresis Selection Guide

	Product Name	Page #	Tray Size (w x l cm)	Maximum Sample Capacity	Cooling Option	External Casting	Built-In Power Supply
Classic	HE33	36	7 x 10	32	Yes	Yes	–
	HE99X	38	15 x 10 15 x 15 15 x 20	30 60 60	–	Yes	–
Contemporary	SUB6	40	6 x 7.5	32	–	Optional	–
	SUB10	42	10 x 11.5	80	–	Optional	–
	SUB13	44	12.8 x 15	112	–	Optional	–
	SUB15	46	15 x 15	120	–	Yes	–
	SUB20	48	20 x 20	160	–	Yes	–
	SUB20C	48	20 x 20	160	Yes	Yes	–
	SUB25	50	25 x 30	624	–	Yes	–
	SUB25C	50	25 x 30	624	Yes	Yes	–
Specialty	SUBHT	52	15 x 15	120	–	Yes	–
	HE-PLUS	54	12.5 x 13 12.5 x 6 6 x 6	112 56 8	–	Yes	Yes

The recommended power supply for the above non-powered horizontal units is the Hoefer PS300B (see page 70).

Hoefer, the premier manufacturer of electrophoresis equipment, has expanded its family of horizontal electrophoresis units providing a solution for almost every nucleic acid application.

Hoefer's HE33 and HE99X classic horizontals have been used in electrophoresis laboratories around the world for more than 10 years.

Hoefer is pleased to introduce a new line of submarine units which offers eight models from mini units to large cooled units in a new contemporary design.

The Hoefer line has been further expanded to include a high throughput horizontal as well as a horizontal unit with a built-in variable power supply.

HE33 Mini Horizontal Agarose Electrophoresis Unit

Perform rapid separation of DNA fragments



The HE33 Mini Horizontal Agarose Unit is designed for very fast separations of DNA restriction fragments in agarose gels. To achieve passive cooling, you simply fill the clear molded base with 50% ethylene glycol coolant solution, seal it, and place it in a freezer or ice bath until ready to use.

Technical Specifications

Gel Dimensions (w x l)	7 x 10 cm
Maximum Buffer Volume	250 ml
Maximum Power Settings	500 V for (5 min or less), 500 mA, 15 W
Maximum Sample Capacity	32
Maximum Temperature	50°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (l x h x w)	24 x 7 x 13 cm
Safety Certifications	EN61010-1, UL61010A-1, CSA C22.2 1010.1, CE

Features and Benefits

Fast separations—run a 7 x 10 cm gel in as little as 5 minutes

UV transparent running tray—allows the user to image the gel without risk of damage due to handling

Variety of comb sizes—enables customization of sample throughput to fit your laboratory requirements

Adjustable comb height—complete control over well depth

Ordering Information

Cat. #	Description
HE33-8-1.5	HE33 Mini Horizontal Unit, Complete

Complete Unit Includes:

- Buffer Chamber Assembly
- Safety Lid w/High Voltage Leads
- Running Tray
- Casting Tray
- Foam Gaskets—4 pcs
- Bubble Level
- 1.5 mm thick, 8 well comb
- Comb Back

Cat. #	Description
HE33B	HE33 Mini Horizontal Unit, Basic

Basic Unit Includes:

- Buffer Chamber Assembly
- Safety Lid w/High Voltage Leads
- Running Tray
- Casting Tray
- Foam Gaskets—4 pcs
- Bubble Level

Order HE31A combs and HE31-BK comb backs separately, see page 37.

HE33 Mini Horizontal Accessories and Replacement Parts

HE33 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Sample Volume in a 5 mm Deep Well (µl)
HE31A-P-1.0	1/2*	1.0	44/6	235/35
HE31A-P-1.5	1/2*	1.5	44/6	355/50
HE31A-8-1.0	8	1.0	6.5	32.5
HE31A-8-1.5	8	1.5	6.5	48.5
HE31A-12-1.0	12	1.0	3.9	19.5
HE31A-12-1.5	12	1.5	3.9	30.5
HE31A-16-1.0	16	1.0	2.6	13
HE31A-16-1.5	16	1.5	2.6	20.5

All combs require HE31-BK comb back ordered separately

*1 preparatory and 2 reference wells

Accessories and Replacement Parts

Cat. #	Description
HE47-10	Gel Casting Kit: 7 x 10 cm Running Tray 7 x 10 cm Casting Tray Foam Gaskets—4 pcs
HE42-10	7 x 10 cm Running Tray
HE45-10	7 x 10 cm Casting Tray
SER11	Bubble Level
HE48	Foam Gaskets—4 pcs
HE38TP	Top Fill Plug Kit—4 pcs
HE31-BK	Comb Back + 2 screws
HE30	Buffer Chamber Assembly
HE36	Lid w/High Voltage Leads
SE6056-HV	High Voltage Leads—2 pcs
HE39	Electrode Replacement Kit



HE30



HE36



HE47-10



HE42-10



HE45-10



SER11

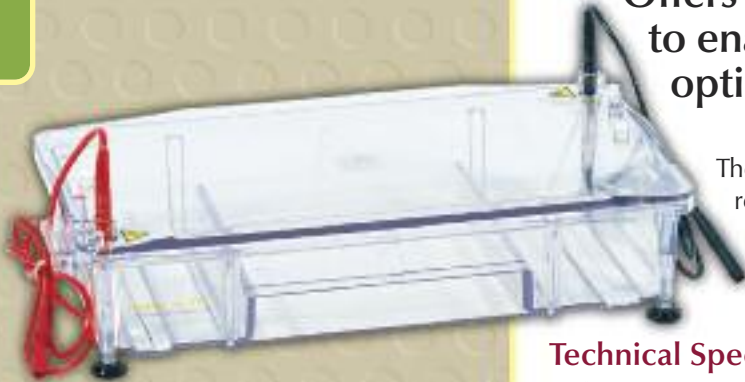
HE38TP



HE39

HE99X Max Horizontal Agarose Electrophoresis Unit

Offers a variety of gel lengths and comb sizes to enable the design of the gel required for optimum resolution of DNA fragments



The HE99X Max agarose electrophoresis unit facilitates high resolution separation of nucleic acid fragments 100 bp to 20 kbp. Three different length trays are available for use with this unit.

Technical Specifications

Gel Dimensions (w x l)	15 x 20 cm, 15 x 15 cm, or 15 x 10 cm
Maximum Buffer Volume	1.2 L
Maximum Power Settings	200 V, 100 mA, 20 W
Maximum Sample Capacity	60
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (l x h x w)	36 x 14 x 18.2 cm
Safety Certifications	EN61010-1, UL61010A-1, CSA C22.2 1010.1, CE

Features and Benefits

Self-locating/centering guides—supports consistent running tray placement

Gel anchor feet—prevent the gel from floating or sliding during the run

Variety of comb sizes—enables customization of sample throughput to fit your laboratories requirements

Adjustable comb height—complete control over well depth

Three casting kits available—enabling users to run 15 x 20, 15 x 15, or 15 x 10 cm gels in the same unit

Ordering Information

Cat. #	Description
HE99X-15-1.5	HE99X Max Horizontal Unit, Complete

Complete Unit Includes:

- Buffer Chamber Assembly
- Safety Lid w/High Voltage Leads
- Running Tray, 15 x 20 cm
- Casting Tray, 15 x 20 cm
- Foam Gaskets—4 pcs
- Bubble Level
- 1.5 mm thick, 15 well comb
- Comb Back

Cat. #	Description
HE99X	HE99X Max Horizontal Unit, Basic

Basic Unit Includes:

- Buffer Chamber Assembly
- Safety Lid w/High Voltage Leads
- Bubble Level

Order a casting kit, HE91A combs and HE91-BK comb backs separately, see page 39.

HE99X Max Horizontal Accessories and Replacement Parts

HE99X Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Sample Volume in a 5 mm Deep Well (µl)
HE91A-P-1.5	1/2*	1.5	113/10	855/72.5
HE91A-P-3.0	1/2*	3.0	113/10	1710/145.5
HE91A-10-1.5	10	1.5	9.7	72.5
HE91A-10-3.0	10	3.0	9.7	145.5
HE91A-15-1.0	15	1.0	7.1	35.5
HE91A-15-1.5	15	1.5	7.1	53.5
HE91A-15-3.0	15	3.0	7.1	106.5
HE91A-20-1.0	20	1.0	4.7	23.5
HE91A-20-1.5	20	1.5	4.7	35.5
HE91A-20-3.0	20	3.0	4.7	70.5
HE91A-30-1.0	30	1.0	3.0	15

All combs require HE91-BK comb back ordered separately

*1 preparatory and 2 reference wells

Accessories and Replacement Parts

Cat. #	Description
Gel Casting Kit (Running Tray, Casting Tray, Foam Gaskets—4 pcs)	
HE97X-20	15 x 20 cm
HE97X-15	15 x 15 cm
HE97X-10	15 x 10 cm
Running Tray	
HE92X-20	15 x 20 cm
HE92X-15	15 x 15 cm
HE92X-10	15 x 10 cm
Casting Tray (with Foam Gaskets—4 pcs)	
HE95X-20	15 x 20 cm
HE95X-15	15 x 15 cm
HE95X-10	15 x 10 cm
HE91-BK	Comb Back + 2 screws
SER11	Bubble Level
HE98X	Foam Gaskets—4 pcs
HE90X	Buffer Chamber Assembly
HE96X	Lid w/High Voltage Leads
SE6056-HV	High Voltage Leads—2 pcs
HE99XRK-1	Electrode Replacement Kit



Gel Casting Kit



Running Tray



Casting Tray



HE91-BK

SER11



HE99XRK-1



HE98X



HE96X

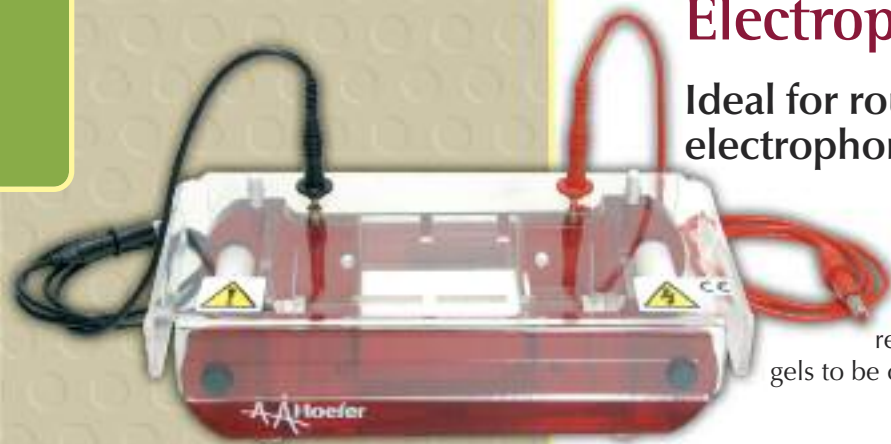


HE90X

SUB6 Mini Submarine Gel Electrophoresis Unit

Ideal for routine preparatory and analytical electrophoresis techniques

The SUB6 Mini Horizontal Gel Unit has a maximum 32-sample throughput capacity and features a removable gel-casting tray with end gaskets that allow gels to be cast directly within the tank.



Technical Specifications

Gel Dimensions (w x l)	6 x 7.5 cm
Maximum Buffer Volume	325 ml
Maximum Power Settings	300 V, 200 mA, 60 W
Maximum Sample Capacity	32
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	13 x 24 x 6.5 cm
Safety Certifications	EN61010-1, CE

Features and Benefits

Color-coded and height adjustable combs—easily identify comb thickness at a glance and control well depth

Colored 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 running 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

Ordering Information

Cat. #	Description
SUB6	Mini Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Silicone Gasket
- 1 mm thick, 8 well combs—2 pcs
- Colored Loading Strips

SUB6 Mini Submarine Accessories and Replacement Parts

SUB6 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB6-C1-8	8	1	4.5	20
SUB6-C1.5-8	8	1.5	4.5	30
SUB6-C2-8	8	2	4.5	40
SUB6-C1-12MC	12*	1	2.5	11
SUB6-C1.5-12MC	12*	1.5	2.5	17
SUB6-C2-12MC	12*	2	2.5	22
SUB6-C1-16	16	1	2.2	10
SUB6-C1.5-16	16	1.5	2.2	15
SUB6-C2-16	16	2	2.2	20

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB6-TANK	Buffer Chamber Assembly
SUB6-LID	Lid for SUB6
SUB6-UT	6 x 7.5 cm Running Tray w/Silicone Gasket
SUB6-CS	Colored Loading Strips-6 pcs
SUB6-GS	Gel Scoop for SUB6
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-FC	External Adjustable Casting Unit

SUB6 In-Tank Casting

The included running tray is lined with silicone gaskets which form a leak-proof seal against the inner walls of the running chamber when the running tray is turned 90° to the direction of electrophoresis.



Optional External, Adjustable Casting Unit

The flexibility of the SUB-FC offers a convenient external casting system capable of accommodating the complete range of Hoefer 6-15 cm wide running trays, increasing throughput and efficiency by enabling the tank to run concurrently.



SUB6-LID



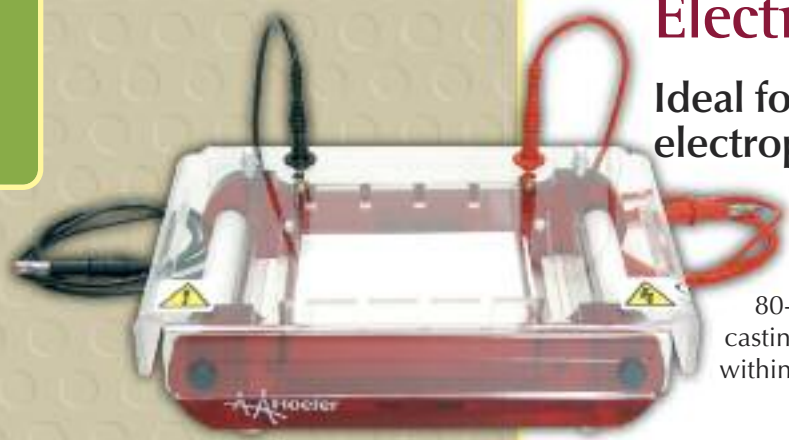
SUB6-UT



SUB6-TANK

SUB10 Mini-Plus Submarine Gel Electrophoresis Unit

Ideal for routine preparatory and analytical electrophoresis techniques



The SUB10 Mini-Plus Horizontal Gel Unit has a maximum 80-sample throughput capacity and features a removable gel-casting tray with end gaskets that allow gels to be cast directly within the tank.

Technical Specifications

- Gel Dimensions (w x l) 10 x 11.5 cm
- Maximum Buffer Volume 450 ml
- Maximum Power Settings 300 V, 200 mA, 60 W
- Maximum Sample Capacity 80
- Maximum Running Temperature 45°C
- Indoor Use 4-40°C
- Humidity Up to 80%
- Unit Dimensions (w x l x h) 16.5 x 23 x 6.5 cm
- Safety Certifications EN61010-1, CE

Features and Benefits

- Color-coded and height adjustable combs**—easily identify comb thickness at a glance and control well depth
- Colored 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 running 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

Ordering Information

Cat. #	Description
SUB10	Mini-Plus Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Silicone Gasket
- 1 mm thick, 16 well combs—2 pcs
- Colored Loading Strips

SUB10 Mini-Plus Submarine Accessories and Replacement Parts

SUB10 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB10-C1-8	8	1	9	40
SUB10-C1.5-8	8	1.5	9	60
SUB10-C2-8	8	2	9	80
SUB10-C1-10MC	10*	1	7	30
SUB10-C1.5-10MC	10*	1.5	7	45
SUB10-C2-10MC	10*	2	7	60
SUB10-C1-12	12	1	5.5	25
SUB10-C1.5-12	12	1.5	5.5	35
SUB10-C2-12	12	2	5.5	50
SUB10-C1-16	16	1	3.6	15
SUB10-C1.5-16	16	1.5	3.6	25
SUB10-C2-16	16	2	3.6	30
SUB10-C1-20MC	20*	1	3	12
SUB10-C1.5-20MC	20*	1.5	3	20
SUB10-C2-20MC	20*	2	3	25

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB10-TANK	Buffer Chamber Assembly
SUB10-LID	Lid for SUB10
SUB10-UT	10 x 11.5 cm Running Tray w/Silicone Gasket
SUB10-CS	Colored Loading Strips—6 pcs
SUB10-GS	Gel Scoop for SUB10
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-FC	External Adjustable Casting Unit

SUB10 In-Tank Casting

The included running tray is lined with silicone gaskets which form a leak-proof seal against the inner walls of the running chamber when the running tray is turned 90° to the direction of electrophoresis.



Optional External, Adjustable Casting Unit

The flexibility of the SUB-FC offers a convenient external casting system capable of accommodating the complete range of Hoefer 6-15 cm wide running trays, increasing throughput and efficiency by enabling the tank to run concurrently.



SUB10-LID



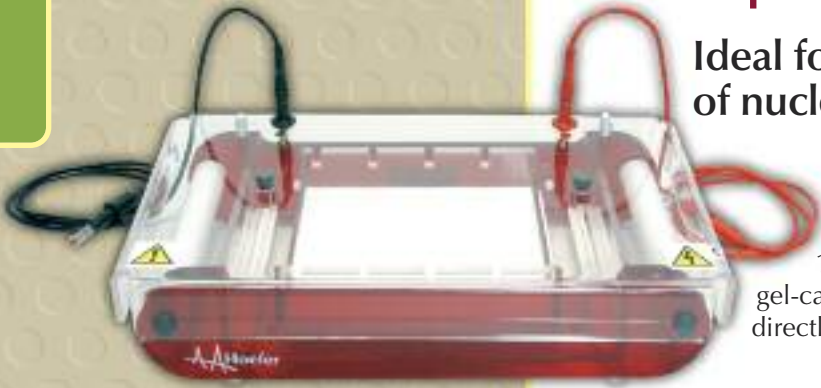
SUB10-UT



SUB10-TANK

SUB13 Midi Submarine Gel Electrophoresis Unit

Ideal for analytical and preparative studies of nucleic acids



The SUB13 Midi Submarine Gel Unit has a maximum 112-sample throughput capacity and features a removable gel-casting tray with end gaskets that allow gels to be cast directly within the tank.

Technical Specifications

Gel Dimensions (w x l)	12.8 x 15 cm
Maximum Buffer Volume	900 ml
Maximum Power Settings	300 V, 200 mA, 60 W
Maximum Sample Capacity	112
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	20 x 32 x 7 cm
Safety Certifications	EN61010-1, CE

Features and Benefits

Color-coded and height adjustable combs—easily identify comb thickness at a glance and control well depth

Buffer recirculation ports—may be connected to a peristaltic pump (see page 142) for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

Colored 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 running 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

Ordering Information

Cat. #	Description
SUB13	Midi Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Silicone Gasket
- 1 mm thick, 16 well combs—2 pcs
- Colored Loading Strips
- Buffer Recirculation Ports—2 pcs

SUB13 Midi Submarine Accessories and Replacement Parts

SUB13 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB13-C1-10	10	1	9.5	40
SUB13-C1.5-10	10	1.5	9.5	60
SUB13-C2-10	10	2	9.5	85
SUB13-C1-12MC	12*	1	8	35
SUB13-C1.5-12MC	12*	1.5	8	50
SUB13-C2-12MC	12*	2	8	70
SUB13-C1-16	16	1	5.5	25
SUB13-C1.5-16	16	1.5	5.5	35
SUB13-C2-16	16	2	5.5	50
SUB13-C1-20	20	1	4	17
SUB13-C1.5-20	20	1.5	4	25
SUB13-C2-20	20	2	4	35
SUB13-C1-24	24	1	3	13
SUB13-C1.5-24	24	1.5	3	20
SUB13-C2-24	24	2	3	25
SUB13-C1-28MC	28*	1	3	13
SUB13-C1.5-28MC	28*	1.5	3	20
SUB13-C2-28MC	28*	2	3	25

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB13-TANK	Buffer Chamber Assembly
SUB13-LID	Lid for SUB13
SUB13-UT	12.8 x 15 cm Running Tray w/Silicone Gasket
SUB13-CS	Colored Loading Strips-6 pcs
SUB13-GS	Gel Scoop for SUB13
SUB-LEAD	High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-BRP	Buffer Recirculation Ports-2 pcs
SUB-FC	External Adjustable Casting Unit

SUB13 In-Tank Casting

The included running tray is lined with silicone gaskets which form a leak-proof seal against the inner walls of the running chamber when the running tray is turned 90° to the direction of electrophoresis.



Optional External, Adjustable Casting Unit

The flexibility of the SUB-FC offers a convenient external casting system capable of accommodating the complete range of Hoefer 6-15 cm wide running trays, increasing throughput and efficiency by enabling the tank to run concurrently.



SUB13-LID



SUB13-UT



SUB13-TANK

SUB15 Standard Submarine Gel Electrophoresis Unit

Provides the most commonly used tray size and comb options



A maximum 120-sample throughput makes the SUB15 Standard Gel Unit a highly versatile option for screening samples ranging from DNA mini-preps to PCR products.

Technical Specifications

Gel Dimensions (w x l)	15 x 15 cm
Maximum Buffer Volume	1.2 L
Maximum Power Settings	300 V, 200 mA, 60 W
Maximum Sample Capacity	120
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	21.5 x 33.5 x 7cm
Safety Certifications	EN61010-1, CE

Features and Benefits

The market standard—a 15 x 15 cm gel tray, with comb options ranging from 1 to 30 samples, is currently the most popular format in today's market

Multichannel 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

Color-coded and height adjustable combs—easily identify comb thickness at a glance and control well depth

Buffer recirculation ports—may be connected to a peristaltic pump (see page 142) for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

Colored loading strips—for easy well detection when loading

UV-transparent running 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

Ordering Information

Cat. #	Description
SUB15	Standard Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Casting Gates
- 1 mm thick, 16 well combs—2 pcs
- Colored Loading Strips
- Buffer Recirculation Ports—2 pcs

SUB15 Standard Submarine Accessories and Replacement Parts

SUB15 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB15-C1-10	10	1	12.8	64
SUB15-C1.5-10	10	1.5	12.8	96
SUB15-C2-10	10	2	12.8	128
SUB15-C1-16MC	16*	1	6.4	32
SUB15-C1.5-16MC	16*	1.5	6.4	48
SUB15-C2-16MC	16*	2	6.4	64
SUB15-C1-20	20	1	5.9	29
SUB15-C1.5-20	20	1.5	5.9	43
SUB15-C2-20	20	2	5.9	58
SUB15-C1-25	25	1	3.5	17
SUB15-C1.5-25	25	1.5	3.5	25
SUB15-C2-25	25	2	3.5	34
SUB15-C1-30MC	30*	1	2.5	12
SUB15-C1.5-30MC	30*	1.5	2.5	18
SUB15-C2-30MC	30*	2	2.5	24

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB15-TANK	Buffer Chamber Assembly
SUB15-LID	Lid for SUB15
SUB15-UT	15 x 15 cm Running Tray w/Casting Gates
SUB15-CG	Casting Gates w/Silicone Gasket-2 pcs
SUB15-CS	Colored Loading Strips-6 pcs
SUB15-GS	Gel Scoop for SUB15
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-BRP	Buffer Recirculation Ports-2 pcs
SUB-FC	External Adjustable Casting Unit

SUB15 Casting Gates

The included casting gates conveniently and efficiently seal the running tray without the hassles of using tape.



Optional External, Adjustable Casting Unit

The flexibility of the SUB-FC offers a convenient external casting system capable of accommodating the complete range of Hoefer 6-15 cm wide running trays.



SUB15-LID



SUB15-UT



SUB15-TANK

SUB20 Maxi-Standard and SUB20C Maxi-Cooled Submarine Gel Electrophoresis Units



SUB20



SUB20C

Ideal for high resolution analytical and preparative studies of nucleic acids

The SUB20 Maxi-Standard Submarine Electrophoresis Unit provides a 20 x 20 cm gel-running tray with four comb positions which allows the user to perform high-resolution analytic research for a maximum of 168 samples. The SUB20C Maxi-Cooled Submarine Electrophoresis Unit has the same efficient design as the SUB20 with the addition of a cooling base that can be connected to a recirculation bath allowing high voltage electrophoretic separations without overheating.

Features and Benefits

Large format—20 x 20 cm gel tray is ideal for high resolution techniques

Multichannel pipette compatible combs—with a maximum 40 sample throughput—reduce gel loading time

Color-coded and height adjustable combs—easily identify comb thickness at a glance and control well depth

Buffer recirculation ports—may be connected to a peristaltic pump (see page 142) for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

Colored loading strips—for easy well detection when loading

UV-transparent running 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

Technical Specifications

Gel Dimensions (w x l)	20 x 20 cm
Maximum Buffer Volume	2.2 L
Maximum Power Settings	1000 V, 500 mA, 500 W
Maximum Sample Capacity	160
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	27 x 47.5 x 8 cm
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
SUB20	Maxi-Standard Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Casting Gates
- 1 mm thick, 16 well combs—2 pcs
- Colored Loading Strips
- Buffer Recirculation Ports—2 pcs

Cat. #	Description
SUB20C	Maxi-Standard Submarine Gel Unit w/Cooling Base

Includes:

- Buffer Chamber Assembly w/Cooling Ports
- Safety Lid
- High Voltage Leads
- Running Tray w/Casting Gates
- 1 mm thick, 16 well combs—2 pcs
- Colored Loading Strips
- Buffer Recirculation Ports—2 pcs

SUB20 Maxi-Standard and SUB20C Maxi-Cooled Submarine Accessories and Replacement Parts

Additional Features and Benefits of the SUB20C

Cooled base—covering the entire 20 x 20 cm gel tray—allows separations to be performed faster and at higher voltage, without loss of resolution

Cooling ports—connect the cooled base to an optional chiller for enhanced cooling (see page 140).

SUB20 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB20-C1-16	16	1	8.5	35
SUB20-C1.5-16	16	1.5	8.5	55
SUB20-C2-16	16	2	8.5	75
SUB20-C1-20MC	20*	1	7	30
SUB20-C1.5-20MC	20*	1.5	7	45
SUB20-C2-20MC	20*	2	7	60
SUB20-C1-28	28	1	5	20
SUB20-C1.5-28	28	1.5	5	30
SUB20-C2-28	28	2	5	40
SUB20-C1-40MC	40*	1	3	13
SUB20-C1.5-40MC	40*	1.5	3	19
SUB20-C2-40MC	40*	2	3	25

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB20-TANK	Buffer Chamber Assembly
SUB20C-TANK	Buffer Chamber Assembly w/Cooling Ports
SUB20-LID	Lid for SUB20 and SUB20C
SUB20-UT	20 x 20 cm Running Tray w/Casting Gates
SUB20-CG	Casting Gates w/Silicone Gasket—2 pcs
SUB20-CS	Colored Loading Strips—6 pcs
SUB20-GS	Gel Scoop for SUB20
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-BRP	Buffer Recirculation Ports—2 pcs

SUB20 Casting Gates

The included casting gates conveniently and efficiently seal the running tray without the hassles of using tape.



SUB20-LID



SUB20-UT



SUB20-TANK



SUB20C-TANK

SUB25 Maxi-Plus Standard and SUB25C Maxi-Plus Cooled Submarine Gel Electrophoresis Units



SUB25



SUB25C

Ideal for high throughput screening of nucleic acids, particularly PCR products and in genotyping studies

The SUB25 Maxi-Standard Submarine Electrophoresis Unit provides a 25 x 30 cm gel-running tray with 12 comb positions accommodating a maximum throughput of 624 samples. The SUB25C Maxi-Cooled Submarine Electrophoresis Unit has the same efficient design as the SUB25 with the addition of a cooling base that can be connected to a recirculation bath allowing high voltage electrophoretic separations without overheating.

Technical Specifications

Gel Dimensions (w x l)	25 x 30 cm
Maximum Buffer Volume	3 L
Maximum Power Settings	1000 V, 500 mA, 500 W
Maximum Sample Capacity	624
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	35 x 56 x 9 cm
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
SUB25	Maxi-Plus Standard Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Running Tray w/Casting Gates
- 1 mm thick, 26 well combs–6 pcs
- Colored Loading Strips
- Buffer Recirculation Ports–2 pcs

Cat. #	Description
SUB25C	Maxi-Plus Standard Submarine Gel Unit w/Cooling Base

Includes:

- Buffer Chamber Assembly w/Cooling Ports
- Safety Lid
- High Voltage Leads
- Running Tray w/Casting Gates
- 1 mm thick, 26 well combs–6 pcs
- Colored Loading Strips
- Buffer Recirculation Ports–2 pcs

Features and Benefits

Large format–25 x 30 cm gel tray is ideal for high throughput techniques

Multichannel pipette compatible combs–with a maximum 52 sample throughput–reduce gel loading time

Color-coded and height adjustable combs–easily identify comb thickness at a glance and control well depth

Buffer recirculation ports–may be connected to a peristaltic pump (see page 142) for buffer recirculation during electrophoresis to maintain buffer pH and prevent ionic gradient formation

Colored loading strips–for easy well detection when loading

UV-transparent running 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

SUB25 Maxi-Plus Standard and SUB25C Maxi-Plus Cooled Submarine Accessories and Replacement Parts

Additional Features and Benefits of the SUB25C

Cooled base—covering the entire 25 x 30 cm gel tray—allows separations to be performed faster and at higher voltage, without loss of resolution

Cooling ports—connect the cooled base to an optional chiller for enhanced cooling (see page 140).

SUB25 Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB25-C1-26MC	26*	1	7	30
SUB25-C1.5-26MC	26*	1.5	7	45
SUB25-C2-26MC	26*	2	7	60
SUB25-C1-52MC	52*	1	3	13
SUB25-C1.5-52MC	52*	1.5	3	20
SUB25-C2-52MC	52*	2	3	25

*Microtiter spacing for use with multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUB25-TANK	Buffer Chamber Assembly
SUB25C-TANK	Buffer Chamber Assembly w/Cooling Ports
SUB25-LID	Lid SUB25 and SUB25C
SUB25-UT	25 x 30 cm Running Tray w/Casting Gates
SUB25-CG	Casting Gates w/Silicone Gasket—2 pcs
SUB25-CS	Colored Loading Strips—6 pcs
SUB25-GS	Gel Scoop for SUB25
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-BRP	Buffer Recirculation Ports—2 pcs

SUB25 Casting Gates

The included casting gates conveniently and efficiently seal the running tray without the hassles of using tape.



SUB25-LID



SUB25-UT



SUB25-TANK



SUB25C-TANK

NEW SUBHT High Throughput Submarine Gel Electrophoresis Unit

Ideal for high throughput screening applications like single strand polymorphism (SSP) analysis following PCR

This high throughput horizontal gel unit can accommodate up to 120 samples and resolve DNA strands from 50-1000 base pairs in 30 minutes.



Technical Specifications

Gel Dimensions (w x l)	15 x 15 cm
Maximum Buffer Volume	1.2 L
Maximum Power Settings	300 V, 200 mA, 60 W
Maximum Sample Capacity	120
Maximum Running Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Unit Dimensions (w x l x h)	21.5 x 33.5 x 7cm
Safety Certifications	EN61010-1, CE

Features and Benefits

Fast, Error-Free Loading—Load an entire 96-well plate using a multi-channel pipette

Simplified Analysis—Fluorescent labels for each sample printed on a UV transparent gel tray allows for instant sample identification (matched to a 96-well plate) during post-run visualization

High Throughput—Run up to 120 samples (96-well plate + 24 control and/or marker samples) in 30 minutes

Better Reproducibility—Eliminate variability caused by running buffer pH drift and ionic gradient formation with optional buffer recirculation capability

Reduced Buffer Needs—Compact tank design needs less buffer to cover gel which not only reduces buffer consumption but provides greater control of voltage gradients and run times

Maximum Flexibility—Fully compatible with a wide range of combs and accessories to meet all your high throughput and standard gel analysis needs

Ordering Information

Cat. #	Description
SUBHT	High Throughput Submarine Gel Unit

Includes:

- Buffer Chamber Assembly
- Safety Lid
- High Voltage Leads
- Fluorescent Labeled Running Tray w/Casting Gates
- 1 mm thick, 30 well combs—4 pcs
- Colored Loading Strips
- Buffer Recirculation Ports—2 pcs

SUBHT High Throughput Submarine Accessories and Replacement Parts

SUBHT Compatible Combs

Cat. #	# of Wells	Thickness (mm)	Well Width (mm)	Volume in 5 mm Deep Well (µl)
SUB15-C1-10	10	1	12.8	64
SUB15-C1.5-10	10	1.5	12.8	96
SUB15-C2-10	10	2	12.8	128
SUB15-C1-16MC	16*	1	6.4	32
SUB15-C1.5-16MC	16*	1.5	6.4	48
SUB15-C2-16MC	16*	2	6.4	64
SUB15-C1-20	20	1	5.9	29
SUB15-C1.5-20	20	1.5	5.9	43
SUB15-C2-20	20	2	5.9	58
SUB15-C1-25	25	1	3.5	17
SUB15-C1.5-25	25	1.5	3.5	25
SUB15-C2-25	25	2	3.5	34
SUB15-C1-30MC	30*	1	2.5	12
SUB15-C1.5-30MC	30*	1.5	2.5	18
SUB15-C2-30MC	30*	2	2.5	24

*Microtiter spacing for use with a multichannel pipette

Accessories and Replacement Parts

Cat. #	Description
SUBHT-TANK	Buffer Chamber Assembly
SUBHT-LID	Lid for SUBHT
SUBHT-LUT	15 x 15 cm Fluorescent Labeled Running Tray w/Casting Gates
SUBHT-UT	15 x 15 cm Running Tray w/Casting Gates
SUBHT-CG	Casting Gates w/Silicone Gasket–2 pcs
SUBHT-CS	Colored Loading Strips–6 pcs
SUBHT-GS	Gel Scoop for SUBHT
SUB-LEAD	Replacement High Voltage Leads
SUB-SG	Silicone Gasket, 1 meter
SUB-BRP	Buffer Recirculation Ports–2 pcs
SUB-FC	External Adjustable Casting Unit
PP24	Mini-Peristaltic Pump, see page 142

SUBHT Casting Gates

The included casting gates conveniently and efficiently seal the running tray without the hassles of using tape.



Optional External, Adjustable Casting Unit

The flexibility of the SUB-FC offers a convenient external casting system capable of accommodating the complete range of Hoefer 6-15 cm wide running trays.



SUBHT-LID



SUBHT-UT



SUBHT-TANK

HE-PLUS Electrophoresis System

Complete Horizontal Electrophoresis System designed to meet a wide range of research application requirements



The new HE-PLUS is completely integrated with a built-in variable power supply and provides a compact easy-to-use horizontal electrophoresis system for the separation of nucleic acids. An LED display enables easy viewing of the voltage, amperage, and time. Also featured is a 99:59 minute timer with an audible end of run alert.

The HE-PLUS offers a high throughput 96 well format with multichannel pipette compatible combs for the direct loading of samples in a small footprint. The system comes complete with four 14/28 well combs, three gel trays, and an external casting stand. The horizontal tank is made of rugged polycarbonate and has a vented lid to reduce condensation so the run can be visually monitored.

Technical Specifications

Unit Dimensions (w x l x h) 24.5 x 17.0 x 6.2 cm
 Gel Dimensions (w x l) 12.5 x 13.0 cm
 Maximum Sample Capacity 112 samples (4 combs, 28 samples each)
 Buffer Capacity 350 ml
 Distance Between Electrodes . . . 13.5 cm

Electrophoresis Tank

Overall Dimensions (w x l x h) . . 18.3 x 16.4 x 5.6 cm
 Material Characteristic UV transmitting (50% at 254 nm, 80% at 312 nm)
 Solution Volume 350 ml

Power Supply

Overall Dimensions (w x l x h) . . 7.5 cm x 17.0 x 6.2 cm
 Weight 410 g
 Input Voltage AC 100 – 240 V, 50/60 Hz
 Output Voltage 10 to 150 volts; constant peak voltage of 150 V
 Output Amperage 10 to 400 mA
 Maximum Wattage 45 W
 Timer 99 hours 59 min, or continuous run
 Safety Switch A microsensor in the power supply prevents output without the safety lid in place

Memory Function Automatic memory (the last used Voltage & Time)
 Safety Certifications TVE, CSA, and CE

Advantages

Compact and Easy to Use

Built-in Variable Power Supply with LED Display

Adjustable Power Supply from 10 to 400 mA or 10 to 150 Volts

Built-in Timer with Audible Alert

HE-PLUS Electrophoresis System (cont.)



Ordering Information

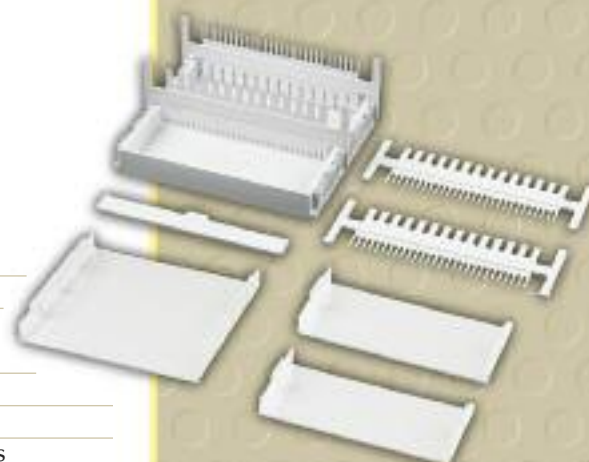
Cat. #	Description
HE-PLUS-115V	HE-PLUS Electrophoresis Complete System 115V
HE-PLUS-230V	HE-PLUS Electrophoresis Complete System 230V

Includes:

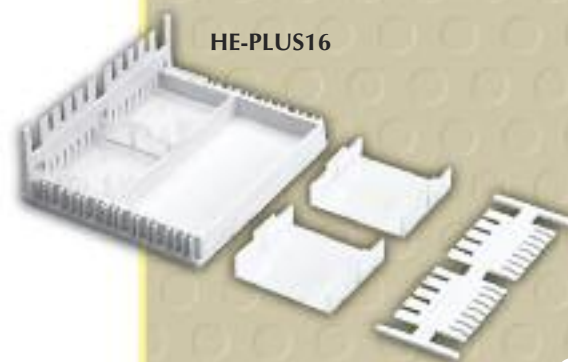
- Gel Tank
- Safety Lid
- Power Supply
- Large Gel Tray
- Medium Gel Trays–2 pcs
- Large/Medium Comb 14/28 Wells–4 pcs
- Casting Stand

Accessories and Replacement Parts

Cat. #	Description
HE-PLUS11	Gel Trays Large 12.5 x 13 cm–2 pcs
HE-PLUS12	Gel Trays Medium 12.5 x 6 cm–2 pcs
HE-PLUS13	Gel Trays Mini 6 x 6 cm–4 pcs
HE-PLUS1428	HE-PLUS Large/Medium Comb 14/28 wells–2 pcs
HE-PLUS0508	HE-PLUS Mini Comb 5/8 wells–2pcs
HE-PLUS16	HE-PLUS Mini Casting Kit; includes 4 gel trays, 2 combs (5/8 wells) and casting stand
HE-PLUS17	HE-PLUS Casting Stand for all 3 gel sizes
HE-PLUS18	HE-PLUS Standard Casting Kit; includes 1 large gel tray, 2 medium gel trays, 4 combs (14/28 Wells) and casting stand



HE-PLUS18



HE-PLUS16



BLOTTING

Blotting Unit Selection Guide

	Product Name	Page #	Transfer Area	Capacity	Buffer Required	Cooling Option	Built-In Power Supply
Semi-dry	TE70XP	58	14 x 16 cm	Up to 4 Mini Gels	0.5 L	N/A	Yes
	TE70X	59	14 x 16 cm	Up to 4 Mini Gels	0.5 L	N/A	–
	TE77XP	58	21 x 26 cm	Up to 12 Mini Gels	0.5 L	N/A	Yes
	TE77X	59	21 x 26 cm	Up to 12 Mini Gels	0.5 L	N/A	–
	TE22	60	9 x 10 cm	4 Cassettes	1 L	Built-In Heat Exchanger	–
Tank	TE42	61	15 x 21 cm	2 Cassettes with Cooling 4 Cassettes without Cooling	5 L	Optional Heat Exchanger	–
	TE62	62	15 x 21 cm	4 Cassettes	5 L	Built-In Heat Exchanger	–

TE70XP and TE77XP Semi-Dry Transfer Units with Built-In Power Supply



Unique design that includes an intelligent built-in power supply which automatically monitors the transfer status, stopping the transfer before the stack overheats

The Semi-Dry Transfer Units support as many as two layers of gels being transferred simultaneously. The TE70XP has a 14 x 16 cm maximum transfer area which can handle up to four mini gels using the stacked format. The TE77XP has a 21 x 26 cm transfer area for a capacity of up to 12 mini gels at one time.

Technical Specifications

Transfer Area:

TE70XP Up to 14 x 16 cm

TE77XP Up to 21 x 26 cm

Maximum Power Settings 30 V, 500 mA, 15 W

Maximum Temperature 45°C

Indoor Use 4-40°C

Humidity Up to 80%

Unit Dimensions (w x h x d) 38 x 46 x 9 cm

Safety Certifications EN61010-1, UL61010-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
TE70XP	Semi-Dry Transfer Unit with Built-In Power Supply

Includes:

- Molded Base w/Platinum Coated Titanium Anode and Internal Power Supply
- Hinged Lid w/Stainless Steel Cathode
- Blotter Paper (14 x 16 cm)–25 sheets
- Porous Cellophane (20 x 35.5 cm)–50 sheets
- Mylar® Masks (16.5 x 18.5 cm)–2 pcs

Cat. #	Description
TE77XP	Large Semi-Dry Transfer Unit with Built-In Power Supply

Includes:

- Molded Base w/Platinum Coated Titanium Anode and Internal Power Supply
- Hinged Lid w/Stainless Steel Cathode
- Blotter Paper (21 x 26 cm)–25 sheets
- Porous Cellophane (20 x 35.5 cm)–50 sheets
- Mylar Masks (23 x 27.5 cm)–2 pcs

Accessories and Replacement Parts

Cat. #	Description
TE74	Mylar Masks (16.5 x 18.5 cm)–4 pcs
TE78	Large Mylar Masks (23 x 27.5 cm)–4 pcs
TE76-1416	Blotter Paper (14 x 16 cm)–25 sheets
TE76	Large Blotter Paper (21 x 26 cm)–25 sheets
TE73	Porous Cellophane (20 x 35.5 cm)–50 sheets

Features and Benefits

Intelligent built-in power supply–prevents the stack from overheating by monitoring the transfer status

Requires minimal current–does not generate excessive heat that can dry out the transfer stack and halt transfer or damage transfer units

Durable iridium oxide and stainless steel electrodes–allow for contamination free, consistent transfer

Vented electrodes–prevent build up of bubbles which may impair transfer

Minimal buffer requirements–reagent cost and preparation time are reduced

Hoefer's Blotting Paper is extra thick to absorb and hold the buffer during semi-dry transfer. Without adequate buffer, the solutions may deplete and no longer conduct current or dry out and fail to provide continuity in the semi-dry stack. Each sheet is ~1 mm thick when hydrated and is available in either 14 x 16 cm (TE76-1416) or 21 x 26 cm (TE76) sizes.

TE70X and TE77X Semi-Dry Transfer Units

Efficient design that uses minimal buffer to transfer proteins from polyacrylamide gels in less than an hour

The Semi-Dry Transfer Units support as many as two layers of gels being transferred simultaneously. The TE70X has a 14 x 16 cm maximum transfer area which can handle up to four mini gels using the stacked format. The TE77X has a 21 x 26 cm transfer area for a capacity of up to 12 mini gels at one time.



Technical Specifications

Transfer Area:

TE70X Up to 14 x 16 cm

TE77X Up to 21 x 26 cm

Maximum Power Settings 30 V, 500 mA, 15 W

Maximum Temperature 45°C

Indoor Use 4-40°C

Humidity Up to 80%

Unit Dimensions (w x h x d) 38 x 46 x 9 cm

Safety Certifications EN61010-1, UL61010-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
TE70X	Semi-Dry Transfer Unit

Includes:

- Molded Base w/Platinum Coated Titanium Anode and High Voltage Leads
- Hinged Lid w/Stainless Steel Cathode
- Blotter Paper (14 x 16 cm)–25 sheets
- Porous Cellophane (20 x 35.5 cm)–50 sheets
- Mylar® Masks (16.5 x 18.5 cm)–2 pcs

Cat. #	Description
TE77X	Large Semi-Dry Transfer Unit

Includes:

- Molded Base w/Platinum Coated Titanium Anode and High Voltage Leads
- Hinged Lid w/Stainless Steel Cathode
- Blotter Paper (21 x 26 cm)–25 sheets
- Porous Cellophane (20 x 35.5 cm)–50 sheets
- Mylar Masks (23 x 27.5 cm)–2 pcs

Accessories and Replacement Parts

Cat. #	Description
TE74	Mylar Masks (16.5 x 18.5 cm)–4 pcs
TE78	Large Mylar Masks (23 x 27.5 cm)–4 pcs
TE76-1416	Blotter Paper (14 x 16 cm)–25 sheets
TE76	Large Blotter Paper (21 x 26 cm)–25 sheets
TE73	Porous Cellophane (20 x 35.5 cm)–50 sheets

Hoefer offers a variety of high efficiency transfer membranes (nylon, nitrocellulose, and PVDF). For more information, please see page 67.

Features and Benefits

Included safety circuit breaker–limits voltage and current from the users power supply, preventing electrical damage to the transfer unit

Requires minimal current–does not generate the excessive heat that can dry out the transfer stack and halt transfer or damage transfer units

Durable iridium oxide and stainless steel electrodes–allow for contamination free, consistent transfer

Vented electrodes–prevent build up of bubbles which may impair transfer

Minimal buffer requirements–reagent cost and preparation time are reduced



Features and Benefits

Uniform and strong electric field—supports efficient and even transfers

Color coded, easy to assemble cassettes—ensures proper orientation during transfer

Superior tank design allows the cassettes to apply equal pressure across the stack—prevents gel distortion

Built-in ceramic heat exchanger—provides excellent temperature control when used with an external cooling water bath (see page 140)



TE22 Mighty Small Transfer Tank

Quickly and efficiently transfers proteins and nucleic acids from small gels to nylon, nitrocellulose or PVDF membranes

Maximum Gel Size 9 x 10 cm

- Transfers as many as four small gels, up to 9 x 10 cm in less than an hour
- Built-in alumina-covered cooling channel provides excellent temperature control with no more than a 5°C temperature increase during a typical run
- Superior design provides a uniform electric field—the key to even transfers
- Cassettes are easy to load and handle
- No gel distortion—grooves inside the unit hold cassettes in place, applying equal pressure across the gel

Technical Specifications

Capacity Up to four 9 x 10 cm gels
 Maximum Power Settings 100 V, 500 mA, 50 W
 Maximum Temperature 45°C
 Indoor Use 4-40°C
 Humidity Up to 80%
 Unit Dimensions (w x h x d) 14 x 24 x 16.5 cm
 Safety Certifications EN61010-1, UL3101-1, CSA C22.2 1010.1, CE

Ordering Information

Cat. #	Description
TE22	Mighty Small Transfer Tank

Includes:

- Lower Chamber w/Heat Exchanger
- Safety Lid w/High Voltage Leads
- Electrode Panels—2 pcs
- Cassettes—4 pcs
- Foam Sponges, 6 mm thick—4 pcs
- Foam Sponges, 3 mm thick—8 pcs
- Cassette Hook
- Blotter Paper (9 x 10.5 cm)—25 sheets

Accessories and Replacement Parts

Cat. #	Description
TE23	Electrode Panel
TE24	Cassette w/Sponges
TE25	Foam Sponges, 6 mm thick—4 pcs
TE25F-1/8	Foam Sponges, 3 mm thick—4 pcs
TE27	Lower Chamber w/Heat Exchanger
TE29	Safety Lid w/High Voltage Leads
SE6056-HV	Replacement High Voltage Leads
TE26	Blotter Paper (9 x 10.5 cm)—50 sheets
TE22RK-1	Repair Kit, Fittings and Hardware

Hofer's extra thick blotting paper is not only ideal for semi-dry transfers but also works great in tank transfers. It is extra thick and helps keep the transfer stack tight for even transfers.

TE42 Standard Transfer Tank

Quickly and evenly transfers proteins and nucleic acids from polyacrylamide or agarose gels onto nylon, nitrocellulose, or PVDF membranes

The four slot design of the TE42 enables either cooled or non-cooled protein or nucleic acid transfers. The optional heat exchange module is easily incorporated into the TE42 enabling transfer of up to 2 gels simultaneously. When used without the optional heat exchange module, up to four gels can be transferred at one time.

Technical Specifications

Capacity	Up to four 15 x 21 cm gels (without cooling) Up to two 15 x 21 cm gels (with cooling)
Maximum Power Settings	100 V, 2 A, 200 W
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Dimensions (w x h x d)	8 x 13 x 30.5 cm
Safety Certifications	EN61010-1, UL3101-1, CSA C22.2 1010.1, CE

Ordering Information

Cat. #	Description
TE42	Standard Transfer Tank

Includes:

- Lower Chamber
- Safety Lid w/High Voltage Leads
- Electrode Panels–2 pcs
- Cassettes–2 pcs
- Foam Sponges, 6 mm thick–2 pcs
- Foam Sponges, 3 mm thick–4 pcs
- Cassette Hook
- Blotter Paper (14.5 x 21.5 cm)–25 sheets

Accessories and Replacement Parts

Cat. #	Description
TE43BK	Electrode Panel, Black
TE43GY	Electrode Panel, Grey
TE44H	Cassette w/Sponges
TE45F	Foam Sponges, 6 mm thick–4 pcs
TE45F-1/8	Foam Sponges, 3 mm thick–4 pcs
TE56	Lower Chamber
TE49	Safety Lid w/High Voltage Leads
SE6056-HV	Replacement High Voltage Leads
TE46	Blotter Paper (14.5 x 21.5 cm)–50 sheets
TE47	Heat Exchange Module

Hofer offers a variety of high efficiency transfer membranes (nylon, nitrocellulose, and PVDF). For more information, please see page 67.



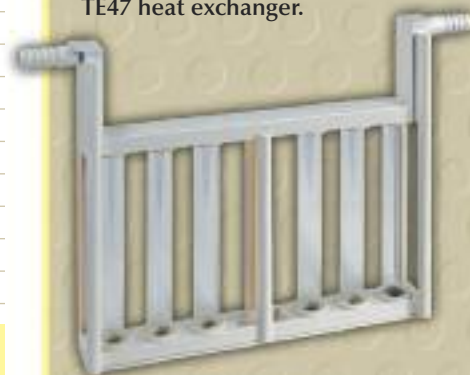
Features and Benefits

Uniform and strong electric field—supports efficient and even transfers

Color coded, easy to assemble cassettes—ensures proper orientation during transfer

Superior tank design allows the cassettes to apply equal pressure across the stack—prevents gel distortion

Optional TE47 heat exchanger—provides excellent buffer temperature control when used with an external cooling water bath (see page 140). Heat exchanger from an SE600 series electrophoresis unit (see pages 7-9) can be substituted for the TE47 heat exchanger.



TE62 Standard Transfer Tank with Cooling Chamber



Quickly and evenly transfers proteins and nucleic acids from polyacrylamide or agarose gels onto nylon, nitrocellulose, or PVDF membranes

The TE62 is designed to accept up to four cassettes simultaneously with cooling. Each cassette holds a 15 x 21 cm gel, or as many as four 7 x 10 cm mini gels.

Technical Specifications

Capacity	Up to four 15 x 21 cm gels, or sixteen 7 x 10 cm gels
Maximum Power Settings . . .	100 V, 2 A, 200 W
Maximum Temperature	45°C
Indoor Use	4-40°C
Humidity	Up to 80%
Dimensions (w x h x d)	28 x 16.5 x 32 cm (11" x 6.5" x 12.5")
Safety Certifications	EN61010-1, UL3101-1, CSA C22.2 1010.1, CE

Features and Benefits

Uniform and strong electric field—supports efficient and even transfers

Color coded, easy to assemble cassettes—ensures proper orientation during transfer

Superior tank design allows the cassettes to apply equal pressure across the stack—prevents gel distortion

Built-in ceramic heat exchanger—provides excellent temperature control when used with an external cooling water bath (see page 140)

Ordering Information

Cat. #	Description
TE62	Standard Transfer Tank with Cooling Chamber

Includes:

- Lower Chamber w/Heat Exchanger
- Safety Lid w/High Voltage Leads
- Electrode Panels—2 pcs
- Cassettes—4 pcs
- Foam Sponges, 6 mm thick—4 pcs
- Foam Sponges, 3 mm thick—8 pcs
- Cassette Hook
- Blotter Paper (14.5 x 21.5 cm)—25 sheets

Accessories and Replacement Parts

Cat. #	Description
TE43BK	Electrode Panel, Black
TE43GY	Electrode Panel, Grey
TE44H	Cassette w/Sponges
TE45F	Foam Sponges, 6 mm thick—4 pcs
TE45F-1/8	Foam Sponges, 3 mm thick—4 pcs
TE67	Lower Chamber w/Heat Exchanger
TE49	Safety Lid w/High Voltage Leads
SE6056-HV	Replacement High Voltage Leads
TE46	Blotter Paper (14.5 x 21.5 cm)—50 sheets
TE62RK-1	Repair Kit, Fittings



Hoefers extra thick blotting paper is not only ideal for semi-dry transfers but also works great in tank transfers. It is extra thick and helps keep the transfer stack tight for even transfers.

Complete Western Blotting System Packages

Save time and money with these combination packages

Mini Electrophoresis Blotting System with Transfer Tank

Ordering Information

Cat. #	Description
326223	Mini Transfer Tank Combination Package
	Package Includes:
SE260-10A-.75	Mighty Small II Mini Deluxe Vertical Unit
TE22	Mighty Small Mini Transfer Tank
PS300B	300 V, 500 mA, 90 W Power Supply

Mini Electrophoresis Blotting System with Semi-Dry Unit

Ordering Information

Cat. #	Description
326703	Mini Semi-Dry Unit Combination Package
	Package Includes:
SE260-10A-.75	Mighty Small II Mini Deluxe Vertical Unit
TE70XP	Semi-Dry Transfer Unit with Built-In Power Supply
PS300B	300 V, 500 mA, 90 W Power Supply

Standard Electrophoresis Blotting System with Transfer Tank

Ordering Information

Cat. #	Description
360622	Standard Transfer Tank Combination Package
	Package Includes:
SE600X-15-1.5	Deluxe Dual Cooled Vertical Unit
TE62	Standard Transfer Tank with Cooling Chamber
PS300B	300 V, 500 mA, 90 W Power Supply

Standard Electrophoresis Blotting System with Semi-Dry Unit

Ordering Information

Cat. #	Description
360773	Standard Semi-Dry Unit Combination Package
	Package Includes:
SE600X-15-1.5	Deluxe Dual Cooled Vertical Unit
TE77XP	Large Semi-Dry Transfer Unit with Built-In Power Supply
PS300B	300 V, 500 mA, 90 W Power Supply

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ImmunoBlot™ and ImmunoBlot XL Blotting Manifolds

ImmunoBlot blotting systems are easy and convenient tools for all immunoblotting techniques

The ImmunoBlot XL supports high throughput for high affinity antibodies. The ImmunoBlot allows for a greater volume per channel enabling high sensitivity detection of low affinity and low titer antibodies. Both immunoblotting manifolds are compatible with gels from the SE600X Chroma, SE600 and SE400 units (see pages 8, 9 and 12).

Technical Specifications

- Capacity:
- ImmunoBlot XL 45 channels, 140 µl per channel
 - ImmunoBlot 25 channels, 250 µl per channel
- Channel Configuration (l x w):
- ImmunoBlot XL 130 x 1.6 mm on 2.9 mm centers
 - ImmunoBlot 130 x 4 mm on 5.3 mm centers
- Maximum Temperature 45°C
- Unit Dimensions (w x h x d) . . . 20 x 20 x 8 cm

Ordering Information

Cat. #	Description
PR645	ImmunoBlot XL (Top Plate, 45 Channels)
PR625	ImmunoBlot (Top Plate, 25 Channels)

Includes:

- Top Plate
- Bottom Plate
- Screws—6 pcs
- Washing Manifold—2 pcs
- Tubing—2 pcs
- Luer Manifold Connectors—4 pcs
- Sealing Pads—5 pcs

Features and Benefits

Offers flexibility of detection method—can be used with all conventional probes including enzymatic, radioactive and chemiluminescence

Included washing manifold—enables simultaneous washing of all channels

Results appear on a single membrane—ensuring convenient side-by-side comparison

Accessories and Replacement Parts

Cat. #	Description
PR630-31	Sealing Pads—10 pcs
PR630-32	Washing Manifold Kit: Washing Manifold—2 pcs Tubing—2 pcs Luer Manifold Connectors—4 pcs
PR630-33	O-Ring Seals—2 pcs
PR630-34	Luer Manifold Connectors—4 pcs
PR630-36	Clamp Screw
PR645T	Top Plate for PR645
PR625T	Top Plate for PR625
PR630-37	Bottom Plate for PR645 or PR625

Combs (for use with SE600X Chroma, SE600, or SE400 gels)

Cat. #	# of wells	Thickness	Use with
PR511-9-1.0	9	1.0 mm	ImmunoBlot XL
PR511-12-1.0	12	1.0 mm	ImmunoBlot
PR511-25-1.0	25	1.0 mm	ImmunoBlot

PR150 Deca-Probe™ Incubation Manifold

Excellent for antibody screening and Western Blotting of mini gels

The PR150 screens up to ten different antibody preparations against a single antigen mixture or one antibody preparation against as many as ten different antigen mixtures on a single membrane.

Technical Specifications

Capacity 10 channels, 0.5–2.0 ml per channel
 Channel Dimensions 8.8 cm long, spread out over 8.8 cm width,
 accommodates SE260 and miniVE gels
 Maximum Temperature 45°C
 Unit Dimensions (w x h x d) 13 x 13 x 2 cm



Ordering Information

Cat. #	Description
PR150	Deca-Probe Incubation Manifold

Includes:

- Pressure Plate
- Sample Plate w/10 Sample Chambers
- Thumbscrews–6 pcs
- Sample Gasket
- Pressure Gasket

Accessories and Replacement Parts

Cat. #	Description
PR151	Sample Gasket
PR152	Pressure Gasket
PR153	Thumbscrews–4 pcs

Combs (for use with SE260 or miniVE gels)

Cat. #	Description
SE211A-10-.75	10 Wells, 0.75 mm thick
SE211A-10-1.0	10 Wells, 1.0 mm thick
SE211A-10-1.5	10 Wells, 1.5 mm thick

Features and Benefits

Individually isolated liquid-tight chambers—allow you to use different detection methods or antibodies side by side without artifacts due to incomplete exposure or mixing

Requires minimal volume of reagents—economical to use

Results appear on a single membrane—ensuring convenient side-by-side comparison

PR648 Slot Blot Blotting Manifold

Easily filter DNA, RNA, protein and recombinant clones into clearly defined slots on nylon, nitrocellulose or PVDF membrane



The PR648 supports screening as many as 48 samples quickly and easily without cross contamination between samples.

Technical Specifications

- Capacity 1 mL sample volume per slot
- Slot Dimensions 6.0 x 0.8 mm
- Size 11.5 x 8 cm
- Maximum Temperature 45°C
- Unit Dimensions (w x h x d) 15.5 x 12 x 8 cm

Features and Benefits

Six strategically placed, easy to use clamps combined with raised well edges—create an effective seal and prevent cross-contamination between wells

Numbered slots and notched membrane shape—maintain support identifying sample locations

Included membrane template—facilitates correct membrane sizing

Ordering Information

Cat #	Description
PR648	Slot Blot Manifold

Includes:

- Top Block
- Membrane Support Block w/O-ring
- Bottom Block w/Connector
- QuickFit Connector w/O-ring
- Clamping Screws—6 pcs
- Membrane Cutting Template

Accessories and Replacement Parts

Cat #	Description
PR654	Top Block
PR655	Membrane Support Block w/O-ring
PR656	Bottom Block w/Connector
PR657	O-ring
PR658	Clamping Screws—6 pcs
PR659	Membrane Cutting Template

Blotting Membranes for Western, Northern, and Southern Blotting

High quality membranes in convenient formats for your blotting needs

Nylon Membranes

- Ideal for Northern and Southern Blotting
- Multiple reprobings possible
- Inherently charged—enhances nucleic acid binding, even under alkaline conditions
- Supported—adds strength and durability, preventing distortion or contamination in multiple reprobings
- Greater binding capacity, 450 µg/cm²—can bind a wide range of fragment sizes and still be easily blocked for low background
- Excellent signal—retains DNA better, resulting in a strong signal using smaller quantities of DNA

Ordering Information

Cat #	Description
GM-NY45	0.45 µm pore size—30 cm x 3 m roll
GM-NY45-1520	0.45 µm pore size—15 x 20 cm, 10/pk

Nitrocellulose Membranes

- Ideal for Western Blotting and other immunoblotting techniques
- BSA protein binding capacity of 160 µg/cm²—can bind a wide range of fragment sizes and can still be easily blocked for low background
- High wick rates (lateral flow)—substances move quickly through the membrane

Ordering Information

Cat #	Description
GM-NC22	0.22 µm pore size—30 cm x 3 m roll
GM-NC45	0.45 µm pore size—30 cm x 3 m roll
GM-NC45-89	0.45 µm pore size—8 x 9.5 cm, 10/pk
GM-NC45-1616	0.45 µm pore size—16 x 16 cm, 10/pk
GM-NC45-2320	0.45 µm pore size—23.5 x 20 cm, 10/pk

PVDF (Polyvinylidene Fluoride) Membranes

- Ideal for use in protein binding applications such as western blots, solid phase assays and immunoblotting procedures
- Multiple reprobings possible
- Superior strength—can withstand aggressive handling or be used with automated equipment without breaking or tearing
- Low extractables—ensures tests will be clean with consistent results
- Exceptional sensitivity detects low level components
- Hydrophobic—resists water
- High binding capacity—binds a wide range of fragment sizes

Ordering Information

Cat #	Description
GM-PV45	0.45 µm pore size—30 cm x 3 m roll
GM-PV45-1010	0.45 µm pore size—10 x 10 cm, 10/pk
GM-PV45-1515	0.45 µm pore size—15 x 15 cm, 5/pk

Features and Benefits

Uniform pore structure—provides consistent flow and diffusion rates

Stringent quality assurance—ensure lot-to-lot consistency and produce dependable results every time



POWER SUPPLIES

Power Supply Selection Guide

Product Name	Page #	Maximum Voltage (V)	Maximum Current (mA)	Maximum Power (W)	Method Programmable	# of Output Jacks	Output Modes
PS300B	70	300	500	90	No	4	Constant voltage or current
PS200HC	71	200	2000	200	No	4	Constant voltage or current
PS2A200	72	200	2000	200	Yes	2	Constant voltage, current or power
EV265	73	600	500	150	Yes	4	Constant voltage, current or power



PS300B 300 Volt Power Supply

The versatile PS300B is designed for most electrophoresis techniques

Convenient and Simple

The small footprint, large handle, and simple operation makes the PS300B easy to set up and use in your lab. With the large, easy to read LED, simply set the constant parameter, set the timer (if desired), and push start.

- Constant voltage or constant current mode with automatic crossover
- 10-300 V, 4-500 mA, 90 W
- 4 sets of 4 mm output jacks
- Ideal choice for most electrophoresis techniques
- Continuous runs or 999 minute timer
- Automatic recovery after power failure
- Open circuit detection
- Short circuit protection

Technical Specifications

Voltage	10-300 V in 1 V steps
Current	4-500 mA in 1 mA steps
Maximum Wattage	90 W
Timer	0-999 minutes
Output Modes	Constant voltage or current
Output Jacks	4 in parallel, 4 mm
Indoor Use	4-40°C
Humidity	80%
Universal Voltage Input	100-240 VAC, 50/60 Hz
Unit Dimensions (w x h x d)	12.5 x 33.5 x 28 cm
Weight	2.4 kg
Safety Certifications	EN61010-1, CE

Definitions

Constant Voltage Mode—the power supply will attempt to maintain the user selected voltage by automatically adjusting the current flow

Constant Current Mode—the power supply will attempt to maintain the user selected current flow by automatically adjusting the voltage supplied

Automatic Crossover—when the constant parameter (voltage or current) cannot be maintained due to power supply operating limits the power supply automatically switches to maintaining the other parameter

Ordering Information

Cat. #	Description
PS300B	300 Volt Power Supply, Universal VAC

PS200HC 200 Volt High Current Power Supply

The PS200HC is ideal for large electrophoretic blotting applications and for low voltage electrophoresis runs

Convenient and Simple

The small footprint, large handle, and simple operation makes the PS200HC easy to set up and use in your lab. With the large, easy to read LED, simply set the constant parameter, set the timer (if desired), and push start.

- Constant voltage or constant current mode with automatic crossover
- 5-200 V, 10-2000 mA, 200 W
- 4 sets of 4 mm output jacks
- Ideal choice for blotting applications
- Continuous runs or 999 minute timer
- Automatic recovery after power failure
- Open circuit detection
- Short circuit protection

Technical Specifications

Voltage	5-200 V in 1 V steps
Current	10-2000 mA in 1 mA steps
Maximum Wattage	200 W
Timer	0-999 minutes
Output Modes	Constant voltage or current
Output Jacks	4 in parallel, 4 mm
Indoor Use	4-40°C
Humidity	80%
Universal Voltage Input	100-240 VAC, 50/60 Hz
Unit Dimensions (w x h x d)	12.5 x 33.5 x 28 cm
Weight	2.4 kg
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
PS200HC	200 Volt High Current Power Supply, Universal VAC



Definitions

Constant Voltage Mode—the power supply will attempt to maintain the user selected voltage by automatically adjusting the current flow

Constant Current Mode—the power supply will attempt to maintain the user selected current flow by automatically adjusting the voltage supplied

Automatic Crossover—when the constant parameter (voltage or current) cannot be maintained due to power supply operating limits the power supply automatically switches to maintaining the other parameter



PS2A200 High Current Power Supply

The PS2A200 is ideal for large electrophoretic blotting applications and for low voltage electrophoresis runs where advanced features are required

- Constant voltage, constant current, or constant power mode with automatic crossover
- Maximum output: 200 V, 2000 mA, 200 W
- Programmable step function. Stores and recalls 3 protocols
- Choose from 4 timer options:
 - Continuous run
 - Set time run
 - Set time run followed by a hold at 5 volts
 - Set volt hour run
- Precise, reproducible settings and readouts in single unit increments (1 V, 1 mA, 1 W, and 1 min)
- Prints a log of run parameters through an RS232 port
- Automatic recovery after power failure
- Open circuit detection
- Short circuit protection

Technical Specifications

Voltage	1-200 V in 1 V steps
Current	1-2000 mA in 1 mA steps
Maximum Wattage	200 W
Timer	0-99:59 hr or 1-9999 Vhr
Output Modes	Constant voltage, current, or power
Output Jacks	2 in parallel, 4 mm
Indoor Use	4-40°C
Humidity	80%
Universal Voltage Input	100-240 VAC, 50/60 Hz
Unit Dimensions (w x h x d)	11 x 28 x 22 cm
Weight	2.2 kg
Safety Certifications	EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Definitions

Constant Voltage Mode—the power supply will attempt to maintain the user selected voltage by automatically adjusting the current flow

Constant Current Mode—the power supply will attempt to maintain the user selected current flow by automatically adjusting the voltage supplied

Automatic Crossover—when the constant parameter (voltage or current) cannot be maintained due to power supply operating limits the power supply automatically switches to maintaining the other parameter

Ordering Information

Cat. #	Description
PS2A200	PS2A200 Power Supply, Universal VAC

EV265 Consort Power Supply

The EV265 is ideal for all electrophoresis and blotting techniques

- Constant voltage, constant current, or constant power mode with automatic crossover
- Maximum output: 600 V, 500 mA, 150 W
- Programmable step function. Stores and recalls as many as 9 sets of frequently used parameters
- Timer or volt-hour controlled with alarm
- Manual programming mode allows temporary changes to parameters without interrupting the run
- Precise, reproducible settings and readouts in single unit increments (1 V, 1 mA, 1 W, and 1 min)
- Integral data logger periodically stores output values including program number and step for up to 3600 points
- Prints a log of run parameters through an RS232 port
- Automatic recovery after power failure
- Open circuit detection
- Short circuit protection

Technical Specifications

Voltage	6-600 V in 1 V steps
Current	5-500 mA in 1 mA steps
Maximum Wattage	150 W
Timer	0-99:59 hr or 1-9999 Vhr
Display	LCD, 2 x 16 characters
Programs	9 protocols with up to 9 steps each
Output Modes	Constant voltage, current, or power
Output Jacks	4 in parallel, 4 mm
No Load Detection	Programmable
Indoor Use	4-40°C
Humidity	80%
Unit Dimensions (w x h x d)	31 x 15 x 26 cm
Weight	5 kg
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
PS265-115V	EV265 Consort Power Supply 115 VAC
PS265-230V	EV265 Consort Power Supply, 230 VAC



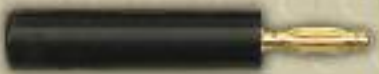
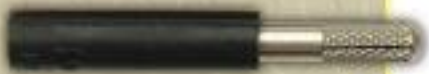
Definitions

Constant Voltage Mode—the power supply will attempt to maintain the user selected voltage by automatically adjusting the current flow

Constant Current Mode—the power supply will attempt to maintain the user selected current flow by automatically adjusting the voltage supplied

Automatic Crossover—when the constant parameter (voltage or current) cannot be maintained due to power supply operating limits the power supply automatically switches to maintaining the other parameter

PSA410



PSA230

Power Supply Adapters and High Voltage Leads

Hofer electrophoresis equipment is designed to be compatible with the power supplies offered by Hofer. Some issues may arise when the power supply in the laboratory is from a different manufacturer.

The PSA410 adapter is used to allow electrophoresis power supplies with 4 mm output jacks to accept Hofer equipment with non-retractable shrouded 4 mm banana plugs (all Hofer electrophoresis products except SUB series horizontals which do not require an adapter).

The PSA230 adapter is used to allow high voltage electrophoresis power supplies with 2 mm output jacks to accept all Hofer electrophoresis equipment.

Please contact Hofer Technical Support (support@hoeferinc.com) if you have questions about power supply compatibility.

Ordering Information

Cat. #	Description
PSA410	4 mm-to-4 mm Power Supply Adapter
PSA230	2 mm-to-4 mm Power Supply Adapter

SE6056-HV



SUB-LEAD



High Voltage Leads

All Hofer electrophoresis equipment comes complete with high voltage leads. Replacement parts are available if required.

Ordering Information

Cat. #	Description
SE6056-HV	Replacement High Voltage Leads
SUB-LEAD	SUB System High Voltage Leads



ELECTROPHORESIS REAGENTS



High Quality Electrophoresis Reagents

Hoefer Electrophoresis Reagents deliver consistently outstanding results. A high standard of purity, rigorous analytical procedures, and carefully controlled manufacturing techniques ensure that Hoefer Reagents are the best quality buffer, gel casting, gel staining, and sample preparation chemicals available.

- A complete range of chemicals for electrophoresis
- Free from impurities that interfere with polymerization
- Manufactured to stringent specifications
- Functionally tested by batch to ensure reproducibility
- Pure powder or premixed ready-to-use solutions for your convenience and to meet your lab's needs

Acrylamide

Ultra Pure Molecular Biology Grade



Formula Weight: 71.08

Specifications

Form White clear crystalline powder

Assay $\geq 99.9\%$

Ordering Information

Cat. #	GR141-1
Qty.	1 kg

Agarose

Ultra Pure Molecular Biology Grade

Specifications

Form Granular, Free-flowing powder

EEO (-m_p) 0.05 – 0.13

Gel Point (1.5%) $36.0 \pm 1.5^\circ\text{C}$

Remelt Point (1.5%) $88.0 \pm 1.5^\circ\text{C}$

Gel Strength (1%) $\geq 1200 \text{ gm/cm}^2$

Gel Strength (1.5%) $\geq 2500 \text{ gm/cm}^2$

Separation Guidelines

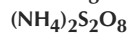
% Agarose	Separation Range (bp)	
	In 1X TAE	in 1X TBE
0.6	20,000–1,000	15,000–1,000
0.8	12,000–500	10,000–500
1.0	8,000–300	7,000–250
1.2	6,000–200	5,000–200
1.5	3,500–100	3,000–100
2.0	2,000–50	2,000–50

Ordering Information

Cat. #	GR140-500
Qty.	500 g

Ammonium Persulfate (APS)

ACS Reagent Grade



Formula Weight: 228.20

Specifications

Form Off-white crystalline powder

Assay $\geq 98.0\%$

Ordering Information

Cat. #	GR152-10
Qty.	10 g

bis-Acrylamide

N,N'-Methylene-bis-Acrylamide

Ultra Pure Molecular Biology Grade



Formula Weight: 154.17

Specifications

Form White crystalline powder

Assay $\geq 99.9\%$

Ordering Information

Cat. #	GR142-100
Qty.	100 g

Boric Acid

Ultra Pure Molecular Biology Grade



Formula Weight: 61.83

Specifications

Form White crystalline powder

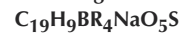
Assay $\geq 99.5\%$

Ordering Information

Cat. #	GR153-1
Qty.	1 kg

Bromophenol Blue, Sodium Salt

ACS Reagent Grade



Formula Weight: 691.95

Specifications

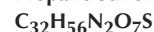
Form Powder

Ordering Information

Cat. #	GR120-10
Qty.	10 g

CHAPS

(3-[(3-Cholamidopropyl)-Dimethylammonio]-1-Propane Sulfonate)



Formula Weight: 614.88

Specifications

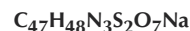
Form White crystalline powder

Assay (N analysis) $\geq 98\%$

Ordering Information

Cat. #	GR121-10
Qty.	10 g

Coomassie® Brilliant Blue G-250



Formula Weight: 854.02

Specifications

Form Dark blue/purple crystalline powder

Ordering Information

Cat. #	GR134-25
Qty.	25 g

Coomassie® Brilliant Blue R-250

C₄₅H₄₄N₃S₂O₇Na

Formula Weight: 825.97

Specifications

Form Dark purple/violet powder

Ordering Information

Cat. #	GR135-25
Qty.	25 g

Dithiothreitol, (DTT; Cleland's Reagent)

Ultra Pure Molecular Biology Grade

C₄H₁₀O₂S₂

Formula Weight: 154.25

Specifications

Form White crystalline powder

Assay (SH) ≥ 99.5%

Ordering Information

Cat. #	GR122-5
Qty.	5 g

Glycine

H₂NCH₂CO₂H

Formula Weight: 75.07

Specifications

Form White crystalline powder

Assay 98.5 to 101.5% (dry basis)

Ordering Information

Cat. #	GR125-1
Qty.	1 kg



CoZap™ Destaining Pads

CoZap is used for rapid removal of Coomassie® blue stain from electrophoresis gels without the need to change the destaining solution. CoZap is a unique pad that has a high absorbance for Coomassie blue stain and is thus very effective in destaining gels. CoZap absorbs any free dye in the solution making gel destaining 20% faster than with conventional method. It is one of the most effective destaining methods on the market.

No need to change the destaining solution!

- Fast and simple
- No charcoal or dye residues
- No subsequent destaining required
- One pad can destain up to 10 gels
- 20% faster than conventional methods

Using CoZap is easy:

1. Place the CoZap pad in your destaining tank.
2. Remove the gel after destaining.

Ordering Information

Cat. #	SP-746800
Desc.	Large CoZap Pads, pkg. of 25
Size	76 x 76 x 2 mm
Cat. #	SP-746801
Desc.	Large CoZap Pads, pkg of 100
Size	76 x 76 x 2 mm
Cat. #	SP-746802
Desc.	Small CoZap Pads, pkg of 100
Size	76 x 38 x 2 mm
Cat. #	SP-746803
Desc.	Small CoZap Pads, pkg. of 200
Size	76 x 38 x 2 mm

DQ302 DQ Fluorometry Standard

Hoefler Inc. has just introduced a new standard for use in Fluorometric quantitation of DNA. The Hoefler DQ302 contains 250 µg of highly purified double stranded DNA that can be used as a calibration standard for assays using Hoescht dye (bisBenzimide H33258). The DQ302 sample is prepared in solution, supplied at a concentration of 1 mg/ml and can be diluted if needed for assays requiring a standard of 100 ng DNA.

Ordering Information

Cat. #	DQ302
Qty.	250 µg, 1 mg/ml

EDTA, 0.5 M Solution

Ultra Pure Molecular Biology Grade

Description

0.5 M solution of EDTA-Na₂ in high purity dH₂O, pH 8.0. Solution is 0.2 µm filtered

Ordering Information

Cat. #	GR123-100
Qty.	100 ml

Ethidium Bromide Destaining Bags

Each bag will remove up to 5 mg of Ethidium Bromide from solution. The rate of destaining is improved if more destaining bags are added to the solution.

Ordering Information

Cat. #	GR156
Description	Ethidium Bromide Destaining Bags-pk/5

Glycerol

Ultra Pure Molecular Biology Grade

HOCH₂CH(OH)CH₂OH

Formula Weight: 92.09

Specifications

Form Clear, colorless viscous liquid

Assay ≥ 99.5%

Ordering Information

Cat. #	GR124-1
Qty.	1 L

Mineral Oil

Ultra Pure Molecular Biology Grade

Specifications

Form Clear, colorless oil

Ordering Information

Cat. #	GR138-1
Qty.	1 L

PBS, 10X Solution, pH 7.4

Ultra Pure Molecular Biology Grade

Description

10X PBS (Phosphate-Buffered Saline) solution consisting of 80 mM sodium phosphate, 15 mM potassium phosphate, 27 mM KCl and 1.37 M NaCl in high purity dH₂O, pH 7.4. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR145-1
Qty.	1 L

Protein Determination Reagent

This reagent is based on the Bradford^(1,2) protein assay method. The assay procedure consists of mixing the reagent with sample and blank, incubating, and measuring the absorbance of the sample and blank at 595 nm. The assay procedure is supplied with every bottle.

References:

1. BRADFORD, M. M. (1976) Anal. Biochem. 72:248-254.
2. BRADFORD, M. M. and W. L. WILLIAMS (1977) U.S. Patent No. 4,023,933.

Ordering Information

Cat. #	GR133-500
Qty.	500 ml

Sodium Dodecyl Sulfate (SDS)

CH₃(CH₂)₁₁OSO₃Na

Formula Weight: 288.38

Specifications

Form White crystalline flakes

Assay ≥ 95% (dry basis)

Ordering Information

Cat. #	GR126-500
Qty.	500 g

Sodium Dodecyl Sulfate (SDS), 10% Solution

Ultra Pure

Description

10% (w/v) solution of sodium dodecyl sulfate (SDS) in high purity dH₂O. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR155-1
Qty.	1 L

SSC, 20X Solution

Ultra Pure Molecular Biology Grade

Description

20X SSC solution consisting of 0.3 M trisodium citrate and 3.0 M sodium chloride in high purity dH₂O, pH 7.0. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR127-1
Qty.	1 L

Sucrose

Ultra Pure Molecular Biology Grade

C₁₂H₂₂O₁₁

Formula Weight: 342.30

Specifications

Form White/clear crystalline powder

Ordering Information

Cat. #	GR129-1
Qty.	1 kg

TAE Buffer, 10X Solution

Ultra Pure Molecular Biology Grade

Description

10X TAE solution consisting of 400 mM Tris and 0.01 M EDTA in high purity dH₂O adjusted to pH 8.3. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR150-1
Qty.	1 L

TBE Buffer, 5X Solution

Ultra Pure Molecular Biology Grade

Description

5X TBE (Tris-Borate-EDTA) solution consisting of 0.445 M Tris, 0.445 M boric acid and 0.01 M EDTA. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR146-1
Qty.	1 L

TBE Buffer, 10X Ready-Mixed Powder

Ultra Pure Molecular Biology Grade

Ordering Information

Cat. #	GR136-6X200
Qty.	6 x 200 ml after reconstitution

TBS, 20X Solution, pH 7.4

Ultra Pure Molecular Biology Grade

Description

20X TBS (Tris-Buffered Saline) solution consisting of 500 mM Tris, 60 mM KCl and 2.8 M NaCl in high purity dH₂O, pH 7.4. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR147-1
Qty.	1 L

TBST, 20X Solution, pH 7.4

Ultra Pure Molecular Biology Grade

Description

20X TBST (Tris-Buffered Saline) solution consisting of 500 mM Tris, 60 mM KCl, 2.8 M NaCl, and 1.0% Tween® 20 in high purity dH₂O adjusted to pH 7.4. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR154-1
Qty.	1 L

TE Buffer, 50X Solution

Ultra Pure Molecular Biology Grade

Description

50X TE solution consisting of 500 mM Tris, 50 mM EDTA in high purity dH₂O, adjusted to pH 7.5. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR144-100
Qty.	100 ml



TEMED

Tetramethylethylenediamine

(CH₃)₂NCH₂CH₂N(CH₃)₂

Formula Weight: 116.20

Specifications

Form Colorless to pale yellow liquid
Assay ≥ 98%

Ordering Information

Cat. #	GR151-25
Qty.	25 ml

Thiourea (Thiocarbamide)

NH₂C(SNH₂)₂

Formula Weight: 76.12

Specifications

Form White to off-white crystalline powder

Ordering Information

Cat. #	GR130-500
Qty.	500 g

Tricine

[N-Tris (Hydroxymethyl)methylglycine]

Ultra Pure Molecular Biology Grade

(CH₂OH)₃CNHC(CH₂COOH)

Formula Weight: 179.17

Specifications

Form White/clear crystalline powder
Assay ≥ 98.5% (dry basis)

Ordering Information

Cat. #	GR131-1
Qty.	1 kg

Tris

[Tris(hydroxymethyl)-aminomethane]

Ultra Pure Molecular Biology Grade

NH₂C(CH₂OH)₃

Formula Weight: 121.14

Specifications

Form White to pale yellow crystalline powder
Assay ≥ 99.8% (dry basis)

Ordering Information

Cat. #	GR232-1
Qty.	1 kg

Tris-Glycine Buffer, 10X Solution

Ultra Pure Molecular Biology Grade

Description

10X Tris-Glycine Buffer consisting of 0.25 M Tris and 1.92 M glycine in high purity dH₂O, pH 8.3. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR148-1
Qty.	1 L

Tris-Glycine-SDS Buffer, 10X Solution

Ultra Pure Molecular Biology Grade

Description

10X Tris-Glycine-SDS Buffer, consisting of 0.25 M Tris, 1.92 M glycine and 1.0% SDS in high purity dH₂O, pH 8.3. Solution is 0.2 µm filtered.

Ordering Information

Cat. #	GR149-1
Qty.	1 L

Tween® 20, Ultrapure

Ultra Pure Molecular Biology Grade

(Polyoxyethylene Sorbitan Monolaurate)

Specifications

Form Yellow liquid

Ordering Information

Cat. #	GR128-500
Qty.	500 ml

Urea

Ultra Pure Molecular Biology Grade

NH₂CONH₂

Formula Weight: 60.06

Specifications

Form White crystalline powder

Assay ≥ 99.5%

Ordering Information

Cat. #	GR143-1
Qty.	1 kg

Water, RNase-Free, DEPC

Ultra Pure Molecular Biology Grade

Description

High purity dH₂O treated overnight with 0.1% Diethylprocarbonate. Product is 0.2 µm filtered.

Ordering Information

Cat. #	GR137-1
Qty.	1 L

Water, RNase-Free, non-DEPC

Ultra Pure Molecular Biology Grade

Description

High purity dH₂O

Ordering Information

Cat. #	GR139-1
Qty.	1 L

Carrier Ampholytes



SERVALYT™ carrier ampholytes are low molecular weight molecules of zwitterionic character. They are derived synthetically and comprise a multitude of varying pI-values. In agarose and polyacrylamide gels containing ampholytes, a linear pH-gradient will be built up when an electric field is applied—the ampholyte molecules carry a net charge and thus migrate in the electric field between the electrodes until they reach the position of corresponding pI. At this point they carry a net 0 charge, stop moving and form small plateaus (stationary stacks).

To achieve good separation of protein bands by IEF (isoelectric focusing), stable pH-gradients with extensive and consistent buffer capacity is required. SERVALYT carrier ampholytes yield reliable results and excellent reproducibility.

Benefits of SERVALYT Carrier Ampholytes

- High resolution due to multimeric composition
- Fast staining and destaining times
- Clear background associated with very low unspecific binding of dyes and stains
- High solubility in trichloroacetic acid (fast removal of ampholytes during fixation)
- Virtually no interaction with metal ions
- SERVALYT carrier ampholytes are produced according to the highest quality standards and are routinely tested for performance

SERVALYT carrier ampholytes can be used for preparation of tube or slab isoelectric focusing gels (IEF), in free flow or preparative devices, or for rehydration of dried gels cast on film supports (such as immobilized pH strips or rehydratable slab gels). Without denaturants and reductants, proteins will be focused by their native pI (Isoelectric point). When denaturants and reductants are present, proteins will be focused in their denatured, unfolded, and reduced state. Carrier ampholytes frequently are included during sample preparation as they can also aid in protein solubility. Standard protocols typically use concentrations of 0.5%-2% carrier ampholyte in the gel and up to 4% in sample preparation.

Select SERVALYT carrier ampholytes based on the desired pH range or that which most closely matches the immobilized gel strip being used.

Ordering Information

Cat. #	SER4294401
Desc.	pH 3-6
Size	10 ml

Cat. #	SER4294404
Desc.	pH 3-6
Size	2 ml

Cat. #	SER4294001
Desc.	pH 3-10
Size	10 ml

Cat. #	SER4294004
Desc.	pH 3-10
Size	2 ml

Cat. #	SER4294801
Desc.	pH 4-7
Size	10 ml

Cat. #	SER4294804
Desc.	pH 4-7
Size	2 ml

Cat. #	SER4291301
Desc.	pH 6-9
Size	10 ml

Cat. #	SER4291304
Desc.	pH 6-9
Size	2 ml



SAMPLE PREPARATION

THE SAMPLE PREPARATION DILEMMA

Biological samples often contain different types of impurities or components which have to be removed in order to do further analysis:

- Salts
- Detergents
- Excess dyes
- Small molecules such as primers, peptides, inhibitors, and drugs
- Buffers
- Polyacrylamide
- Radiolabel

Some biological materials must be purified and/or enriched from the surrounding matrix before they can be quantified or characterized. Without sample preparation, detection methods such as mass spectroscopy and chemical assays will have trouble accurately identifying the molecules of interest because of the interfering background of the other molecules in the sample.

There is currently no single solution for the purification of samples so a variety of techniques are used based on sample characteristics and the nature of what needs to be removed.

Application Guide for Sample Preparation of Biological Mixtures

	Page 84	Page 95	Page 112	Page 102	Page 118	Page 77
i.e. Proteins, Nucleic Acids, Carbohydrates	Chromatographic	Dialysis	Equilibrium Dialysis	ElectroPrep	Liposomes	CoZap
Acrylamide Removal	•					
Affinity Purification	•					
Antibody Production			•			
Buffer Exchange		•		•		
Cancer Therapy					•	
Carbohydrate Purification	•					
Cell-Cell Interactions					•	
Cosmetics					•	
CsCl Removal				•		
Destaining Gels						•
Detergent Removal	•	•		•		
Diagnostics					•	
DNA Binding Assays			•			
Drug Delivery					•	
Drug Entrapment Studies					•	
Dye Removal	•	•		•		
Electrophoresis				•		
Enzyme Replacement Therapy					•	
Extraction from Gels				•		
Gene Therapy					•	
Glycoprotein/Glycopeptide Purification	•					
Immunoblotting				•		
In Vitro Cell-Liposome Interaction Studies					•	
Ligand Binding Assays			•			
Lipid Purification	•					
Mediated Delivery of Macromolecules					•	
Metal Chelation Therapy					•	
Nick Translation	•					
PCR Cleanup	•			•		
Peptide Removal	•	•		•		
Plasmid Purification	•					
Primer Removal	•			•		
Protein Binding Assays		•				
Protein Purification for HPLC/HPCE/GC	•	•			•	
Protein Purification for Mass Spectroscopy (MALDI, GC/MS-NMR, ESI-MS)	•	•		•		
Protein-Drug Binding Assays			•			
Protein-Protein Interactions			•			
Purification of Samples with Unknown Isoelectric Points				•		
Pyridoxal-5-Phosphate Removal				•		
Radiolabel Removal	•	•				
Radiopharmaceutical Marker Tracing	•	•				
Receptor Binding Assays			•			
Reconstitution Experiments (for Ion Transport)					•	
Salt Removal	•	•		•		
Sample Concentration	•	•		•		
SDS Removal	•	•		•		
Silicate Removal after Chromatography				•		
Size Fractionation	•			•		
Small Molecule Removal	•	•		•		
Time-Dependent Release Studies					•	

Technology Selection Guide

Chromatography Methods

(i.e., Spin Columns)

Physical separation methods, such as:

- Hydrophilic** - Molecules are bound to a functional group on a matrix in the organic phase and eluted in the aqueous phase;
- Hydrophobic** - Molecules are bound to a functional group on a matrix in the aqueous phase and eluted in the organic phase;
- Gel filtration** - The smaller molecules diffuse into the pores of the support material making their path and elution time longer than the larger molecules that are excluded on the outside of the particle. Hence the larger molecules elute first and the smaller ones elute later;
- Ion Exchange** - Molecules are bound to an ionic functional group on a matrix by charge.

Dialysis

A physical separation method in which small molecules pass through the pores of a size selective membrane while the larger molecules are retained in the dialysis bag or chamber. In order to drive the equilibrium mechanism the volume on the outside must be about 200 x the volume of the retained volume and devoid of the small molecules of interest.

Electro Dialysis

A physical separation method in which the movement of the molecules through a semi-permeable membrane is accelerated by an electric field so that molecules can be separated quickly by charge and size. This technique is useful in separation, collection and fractionation of large and small ionic molecules.

Equilibrium Dialysis

A specific application of dialysis which is used to measure the amounts of ligand bound to macromolecules and the free ligand present in two compartments separated by a dialysis membrane. The concentrations of ligand provide information on various binding parameters such as binding constants, binding capacity and the number of binding sites.

Recommended Literature

Dialysis

James B. Ames, Alexander M. Dizhoor, Mitsuhiro Ikura, Krzysztof Palczewski, and Lubert Stryer, "Three-dimensional Structure of Guanylyl Cyclase Activating Protein-2, a Calcium-sensitive Modulator of Photoreceptor Guanylyl Cyclases", *The Journal of Biological Chemistry*, Vol. 274, No. 27, pp. 19329-19337, 1999.

Electro Dialysis

- Zuo, Xun & Speicher, David; "A Method for Global Analysis of Complex Proteomes Using Sample Prefractionation by Solution Isoelectrofocusing Prior to Two-Dimensional Electrophoresis"; *Analytical Biochemistry*, Vol. 284, pp. 266-278, 2000.
- ElectroPrep™ User Manual.





Equilibrium Dialysis

- Kariv, Hong, & Oldenburg; "Development of a High Throughput Equilibrium Dialysis Method"; *Journal of Pharmaceutical Sciences*; Vol. 90, No. 5, pp. 580-587, 2001.
- Guide to Equilibrium Dialysis, ED-96 Users Manual.

	Absorption	Size exclusion	Ion exchange	Dialysis	Electro Dialysis	Equilibrium Dialysis
1 Methods development time	Moderate to Considerable	Minimal	Moderate to Considerable	Minimal	Minimal size only mode; moderate to complex in size, charge mode	Minimal
2 Average time/speed of separation	5 minutes	5 minutes	5 minutes	1 to 24 hrs	3 to 5 minutes	3 to 24 hrs
3 Ability to collect specific sample fractions-small molecules	Excellent	Good	Excellent	Poor	Excellent	Fair
4 Ability to collect specific sample fractions-large molecules	Good	Good	Good	Good	Good	Good
5 Ability to separate more than one set of components simultaneously	Excellent	Fair	Excellent	Poor	Excellent	Poor
6 Sample volumes (non flow thru versions)	a few microliters to > 1 ml	a few microliters to > 5 ml	a few microliters to > 5 ml	a few microliters to > 5 ml	a few microliters to > 1 ml	96 well (50 to 200 µl)
7 Number of samples run simultaneously	1 to 96	1 to 96	1 to 96	1 to 96	1	1 to 96
8 Materials compatibility for maximum activity recovery	Medium to high	Medium to high	Medium to high	Medium to high	Medium to high	Medium to high
9 Auxiliary equipment	centrifuge, pipettor	centrifuge, pipettor	centrifuge, pipettor	Stirrer, temperature controller	200 VDC, 100 mA power supply, rotator	200 VDC, 100 mA power supply, rotator
10 Sterilizable	CHEMICALLY	CHEMICALLY	CHEMICALLY	CHEMICALLY	CHEMICALLY	CHEMICALLY
11 Suitable for organic & aqueous solutions	Yes	Yes	Yes	Yes	Yes	Yes
12 Suitable for high throughput screening (HTS)	Yes	Yes	Yes	Yes	Yes	Yes

Guide to Sample Preparation Products

Single Use Disposable Chromatographic Products

	Sample Volumes (µl)		Materials & Tip Volumes	Binding Capacity (µg/tip)	Packing Materials						
	min volume	max volume			Gel filtration (Void Volume=KD) (Sephadex 45-90 microns)						
					G-10=	G-25=	G-50=	G-100=	P-2=	P-6=	
SPINCOLUMNS											
	Ultra-Micro SpinColumn™	Page 87	10	25	PP body, PE frits (PE cap for gels only) 300 µl	3 - 30	•	•	•	•	•
	A wide selection of packed chromatographic materials in SpinColumn formats										
	Micro SpinColumn™	Page 88	25	75	PP body, PE frits (PE cap for gels only) 300 µl	5 - 60					
	A wide selection of packed chromatographic materials in SpinColumn formats										
	Macro SpinColumn™	Page 89	75	150	PP body PE frit PE caps 1,000 µl	30 - 300	•	•	•	•	•
	A wide selection of packed chromatographic materials in SpinColumn formats, 1 sample collection tube										
	96-Well SpinColumns™	Page 91			PP body PE frit						
	96-well plate for HTS sample prep, 2 sample collection plates										
	96-Well Micro SpinColumns™			25	75	300 µl	5 - 60	•	•	•	•
	96-Well Macro SpinColumns™		25	150	400 µl	30 - 300	•	•	•	•	•

PP=Polypropylene; PE= Polyethylene
 C18, C8, C4 ****=Vydac, ** Polyvinylalcohol,
 *** Polyhydroxyethyl Aspartamide

Hydrophobic (particle size 15-20 microns)			Packing Materials											Empty Column & Frit Size (microns)				
			Hydrophillic				Ion exchange (Sephacrose): Q=Quaternary Amine; SP=Sulphopropyl; DEAE=cross-linked Diethylaminoethyl; CM=Carboxymethyl 12mu; 300A				Miscellaneous IMAC = (Imidodiacetate on cross linked divinyl benzene)							
C18 ***	C8 ***	C4 ***	silica	CN	NH2	PVOH **	PHEA ***	Strong Anion Q	Strong Cation SP	Weak Anion DEAE	Weak Cation CM	Activated Charcoal CAS 74440-44-0	Cellulose CAS 9004-34-6	Detergent Removal	IMAC	5-10	20	40
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•



Ultra-Micro SpinColumn™
for volumes from 10 µl to
25 µl. See page 87.



Micro SpinColumn for
volumes from 25 µl to 75 µl.
See page 88.

Advantages

Easy to use

Multiple formats available—from
single 10 µl sample volumes to
high-throughput 96-well format

Unrivalled selection of column
packing materials

Single use, disposable centrifuge
tube formats

Quick high sample recovery

Rapid sample preparation time



96-Well SpinColumn high throughput
sample prep applications, volumes 25 µl
to 150 µl. See pages 91 and 92.

Introduction to SpinColumns™

SpinColumn Family

SpinColumns are available in four sizes to fit your specific applications:

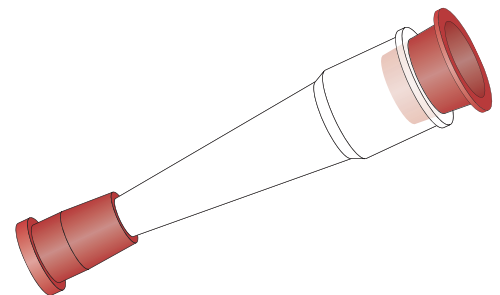
- **Ultra-Micro SpinColumns** - For sample volumes from 10 µl to 25 µl
- **Micro SpinColumns** - For sample volumes 25 µl to 75 µl
- **Macro SpinColumns** - For sample volumes from 75 µl to 150 µl
- **96-Well Micro SpinColumns** - For high throughput applications with sample volumes from 25 µl to 75 µl
- **96-Well Macro SpinColumns** - SBS compatible for high throughput applications with sample volumes from 25 µl to 150 µl

Our SpinColumns are pre-filled with a wide selection of chromatographic materials including gel-filtration, ion-exchange, silica-based reverse- and normal-phase materials, as well as specific materials, such as charcoal or cellulose contained by frits and/or caps. The columns can also be pre-filled with custom materials based on customer requests.

Simply place the SpinColumn in a centrifuge tube and centrifuge the tube briefly to separate your sample. The column material binds and purifies the sample according to size and shape, chemical composition, charge or other physio-chemical properties.

Applications

- Protein purification
- Peptide purification
- DNA purification
- Small molecule, carbohydrate removal
- Radiolabel removal
- Nick Translation
- Affinity separation
- Salt removal
- Buffer exchange

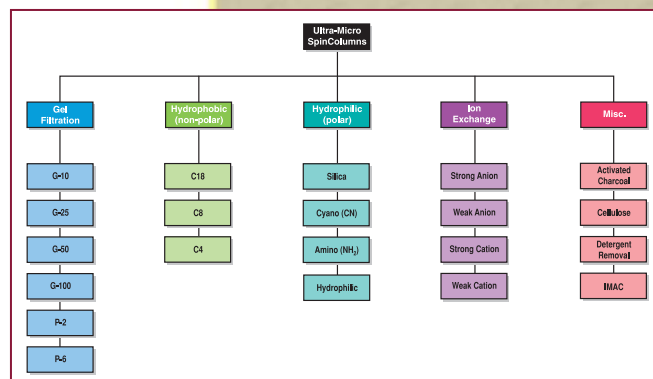


Macro SpinColumn for volumes from
75 µl to 150 µl. See pages 89 and 90.

Ultra-Micro SpinColumns™

Samples from 10 µl to 25 µl

Ultra-Micro SpinColumns are best suited for sample volumes from 10 µl to 25 µl. Centrifugation or filtration under vacuum or pressure can be used to run the sample through the columns. Results obtained from the Micro SpinColumns are highly reproducible and there is minimal sample loss. Each column includes two 2 ml centrifuge tubes plus top caps (for Gel Filtration) or frit.



Cat. #	Description
SP-744421	Empty Columns, 5 µm Frit, Qty. of 24
SP-744420	Empty Columns, 5 µm Frit, Qty. of 96
SP-744401	Empty Columns, 20 µm Frit, Qty. of 24
SP-744400	Empty Columns, 20 µm Frit, Qty. of 96
SP-744431	Empty Columns, 40 µm Frit, Qty. of 24
SP-744430	Empty Columns, 40 µm Frit, Qty. of 96

Ultra-Micro SpinColumns

Packing Material	Package Quantity	
	Qty. of 24	Qty. of 96
Gel Filtration		
G-10	SP-747220	SP-747200
G-25	SP-747221	SP-747201
G-50	SP-747222	SP-747202
G-100	SP-747223	SP-747203
P-2 *	SP-747224	SP-747204
P-6 *	SP-747225	SP-747205
Hydrophobic (non-polar) – Silica Based		
C18	SP-747226	SP-747206
C8	SP-747227	SP-747207
C4	SP-747228	SP-747208
Hydrophilic (polar) – Silica Based		
Silica	SP-747229	SP-747209
Cyano (CN)	SP-747230	SP-747210
Amino (NH ₂)	SP-747231	SP-747211
Hydrophilic	SP-747232	SP-747212
Ion Exchange		
Strong Anion	SP-747233	SP-747213
Strong Cation	SP-747235	SP-747215
Weak Anion	SP-747234	SP-747214
Weak Cation	SP-747236	SP-747216
Miscellaneous		
Cellulose	SP-747237	SP-747217
Detergent Removal	SP-747238	SP-747218
IMAC **	SP-747239	SP-747219

* Polyacrylamide-based gel filtration

**IMAC (immobilized metal affinity chromatography - for purification of Histidine tagged proteins)

Advantages

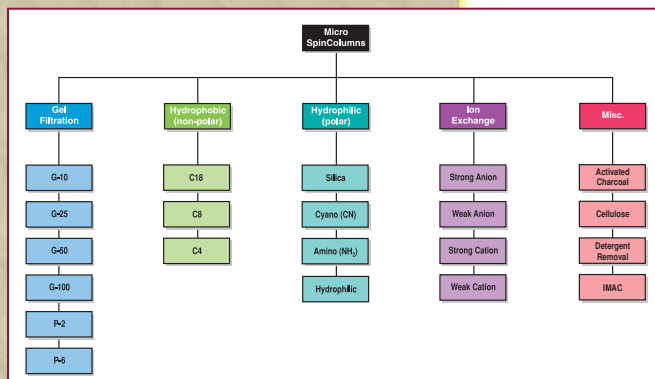
- Rapid sample preparation time
- Micro sample sizes
- High sample recovery

Applications

- DNA, protein and peptide purification
- Small molecule, carbohydrate, salt and radiolabel removal
- Nick translation
- Affinity separation
- Buffer exchange

Micro SpinColumns™

Samples from 25 µl to 75 µl



Micro SpinColumns are best suited for sample volumes from 25 to 75 µl. Centrifugation or filtration under vacuum or pressure can be used to run the sample through the columns. Results obtained from the Micro SpinColumns are highly reproducible and there is minimal sample loss. Each column includes two 2 ml centrifuge tubes plus top cap (for Gel Filtration) or frit.

Advantages

- Rapid sample preparation time
- Micro sample sizes
- High sample recovery

Applications

- DNA, protein and peptide purification
- Small molecule, carbohydrate, salt and radiolabel removal
- Nick translation
- Affinity separation
- Buffer exchange

Cat. #	Description
SP-744421	Empty Columns, 5 µm Frit, Qty. of 24
SP-744420	Empty Columns, 5 µm Frit, Qty. of 96
SP-744401	Empty Columns, 20 µm Frit, Qty. of 24
SP-744400	Empty Columns, 20 µm Frit, Qty. of 96
SP-744431	Empty Columns, 40 µm Frit, Qty. of 24
SP-744430	Empty Columns, 40 µm Frit, Qty. of 96

Micro SpinColumns

Packing Material	Package Quantity	
	Qty. of 24	Qty. of 96
Gel Filtration		
G-10	SP-744504	SP-744500
G-25	SP-744505	SP-744501
G-50	SP-744506	SP-744502
G-100	SP-744507	SP-744503
P-2 *	SP-744808	SP-744802
P-6 *	SP-744809	SP-744803
Hydrophobic (non-polar) – Silica Based		
C18	SP-744607	SP-744601
C8	SP-744608	SP-744602
C4	SP-744609	SP-744603
Hydrophilic (polar) – Silica Based		
Silica	SP-744606	SP-744600
Cyano (CN)	SP-744610	SP-744604
Amino (NH ₂)	SP-744611	SP-744605
Hydrophilic	SP-744811	SP-744805
Ion Exchange		
Strong Anion	SP-744704	SP-744700
Strong Cation	SP-744706	SP-744702
Weak Anion	SP-744705	SP-744701
Weak Cation	SP-744707	SP-744703
Miscellaneous		
Active Charcoal	SP-744806	SP-744800
Cellulose	SP-744807	SP-744801
Detergent Removal	SP-744810	SP-744804
IMAC **	SP-744812	SP-744813

* Polyacrylamide-based gel filtration

**IMAC (immobilized metal affinity chromatography - for purification of Histidine tagged proteins)

Macro SpinColumn™

Samples from 75 µl to 150 µl

Simply place the SpinColumn in a centrifuge tube and centrifuge the tube briefly to separate your sample. The column material binds and purifies the sample according to size, shape, chemical composition, charge and other physiochemical properties.

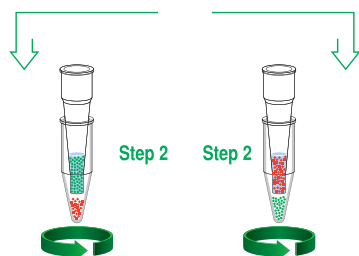
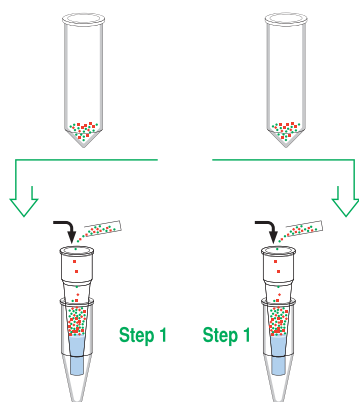
How to Use Macro SpinColumns

Size Exclusion Chromatograph SpinColumns

Solid Phase Extraction SpinColumns

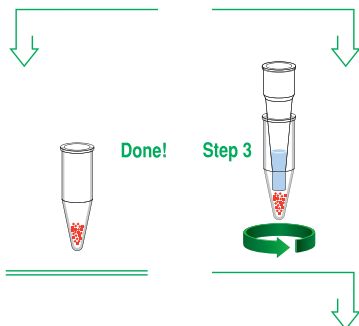
Apply the sample to the top of the SpinColumn

Apply the sample to the top of the SpinColumn



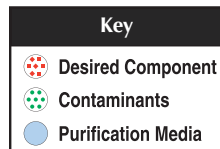
Centrifuge for 1 minute at low speed

Centrifuge for 1 minute at low speed. Impurities pass through column and collect in receiver tube #1.

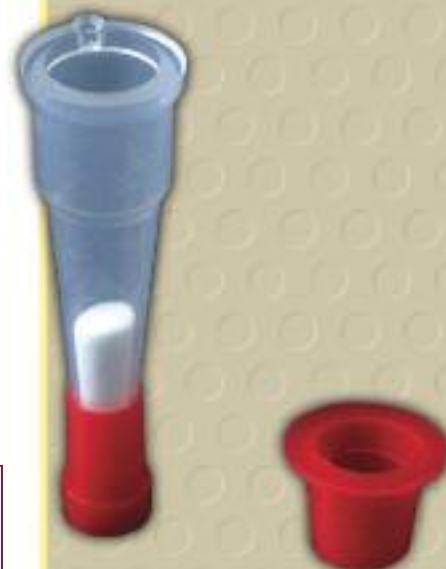


The purified sample collects in receiver tube while impurities remain in the column.

Place column into receiver tube #2. Add elution buffer to the column to remove bound components. Centrifuge briefly to collect purified sample.



The purified sample collects in receiver tube #2.



Advantages

- Easy to use
- Unrivaled selection of column packing materials
- High sample recovery
- Rapid sample preparation time

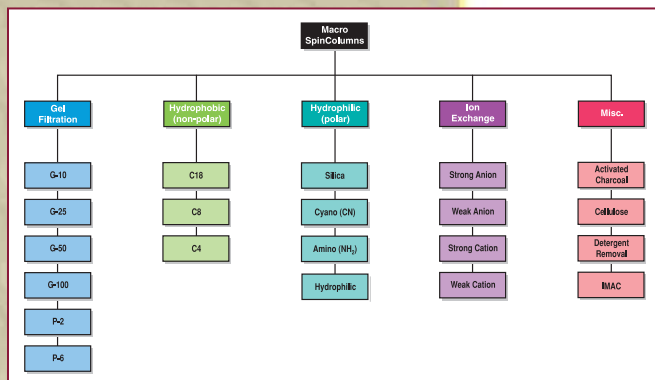
Applications

- DNA purification
- Protein purification
- Peptide purification
- Small molecule, carbohydrate removal
- Radiolabel removal
- Nick translation
- Affinity separation
- Salt removal
- Buffer exchange

SAMPLE PREPARATION

Macro SpinColumn™ (continued)

Samples from 75 µl to 150 µl



Macro SpinColumns are best suited for samples with volumes from 75 to 150 µl. In addition to the standard packing materials described in the ordering information, Macro SpinColumns can be filled with custom packing materials as desired. Each column includes two 2 ml centrifuge tubes and top and bottom caps.

Macro SpinColumns

Packing Material	Package Quantity	
	Qty. of 24	Qty. of 96
Gel Filtration		
G-10	SP-743904	SP-743900
G-25	SP-743905	SP-743901
G-50	SP-743906	SP-743902
G-100	SP-743907	SP-743903
P-2 *	SP-744308	SP-744302
P-6 *	SP-744309	SP-744303
Hydrophobic (non-polar) – Silica Based		
C18	SP-744107	SP-744101
C8	SP-744108	SP-744102
C4	SP-744109	SP-744103
Hydrophilic (polar) – Silica Based		
Silica	SP-744105	SP-744100
Cyano (CN)	SP-744110	SP-744106
Amino (NH ₂)	SP-744111	SP-744104
Hydrophilic	SP-744311	SP-744305
Ion Exchange		
Strong Anion	SP-744204	SP-744200
Strong Cation	SP-744206	SP-744202
Weak Anion	SP-744205	SP-744201
Weak Cation	SP-744207	SP-744203
Miscellaneous		
Active Charcoal	SP-744306	SP-744300
Cellulose	SP-744307	SP-744301
Detergent Removal	SP-744310	SP-744304
IMAC **	SP-744312	SP-744313
Empty Columns – Gel Filtration		
5 µm Frit	SP-743821	SP-743820
20 µm Frit	SP-743841	SP-743840
40 µm Frit	SP-743801	SP-743800

* Polyacrylamide-based gel filtration
 **IMAC (immobilized metal affinity chromatography - for purification of histidine tagged proteins and other phospho proteins/peptides)

96-Well Micro SpinColumns™

Samples from 25 µl to 75 µl



Our 96-Well Micro SpinColumn brings speed and simplicity to high-throughput micro-sample preparation. The 96-Well Micro SpinColumn is for 25 to 75 µl sample sizes and includes two 96-Well Micro collection plates (1.1 ml per well). The 96-Well Micro SpinColumns are suitable for automation and available with our complete range of packing materials or can be pre-packed with custom requested materials.

96-Well Micro SpinColumns

Packing Material	1 plate
------------------	---------

Gel Filtration

G-10	SP-745611
G-25	SP-745612
G-50	SP-745613
G-100	SP-745614
P-2 *	SP-745615
P-6 *	SP-745616

Hydrophobic (non-polar) – Silica Based

C18	SP-745617
C8	SP-745618
C4	SP-745619

Hydrophilic (polar) – Silica Based

Silica	SP-745620
Cyano (CN)	SP-745621
Amino (NH ₂)	SP-745622
Hydrophilic	SP-745623

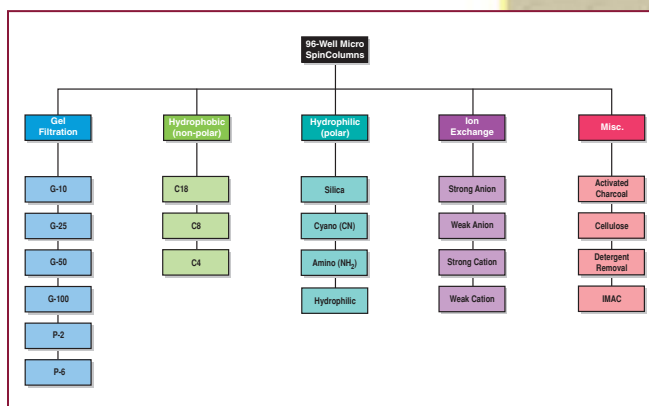
Ion Exchange

Strong Anion	SP-745624
Strong Cation	SP-745625
Weak Anion	SP-745626
Weak Cation	SP-745627

Miscellaneous

Detergent Removal	SP-745628
Active Charcoal	SP-745629
Cellulose	SP-745630
IMAC **	SP-745631

Cat. #	Description
SP-745635	Empty 96-Well Micro SpinColumn (1 plate) with 5 µm frit
SP-745610	Empty 96-Well Micro SpinColumn (1 plate) with 20 µm frit
SP-745636	Empty 96-Well Micro SpinColumn (1 plate) with 40 µm frit



Applications

- DNA purification
- Protein purification
- Peptide purification
- Small molecule, carbohydrate removal
- Radiolabel removal
- Nick translation
- Affinity separation
- Salt removal
- Buffer exchange

Advantages

- Easy to use
- Extensive selection of column packing materials
- High sample recovery
- Rapid sample preparation time

* Polyacrylamide-based gel filtration

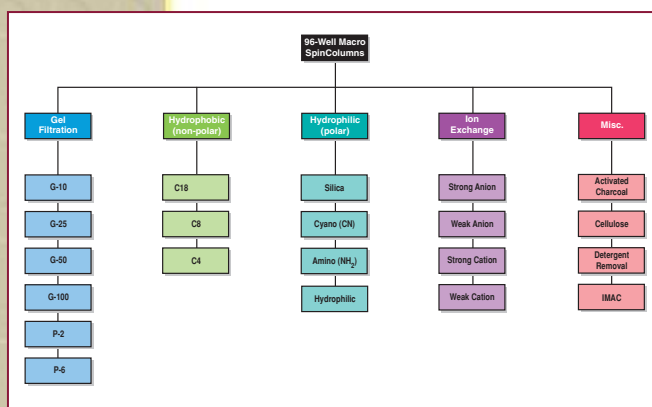
**IMAC (immobilized metal affinity chromatography - for purification of histidine tagged proteins and other phospho proteins/peptides)

96-Well Macro SpinColumns™

Samples from 25 µl to 150 µl



The 96-Well Macro SpinColumn brings speed and simplicity to high-throughput macro-sample preparation. The 96-Well Macro SpinColumn is for 25 to 150 µl sample sizes and includes two 96-Well Macro collection plates (1.1 ml per well). The 96-Well Macro SpinColumns are of SBS dimensions and suitable for automation and available with our complete range of packing materials or can be pre-packed with custom requested materials.



96-Well Macro SpinColumns

Packing Material	1 plate
Gel Filtration	
G-10	SP-745651
G-25	SP-745652
G-50	SP-745653
G-100	SP-745654
P-2 *	SP-745655
P-6 *	SP-745656
Hydrophobic (non-polar) – Silica Based	
C18	SP-745657
C8	SP-745658
C4	SP-745659
Hydrophilic (polar) – Silica Based	
Silica	SP-745660
Cyano (CN)	SP-745661
Amino (NH ₂)	SP-745662
Hydrophilic	SP-745663
Ion Exchange	
Strong Anion	SP-745664
Strong Cation	SP-745665
Weak Anion	SP-745666
Weak Cation	SP-745667
Miscellaneous	
Detergent Removal	SP-745668
Active Charcoal	SP-745669
Cellulose	SP-745670
IMAC **	SP-745671
Empty Columns – Gel Filtration	
25 µm frit	SP-745650

SAMPLE PREPARATION

Advantages

- Easy to use
- Unrivaled selection of column packing materials
- High sample recovery
- Rapid sample preparation time

Applications

- DNA purification
- Protein purification
- Peptide purification
- Small molecule, carbohydrate removal
- Radiolabel removal
- Nick translation
- Affinity separation
- Salt removal
- Buffer exchange

* Polyacrylamide-based gel filtration
 **IMAC (immobilized metal affinity chromatography - for purification of histidine tagged proteins and other phospho proteins/peptides)

Membrane-Bottom Filter Plates

Samples from 50 µl to 5 ml

The new 96-well and 384-well filter plates bring speed and high throughput to sample filtration on a microliter to milliliter scale. The membrane-bottom individual sample wells or chambers have separate high-strength single or dual filter membranes to provide rapid filtration rates and to eliminate leakage or cross-talk between adjacent wells.

All filter plates feature rigid polypropylene construction for chemical resistance and low binding and meet SBS footprint for use in robotic systems. Standard filter media include: glass fiber, PVDF polypropylene, polyethylene and polyether sulfone. Sealing process guarantees no well-to-well cross talk and weeping and allows superior recovery performance.

96-well ultra-filtration plates with 6.24 mm well size and 19.35 sq mm filter area are good for size exclusion, to concentrate, purify and desalt proteins, peptides, oligos, DNA and RNA and also to recover proteins, oligos and RNA from polyacrylamide gels. Plates comply with industry standard for automation and are available with 10,000 and 30,000 MWCO (Molecular Weight Cut-Off) membranes.

96-well 2 ml filter plates with 8.23 mm well size come with polypropylene membrane for organic synthesis and with UHMW polyethylene membrane good for solid phase extraction.

Distinctively constructed 384-well filter plates have short drip directors, square to round wells for maximum working volumes and variety of filtration media and can also be used robotically as well as for vacuum or centrifugal filtrations.



Advantages

High recoveries of both filtrates and particulate retentates

Multi-well format for simultaneous filtration of 96 or 384 different samples

Individual filter membranes to avoid cross-talk between adjacent wells

High well-to-well reproducibility

Membrane pore sizes of 0.45 – 25 µm (other pore sizes available on request)

Suitable for vacuum manifold filtration or centrifugal filtration

Applications

Nucleic acid binding

DNA binding

DNA/RNA purification

Purification of PCR products

High-throughput preparation of YAC DNA

High-throughput synthesis of drugs

Bead/resin based assays

Cell-based receptor binding assays

Size exclusion

Concentrate, purify and desalt proteins, peptides, oligos, DNA and RNA

Recover proteins, oligos and RNA from polyacrylamide gels

Filtration and filtrate collection

Cat. #	Description
Filter Plates	
SP-745551	96-Well, Ultra Filtration, PES membrane, 10K MWCO, pkg/5
SP-745552	96-Well, Ultra Filtration, PES membrane, 30K MWCO, pkg/5
SP-745553	96-Well, 300 µl, GF 1.2 µm, Short drip, pkg/10
SP-745554	96-Well, 300 µl, Hydrophilic PVDF 0.45 µm, Short drip, pkg/10
SP-745555	96-Well, 400 µl, Hydrophilic PVDF 0.45 µm, Long drip, pkg/5
SP-745556	96-Well, 800 µl, Hydrophilic PVDF 0.45 µm, Long drip, pkg/5
SP-745557	96-Well, 2 ml, PP 0.45 µm, Long drip, pkg/5
SP-745558	96-Well, 2 ml, UHMW PE 25 µm, Long drip, pkg/5
SP-745559	48-Well, 5 ml, PE frit 25 µm, Long drip, pkg/5
SP-745560	384-Well, 140 µl, 0.70 µm, Short drip, pkg/5

How to use 96-Well or 384-Well Filter Plate

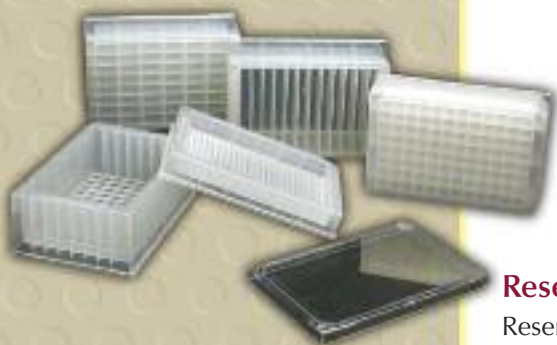
Step 1 – Fill the wells of Filter Plate with the samples.

Step 2 – Place a Filter Storage/Collection Plate inside the Manifold Filtration unit and then insert the filled Filter Plate.

Step 3 – Apply vacuum to collect the filtrates in the Storage Plate wells.

Step 4 – Remove the filtrates and/or re-suspend. Recover the retentate from the membranes for further analysis, or use collected filtrate in appropriate applications.

Filter Plate Accessories



Advantages

- Collect into 2 ml storage plates
- Spacer included to collect into SBS standard microplates
- Robot compatible
- Cross talk prevention due to minimal distance between filter plate and collection plate
- Compatible with most filter plates
- Touch free start-up

Applications

- Combinatorial chemistry cleavage
- Final filtration for SPE
- High throughput screening preparation
- Sample preparation
- DNA purification
- Receptor binding assays
- Plasmid lysate cleaning

Reservoirs, Storage Plates and Lid

Reservoirs and Storage/Collection Plates constructed of natural polypropylene are low binding, resistant to heat, chemicals and biological materials and robotic friendly with industry standard dimensions. Pyramid or V-bottom format is for maximum recovery. Plate Seals and Seal Strips for every format are available.

Low-speed centrifugation in microplate baskets may be used. Both the filtrates and the retentates are recovered at high recoveries and with high well-to-well reproducibility for further analysis.

A complete system includes Filter Plate, Storage/Collection Plate, Lid and Vacuum Manifold.

Cat. #	Description
Reservoirs	
SP-745561	96-Well, Pyramid Bottom, pkg/5
SP-745562	384-Well, Low Profile, Pyramid Bottom, pkg/5
SP-745563	12 Partitioned, Pyramid Bottom, pkg/5
SP-745564	8 Row, Partitioned, Pyramid Bottom, pkg/5
Storage/Collection Plates	
SP-745565	96-Well, 1.1 ml, Square Well, "V" Bottom, pkg/5
SP-745566	96-Well, 2 ml, Square Well, Pyramid Bottom, pkg/5
SP-745567	48-Well, 5 ml, Rectangle Well, Pyramid Bottom, pkg/5
SP-745568	384-Well, 35 µl, Square Well, Conical Bottom, pkg/10
SP-745576	24-Well, 10 ml, Square Well, Pyramid Bottom, pkg/5
Accessories	
SP-745569	Universal Lid, Polystyrene, Clear, pkg/10
SP-745570	96-Well, Pierceable Plate Seal for 2 ml Storage Plate, pkg/10
SP-745571	96-Well, Solid Plate Seal for 2 ml Storage Plate, pkg/10
SP-742322	96-Well Plate Seal Mat with Individual well inserts, Pierceable and self-sealable, PP pkg/2
SP-745572	Manifold Filtration System

Note: Other configurations for plates and accessories are also available upon request.

Introduction to DIALYZERS

Dialysis is a physical separation method in which small molecules pass through the pores of a selective membrane while larger molecules are retained in the dialysis chamber. Our DIALYZER portfolio is a unique family of products for the dialysis of small sample volumes of proteins, peptides, nucleic acids, and other biomolecules. The system is suited for sample volumes from 10 µl to 10 ml or higher. The DIALYZER family consists of over 50 different components that can be joined together to create hundreds of combinations for various applications.

DIALYZER Family

Reusable DIALYZERS

DIALYZER™

For routine dialysis of volumes from 10 µl to 5 ml, see page 98.

Ultra-Fast DIALYZER™

Routine dialysis in less time due to an additional dialysis port, see page 99.

SpinDIALYZER™ and Fast SpinDIALYZER™

These are our DIALYZER and Fast DIALYZER with an internal magnet that allows the entire unit to rotate on a magnetic stirrer for even faster dialysis, see page 100.

ElectroPrep™

The ElectroPrep is an electrophoresis based dialysis system. It can be configured for a number of applications including the elution of biomolecules from gels as well as sample concentration. Flow-Thru ElectroPrep™ is used with the single or multi Fast DIALYZER system for ultra-fast dialysis, see pages 102 to 104.

Fast Flow-Thru DIALYZER™

Used with the ElectroPrep system supporting continuous online sample detection, see page 105.

Flow-Thru DIALYZER™

Larger Membrane for rapid dialysis of volumes up to 10 ml, see page 106.

Disposable DIALYZERS

Ultra-Micro DispoDIALYZER™

Disposable, single use dialyzers for sample sizes from 1 µl to 5 µl, see page 107.

Micro DispoDIALYZER™

Disposable, single use dialyzers for sample sizes from 5 µl to 100 µl, see page 108.

Fast Macro DispoDIALYZER™

Disposable, single use dialyzers for sample sizes from 1 ml to 10 ml, see page 109.

96-Well DispoDIALYZER™

Disposable, single use dialyzers that utilize a 96-well format for high throughput applications and are for samples sizes from 25 µl to 300 µl, see page 110.

Equilibrium DIALYZERS

Multi-Equilibrium DIALYZER™ - Reusable

For simultaneous and highly reproducible equilibrium dialysis of up to 20 samples with volumes up to 5 ml, see page 113.

Fast Micro-Equilibrium DIALYZER™ - Reusable

A reusable Micro-Equilibrium DIALYZER suitable for 25 µl to 1500 µl samples for quicker equilibration times using membranes with larger surface areas, see page 114, 115.

DispoEquilibrium DIALYZER™ - Single Use

A disposable version of the Micro-Equilibrium DIALYZER suitable for samples up to 75 µl, see page 116.

96-Well Equilibrium DIALYZER™ - Single Use

A 96-well disposable equilibrium dialyzer for ligand binding assays in high throughput interaction studies. Suitable for samples up to 300 µl, see page 117.

Advantages

- Easy to use
- Leakproof
- Low protein binding
- High sample recovery
- Rapid dialysis/purification

Applications

- Exchange of buffers
- Equilibrium dialysis
- Protein binding assays
- Removal of detergents
- Concentration of samples
- Sample prep for HPLC, HPCE
- Electro-concentration
- Immunoblotting
- Purification of proteins, DNA/RNA
- Electrophoresis, electro-elution, electro-dialysis
- Removal of excess radiolabel or PCR-primers
- GC, GC-MS, NMR
- Elution of proteins and nucleic acids from gels
- Removal of CsCl, agarose, pyridoxal-5-phosphate
- Removal of silicates after chromatography
- Complex carbohydrate purification
- On-line concentration, on-line dialysis, dynamic dialysis
- Serum protein binding
- Protein, receptor, and ligand binding assays
- Protein-drug binding assays
- Protein-protein interactions
- Protein-DNA interactions

Guide to Dialysis Sample Preparation Products

Dialysis/Electro Dialysis Products

	Sample Volumes (µl)		Number of Membranes	Materials	Membranes (Da or µm)							
	min	max			Regenerated Cellulose MWCO (Da)							
REUSABLE IMMERSIBLE CHAMBERS							1K	2K	5K	10K	25K	50K
 DIALYZER™ Page 98 Drop-in, re-usable dialysis chamber (10 chamber sizes available)	10	5,000	1	PTFE	•	•	•	•	•	•	•	
 Ultra-Fast DIALYZER Page 99 Drop-in, re-usable two-sided dialysis chamber (6 chamber sizes available)	50	5,000	2	PTFE	•	•	•	•	•	•	•	
 SpinDIALYZER™ Page 100 Drop-in, re-usable dialysis chamber with built-in magnet (8 chamber sizes available)	10	1,500	1	PTFE	•	•	•	•	•	•	•	
 Fast SpinDIALYZER™ Page 100 Drop-in, re-usable, two-sided dialysis chamber with built-in magnet (6 chamber sizes available)	50	1,500	2	PTFE	•	•	•	•	•	•	•	
 ElectroPrep™ Page 102 Ultra-fast, single or multi-chambered dialysis system capable of separating by size & charge	25	>1,500	up to six	PTFE	•	•	•	•	•	•	•	
REUSABLE FLOW-THRU DIALYZERS												
 Fast Flow-Thru DIALYZER Page 105 (for use with ElectroPrep) Drop-in, continuous flow, single chambered, in-line dialysis system (4 chamber sizes available)	50	>10,000	2	PTFE	•	•	•	•	•	•	•	
 Flow-Thru DIALYZER Page 106 Continuous flow, high surface area, in-line dialysis system (5 chamber sizes available)	20	>10,000	1	PTFE	•	•	•	•	•	•	•	
SINGLE USE DIALYSIS PRODUCTS												
 Ultra-Micro DispoDIALYZER™ Page 107	1	5	1	PC body PP tube	•	•	•	•	•	•	•	
 Micro DispoDIALYZER Page 108	5	100	1	PC body PP head PE cap	•	•	•	•	•	•	•	
 Fast Macro DispoDIALYZER Page 109	1,000	10,000	2	PP			•	•				
 96-Well DispoDIALYZER Page 110	25	300	1/chamber	PP chamber PE cap	•	•	•	•	•	•	•	

PTFE=Teflon®; PP=Polypropylene; PE= Polyethylene; PC=Polycarbonate
MWCO=Molecular Weight Cut-Off

Membranes (Da or μm)											Ordering Information			
Cellulose Acetate (Aqueous/Organic)								MWCO (Da)			Polycarbonate (Aqueous/Organic/ Autoclavable) pore size, (μm)			
100	500	1K	2K	5K	10K	25K	50K	100K	300K	0.01 (100K)	0.05 (800K)	0.1 (1.1M)	0.6 (2.5M)	
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes chamber and 1 open-ended cap; (membranes, stirrer plate and stir bar sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes chamber and 2 caps; (membranes, stirrer plate and stir bar sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes chamber with magnet and cap; (membranes and stirrer plate sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes chamber with magnet and 2 caps; (membranes and stirrer plate sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes tank with seal and lid with leads; (chambers, membranes and power supply sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes chamber, fittings and 2 caps (membranes, tubing and pump sold separately)
•	•	•	•	•	•	•	•	•	•	•	•	•	•	Includes 2 chambers, membranes, fittings, clamp and allen wrench; (sold with or without pump)
•	•													Includes ready to use chambers with pre-installed membrane and 2 sample tubes (1.5 ml) per chamber
•	•													Includes chambers with pre-installed membrane, flotation ring, cap and 2 sample tubes (1.5 ml) per chamber
														Includes chamber, 2 locking rings and 2 membranes
														Includes 2 plate with pre-installed membrane and 12 8-cap strips

DIALYZER™ (Reusable)

DIALYZER chambers assembled



DIALYZER chambers unassembled



The DIALYZER is a simple single-sided device for dialysis of biological samples. A broad range of DIALYZER sizes are available to accommodate sample volumes ranging from as little as 10 µl up to 5 ml. Pre-cut dialysis membranes are available for the DIALYZER with Molecular Weight Cut-Off (MWCO) ranges from 100 to 300,000 Daltons. The entire unit is constructed of Teflon, a virtually unreactive material, which will not interfere with your valuable samples. Once assembled a Teflon-Teflon seal ensures that the DIALYZER is 100% leak-proof. The DIALYZER is ideal for the simple dialysis of salts, for the exchange of buffers, and for the concentration of samples. Includes a chamber with cap.

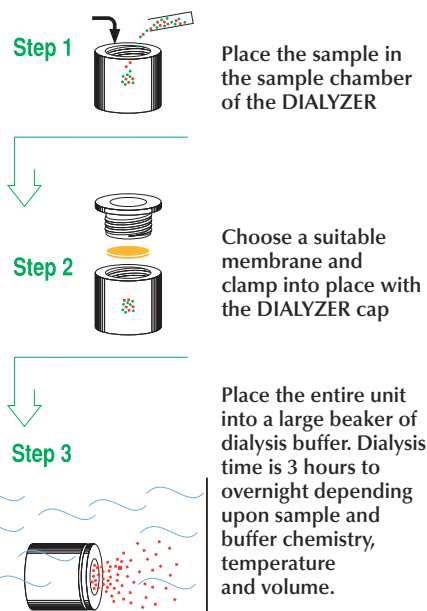
Advantages

- Easy to use
- Reusable
- Autoclaveable
- Made of Teflon®—totally inert
- Low protein binding
- High sample recovery
- Leak-proof
- Rapid dialysis/purification
- Available for wide range of sample sizes—10 µl to 5 ml
- Membranes available with MWCO's to suit almost any application

Applications

- Exchange of buffers
- Sample concentration
- Purification of biomolecules
- Removal of detergents
- Removal of excess radiolabel
- Post-PCR clean-up
- HPLC, HPCE
- GC, GC-MS, NMR

How to Use DIALYZERS



KEY	
	Desired Component
	Contaminants
	Dialysis Buffer
	Membrane

For Membrane ordering information, see page 101.

DIALYZERS

Chamber Volume (µl)	Qty. of 1	Qty. of 5
10	SP-740210	SP-740200
20	SP-740211	SP-740201
50	SP-740212	SP-740202
100	SP-740213	SP-740203
200	SP-740214	SP-740204
500	SP-740215	SP-740205
1000	SP-740216	SP-740206
1500	SP-740217	SP-740207
3000	SP-740218	SP-740208
5000	SP-740219	SP-740209

The membrane ordering information is color coded to assist you in selecting the appropriate membrane:

- Red shaded chambers require 11 mm membranes
- Yellow shaded chambers require 18 mm membranes
- Purple shaded chambers require 24 mm membranes

Ultra-Fast DIALYZER™ (Reusable)

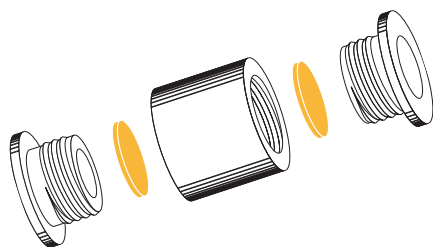
The Ultra-Fast DIALYZER boasts all the features of the original DIALYZER plus an additional dialysis port. The Ultra-Fast double-sided DIALYZER thus has two dialysis membranes, one on either side of the sample chamber. The increased membrane surface area results in greater sample exposure and an enhanced rate of dialysis. The Ultra-Fast DIALYZER includes a chamber and two caps.

The Ultra-Fast DIALYZER, when used with the ElectroPrep System, is also suited for a wide spectrum of additional applications including:

- Electro-Elution
- Elution of Proteins and Nucleic Acids from Gels
- Electro-Concentration
- Electro-Dialysis, see page 102.

Applications

- Exchange of buffers
- Concentration of samples
- Purification of proteins, DNA and RNA
- Complex carbohydrate purification*
- Removal of detergents
- Removal of excess radiolabel
- Post-PCR cleanup
- Removal of silicates after chromatography*
- Removal of CsCl, agarose, pyridoxal-5 phosphate*
- Immunoblotting*
- HPLC, HPCE
- GC, GC-MS, NMR
- Equilibrium dialysis
- Protein binding assays



Advantages

- Faster
- Easy to use
- Reusable
- Autoclaveable
- Made of Teflon®—totally inert
- Low protein binding
- High sample recovery
- Leakproof
- Rapid dialysis/purification
- Available for most sample sizes—large or small
- Membranes available with MWCO's to suit almost any application

Ultra-Fast DIALYZERS

Chamber Volume (ul)	Qty. of 1	Qty. of 2	Qty. of 5
50	SP-7404-501D	SP-7411-502D	SP-7404-505D
100	SP-7404-1001D	SP-7411-1002D	SP-7404-1005D
250	SP-7404-2501D	SP-7411-2502D	SP-7404-2505D
500	SP-7404-5001D	SP-7411-5002D	SP-7404-5005D
1000	SP-7404-10001D	SP-7411-10002D	SP-7404-10005D
1500	SP-7404-15001D	SP-7411-15002D	SP-7404-15005D

The membrane ordering information is color coded to assist you in selecting the appropriate membrane:

Purple shaded chambers require 24 mm membranes

*When used in conjunction with the ElectroPrep system.
For Membrane ordering information, see page 101.



Advantages

- Faster dialysis times due to an internal magnet
- Easy to use
- Reusable
- Autoclaveable
- Made of Teflon®—totally inert
- Low protein binding
- High sample recovery
- Leakproof
- Rapid dialysis/purification
- Available for most sample sizes—large or small
- Membranes available with Molecular Weight Cut-Off's (MWCO's) to suit almost any application

Applications

- Exchange of buffers
- Concentration of samples
- Purification of proteins, DNA and RNA
- Complex carbohydrate purification*
- Removal of detergents
- Removal of excess radiolabel
- Removal of silicates after Chromatography*
- Removal of CsCl, agarose, pyridoxal-5-phosphate*
- Immunoblotting*
- HPLC, HPCE
- GC, GC-MS, NMR

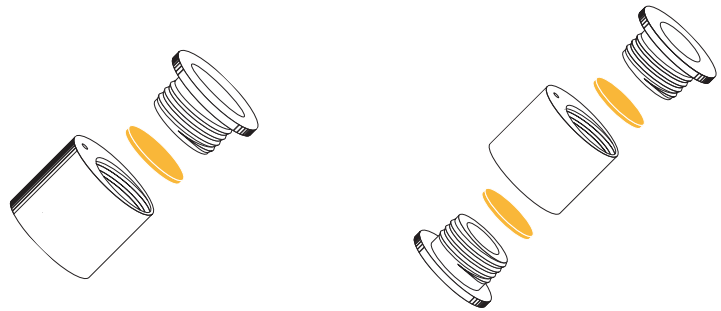
SpinDIALYZER™ and Fast SpinDIALYZER™ (Reusable)

SpinDIALYZER™

The SpinDIALYZER is our high-quality DIALYZER with a magnetic feature incorporated internally which does not require an external stir bar. This enables the entire SpinDIALYZER unit to be rotated during dialysis using a magnetic stir plate. The constant motion of the sample results in dialysis times that are 50 to 100% faster than with the DIALYZER. SpinDIALYZER includes chamber plus cap.

Fast SpinDIALYZER™

The Fast SpinDIALYZER is our high-quality Fast DIALYZER with a magnetic feature incorporated internally. This enables the entire Fast SpinDIALYZER unit to be rotated during dialysis using a magnetic stir plate. The constant motion of the sample results in dialysis times that are 50 to 100% faster than with the Fast DIALYZER. As with the Fast DIALYZER, the Fast SpinDIALYZER has two dialysis ports and includes a chamber plus two caps.



SpinDIALYZERS and Fast SpinDIALYZERS

Chamber Volume (µl)	SpinDIALYZER		Fast SpinDIALYZER	
	Qty. of 1	Qty. of 5	Qty. of 1	Qty. of 5
10	SP-740308	SP-740300	—	—
20	SP-740309	SP-740301	—	—
50	SP-740310	SP-740302	SP-740506	SP-740500
100	SP-740311	SP-740303	SP-740507	SP-740501
200	SP-740312	SP-740304	SP-740508	SP-740502
500	SP-740313	SP-740305	SP-740509	SP-740503
1000	SP-740314	SP-740306	SP-740510	SP-740504
1500	SP-740315	SP-740307	SP-740511	SP-740505

The membrane ordering information is color coded to assist you in selecting the appropriate membrane:

Red shaded chambers require 11 mm membranes

Yellow shaded chambers require 18 mm membranes

Membranes for DIALYZERS

Cellulose Acetate

These membranes are low protein binding and have a sharp MWCO range. The membranes are pre-cut, and supplied in 0.05% sodium azide solution. They are ready to use after rinsing with deionized water and buffer. Glycerol, sulfur, and heavy metals are not present in these membranes. The cellulose acetate membranes are intended only for aqueous solutions, and the presence of an organic solvent is not recommended.

Regenerated Cellulose

These membranes are more stable in organic solvents, but the MWCO range is not as sharply defined as that of cellulose acetate membranes. The membranes are pre-cut, and supplied in a 0.05% sodium azide solution. They are ready to use after rinsing with deionized water and buffer. Glycerol, sulfur, or heavy metals are not present in these membranes.

Polycarbonate

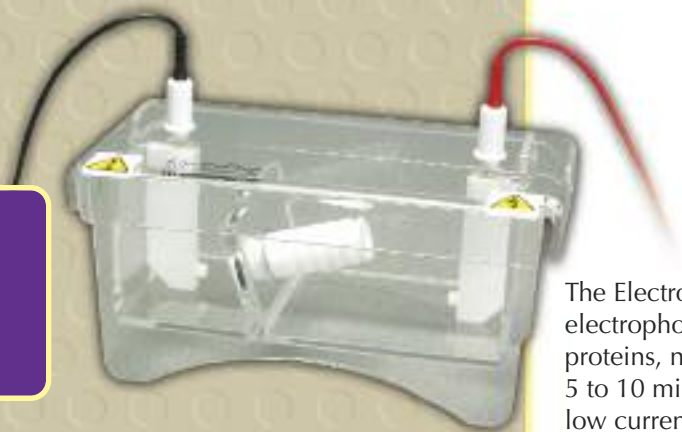
These membranes are more stable in organic solvents. They are available in four highly controlled pore sizes for a well defined MWCO range.

A large variety of membranes are available for use with our different dialysis products. The following tables are designed to assist you in choosing the appropriate membranes for your needs.

MEMBRANES for DIALYZERS - Size Range from 10 µl to 5000 µl (pack of 25)

MEMBRANES:	11 mm	18 mm	24 mm
A. Regenerated Cellulose MEMBRANES:			
1k Da MWCO	SP-7424-RC1K	SP-7425-RC1K	SP-7420-RC1K
2k Da MWCO	SP-7424-RC2K	SP-7425-RC2K	SP-7420-RC2K
5k Da MWCO	SP-7424-RC5K	SP-7425-RC5K	SP-7420-RC5K
10k Da MWCO	SP-7424-RC10K	SP-7425-RC10K	SP-7420-RC10K
25k Da MWCO	SP-7424-RC25K	SP-7425-RC25K	SP-7420-RC25K
50k Da MWCO	SP-7424-RC50K	SP-7425-RC50K	SP-7420-RC50K
B. Cellulose Acetate MEMBRANES:			
100 Da MWCO	SP-7424-CA100	SP-7425-CA100	SP-7420-CA100
500 Da MWCO	SP-7424-CA500	SP-7425-CA500	SP-7420-CA500
1k Da MWCO	SP-7424-CA1K	SP-7425-CA1K	SP-7420-CA1K
2k Da MWCO	SP-7424-CA2K	SP-7425-CA2K	SP-7420-CA2K
5k Da MWCO	SP-7424-CA5K	SP-7425-CA5K	SP-7420-CA5K
10k Da MWCO	SP-7424-CA10K	SP-7425-CA10K	SP-7420-CA10K
25k Da MWCO	SP-7424-CA25K	SP-7425-CA25K	SP-7420-CA25K
50k Da MWCO	SP-7424-CA50K	SP-7425-CA50K	SP-7420-CA50K
100k Da MWCO	SP-7424-CA100K	SP-7425-CA100K	SP-7420-CA100K
300k Da MWCO	SP-7424-CA300K	SP-7425-CA300K	SP-7420-CA300K
C. Polycarbonate MEMBRANES:			
0.01 µm Pore Size	SP-7424-PC01	SP-7425-PC01	SP-7420-PC01
0.05 µm Pore Size	SP-7424-PC05	SP-7425-PC05	SP-7420-PC05
0.10 µm Pore Size	SP-7424-PC10	SP-7425-PC10	SP-7420-PC10
0.60 µm Pore Size	SP-7424-PC60	SP-7425-PC60	SP-7420-PC60

ElectroPrep™



ElectroPrep (SP-741196) with Multiple Link-Chambers (sold separately)

The ElectroPrep is an extremely versatile sample prep technology based on 2D electrophoresis/dialysis. This ElectroPrep system is ideal for the rapid purification of proteins, nucleic acids, carbohydrates and other biomolecules. With a run-time of 5 to 10 minutes, the ElectroPrep provides speed and convenience, even at the very low currents (5 to 10 mA) used with this system. The sample chambers are made of Teflon, a completely inert material especially suited for high sample recovery. Membranes of different Molecular Weight Cut-Off's (MWCO's), from 100 to 300,000 Daltons, can be used for selective elution, filtration, rapid dialysis, fractionation and concentration. Ultra-Fast DIALYZER can be joined with multiple link chambers in different combinations (see pages 105 and 106) and membranes (see page 103).

Advantages

Faster dialysis times due to movement of charged molecules in the electric field

Re-usable

Available for most sample sizes—large or small

Membranes available with MWCO's to suit almost any application

Easy to use

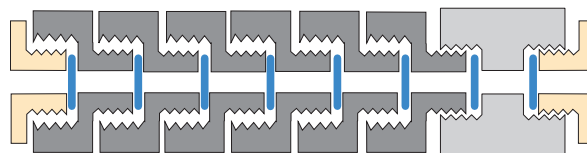
Leakproof

Autoclaveable

Low protein binding

High sample recovery

Made of Teflon®—totally inert



As shown above, multiple link chambers can be joined together with membranes of different MWCO's placed between them for highly selective electro-filtration and separation. See page 103 for membrane selection and ordering information.

Key

- Link-Chamber
- Fast DIALYZER™
- Membrane
- Open-ended cap

Applications

- Electro-elution from gels and solutions
- Electro-dialysis (with an average buffer exchange time of 5 to 10 minutes)
- On-line electro-dialysis
- Electro-concentration
- Selective electro-filtration
- Size fractionation
- Primer removal
- Salt removal
- Detergent removal
- Dye-Terminator removal

ElectroPrep™ (continued)

Electro-Elution of DNA, Proteins or other Biomolecules from Gel Pieces

Using the ElectroPrep system in the illustrated configuration, elution of DNA, proteins, or any other biomolecules from a gel slice/plug can be achieved quickly and easily with excellent recovery. Chambers can be joined in any combination necessary to accommodate the required gel volume. Samples can be concentrated if desired, by choosing a receiving chamber of suitable volume. The MWCO (molecular weight cut off) of the membranes (a & b) can also be chosen to achieve very selective filtration or size fractionation during the electro-elution process.

Selective Electro-Filtration/Concentration/Separation Based on Different Charges on Biomolecules

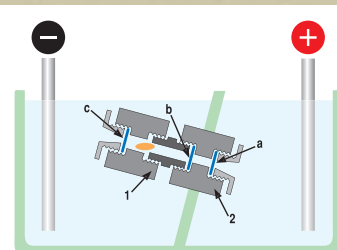
In this configuration of the ElectroPrep, the sample is placed in a sample compartment between two membranes (b), both of which should have a MWCO larger than the desired biomolecules. Membranes (a) and (c) should have MWCOs smaller than the biomolecules. Based on their charges, the biomolecules will move to either chamber (1) or chamber (2). Biomolecules with unknown isoelectric points can also be separated and purified using this method.

Electrodialysis through Simultaneous Exchange of Buffers

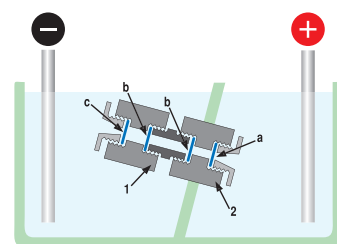
A sample is placed in the sample compartment between membranes (a) and (b), both of which have MWCOs lower than the molecular weight of the desired biomolecules. The sample is dialyzed through the simultaneous exchange of buffers in the electric field. This method is very fast and very effective. For example, after a PCR reaction, it can be used to rapidly (5 to 10 minutes) remove 100% of the primer. Electrodialysis is also effective for desalting neutral molecules that do not move in an electric field (such as sugars) or charged molecules at their isoelectric point.

Rapid and Selective Electro-Filtration or Concentration

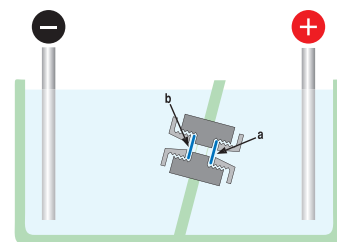
The sample is placed in the sample compartment comprised of a chamber (1) and the union. The MWCO of membrane (b) should be larger than the molecular weight of the biomolecules and the MWCO of membrane (a) should be smaller. Upon the passage of electric current, the biomolecules will pass through membrane (b) and collect in chamber (2) while smaller molecules will pass through membrane (a). This is a fast and effective method for the concentration of small samples and for selective filtration.



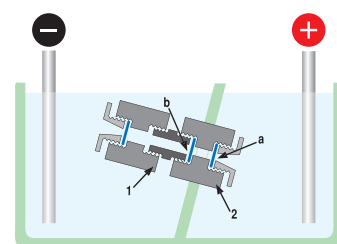
Electro-Elution of DNA, Proteins or other Biomolecules from Gel Pieces



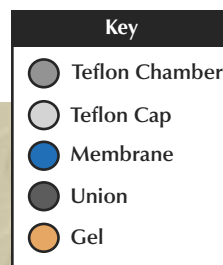
Selective Electro-Filtration/Concentration/Separation Based on Different Charges on Biomolecules



Electrodialysis through Simultaneous Exchange of Buffers



Rapid and Selective Electro-Filtration/Concentration



ElectroPrep™ (continued)



Ultra-Fast DIALYZERS™

The ElectroPrep must use at least one Ultra-Fast DIALYZER (range of 50 µl to 1,500 µl volume). The joining of multiple Ultra-Fast DIALYZER units requires a union. Link Chambers can be easily attached to Ultra-Fast DIALYZER.

Chamber Volume (µl)	Qty. of 1	Qty. of 2	Qty. of 5
50	SP-7404-501D	SP-7411-502D	SP-7404-505D
100	SP-7404-1001D	SP-7411-1002D	SP-7404-1005D
250	SP-7404-2501D	SP-7411-2502D	SP-7404-2505D
500	SP-7404-5001D	SP-7411-5002D	SP-7404-5005D
1000	SP-7404-10001D	SP-7411-10002D	SP-7404-10005D
1500	SP-7404-15001D	SP-7411-15002D	SP-7404-15005D

Link-Chambers

Link-Chambers can be joined together in different combinations without the need for a union. The 50 µl and 100 µl size chambers come in a pack containing one chamber which accepts 18 mm membranes and one chamber which accepts 24 mm membranes. Both chambers in the 250 µl to 1500 µl size packs accept 24 mm membranes.

Chamber Volume (µl)	Qty. of 2
50	SP-7411-502L
100	SP-7411-1002L
250	SP-7411-2502L
500	SP-7411-5002L
1000	SP-7411-10002L
1500	SP-7411-15002L

The membrane ordering information is color coded to assist you in selecting the appropriate membrane:
 Yellow shaded chambers require 18 mm membranes
 Purple shaded chambers require 24 mm membranes

Unions and Other Accessories

Cat. #	Description
SP-741194	Union which Joins Any Two DIALYZER Chambers with Volumes from 50 µl to 1500 µl (volume = 2500 µl)
SP-741112	Concentrator, see page 109
SP-741196	ElectroPrep Tank
PS300B	Power Supply, 10-300 V, 500 mA, see page 70

For Membrane ordering information, see page 101.

Fast Flow-Thru DIALYZER™ (Reusable) for Use with ElectroPrep

The Fast Flow-Thru DIALYZER is a new and unique product that is ideal for electro-elution, electro-dialysis, electro-concentration and electro-filtration of larger sample volumes (from 50 µl to 1 ml or more) and for protein crystallization when used with ElectroPrep, see page 104. The Fast Flow-Thru DIALYZER has an inlet and an outlet providing a flow-through system, which facilitates the continuous movement of the sample. Sample collection can be monitored through the use of an on-line detector, such as a photometer, conductivity meter or any other suitable equipment readily available in the laboratory. The Fast Flow-Thru DIALYZER can also be hooked to an HPLC sample loop for concentration of biological samples.

As shown in Figure 1, the sample from the sample reservoir (1) is pumped in continuous circulation through the sample chamber. The Molecular Weight Cut-Off (MWCO) of membrane (a) is smaller than the molecular weight of the desired biomolecules. The MWCO membrane (b) is larger than the molecular weight of the desired biomolecules. The desired biomolecules will be collected in the concentration chamber (2) since membrane (c) also has a MWCO smaller than the desired biomolecules.

The setup in Figure 2 is similar. The sample from the sample reservoir (1) is pumped in continuous circulation through the sample chamber. In this instance, however, the concentration chamber (2) is also connected to a continuous on-line system with a sample detector such as an HPLC system. Therefore, the sample collected in the concentration chamber can be periodically measured and analyzed. Fast Flow-Thru DIALYZER includes one chamber, two open-ended caps and two fittings.



Advantages

Rapid sample preparation

Minimal sample loss

Inert sample and concentration chambers (made of Teflon)

Applications

Electro-elution

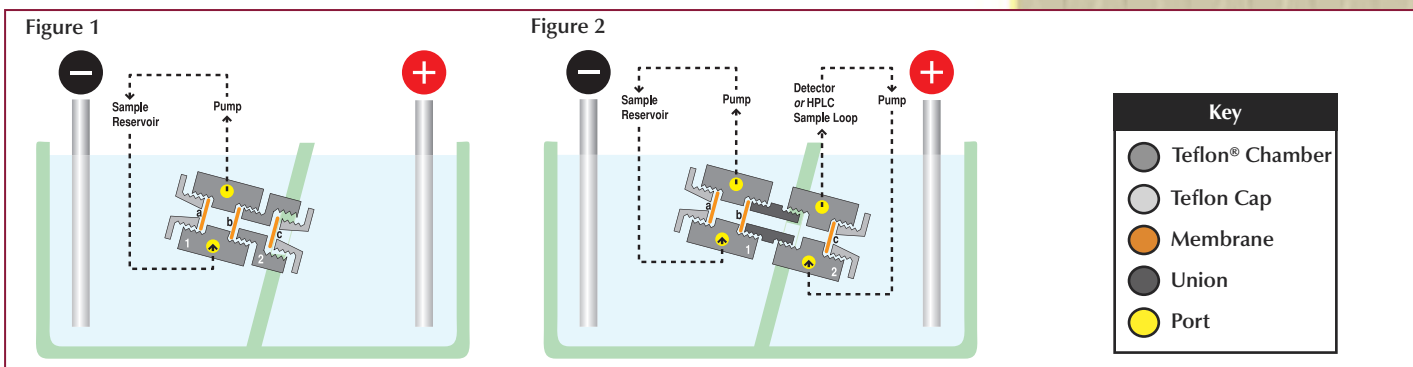
Electro-dialysis

Electro-concentration

Electro-filtration

Protein crystallization

SAMPLE PREPARATION

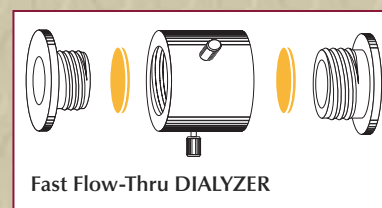


Fast Flow-Thru DIALYZERS

Chamber Volume (µl)	Qty. of 1	Qty. of 5
50	SP-741204	SP-741200
100	SP-741205	SP-741201
500	SP-741206	SP-741202
1000	SP-741207	SP-741203

Red shaded chambers require 11 mm membranes

Yellow shaded chambers require 18 mm membranes



For Membrane ordering information, see page 103.



Advantages

Ultra fast dialysis times are possible due to large membrane surface area

Automation ready

Suitable for wide sample volume range

Inert Teflon® dialysis chamber—minimal sample loss

Suitable for constant temperature dialysis

Applications

Dialysis

Buffer exchange

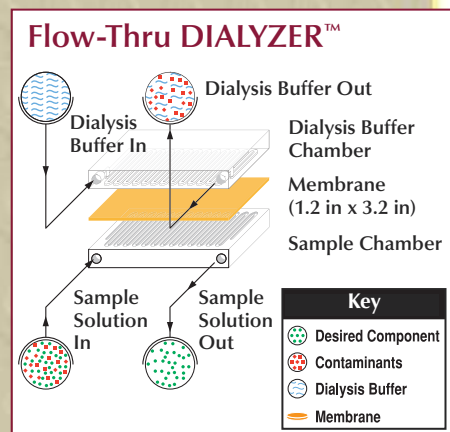
Salt removal

Detergent removal

Equilibrium dialysis

On-line dialysis for HPLC

On-line sample concentration



MWCO=Molecular Weight Cut-Off

Flow-Thru DIALYZER™ (Reusable)

The Flow-Thru DIALYZER is a unique system for the rapid dialysis of sample volumes from 20 µl to 100 ml. It provides a large surface area for Flow-Thru on-line dialysis with minimal sample loss. The entire dialysis unit is made of Teflon®, an inert material, and has two separate serpentine channels superimposed on each other and separated by a dialysis membrane. The length of each channel is about 700 mm. Five different chambers are available (20 µl, 75 µl, 150 µl, 300 µl and 600 µl). Chambers of different volumes can also be superimposed on each other for specific applications.

With the Flow-Thru DIALYZER more than 90% of salts or small molecules can be dialyzed from a sample in one cycle (about 10 minutes). Cycles can be repeated automatically through the use of a pump for continuous flow systems. The entire dialysis unit can be submerged in a water bath for constant temperature dialysis.

Chamber Volume:	20 µl	75 µl	150 µl	300 µl	600 µl
Flow-Thru DIALYZER System with Pump, Clamps, and 10k Da Regenerated Cellulose Membranes					
Qty. of 1	SP-741307	SP-741308	SP-741309	SP-741301	SP-741310
Flow-Thru DIALYZER with Clamping System and 10k Da Regenerated Cellulose Membranes					
Qty. of 1	SP-741303	SP-741304	SP-741305	SP-741300	SP-741306
Flow-Thru DIALYZERS					
Qty. of 2	SP-741400	SP-741401	SP-741402	SP-741403	SP-741404

Flow-Thru DIALYZER MEMBRANES

A. Regenerated Cellulose MEMBRANES:

1k Da MWCO	SP-741510
2k Da MWCO	SP-741511
5k Da MWCO	SP-741512
10k Da MWCO	SP-741513
25k Da MWCO	SP-741514
50k Da MWCO	SP-741515

B. Cellulose Acetate MEMBRANES:

100 Da MWCO	SP-741508
500 Da MWCO	SP-741500
1k Da MWCO	SP-741501
2k Da MWCO	SP-741502
5k Da MWCO	SP-741503
10k Da MWCO	SP-741504
25k Da MWCO	SP-741505
50k Da MWCO	SP-741506
100k Da MWCO	SP-741507

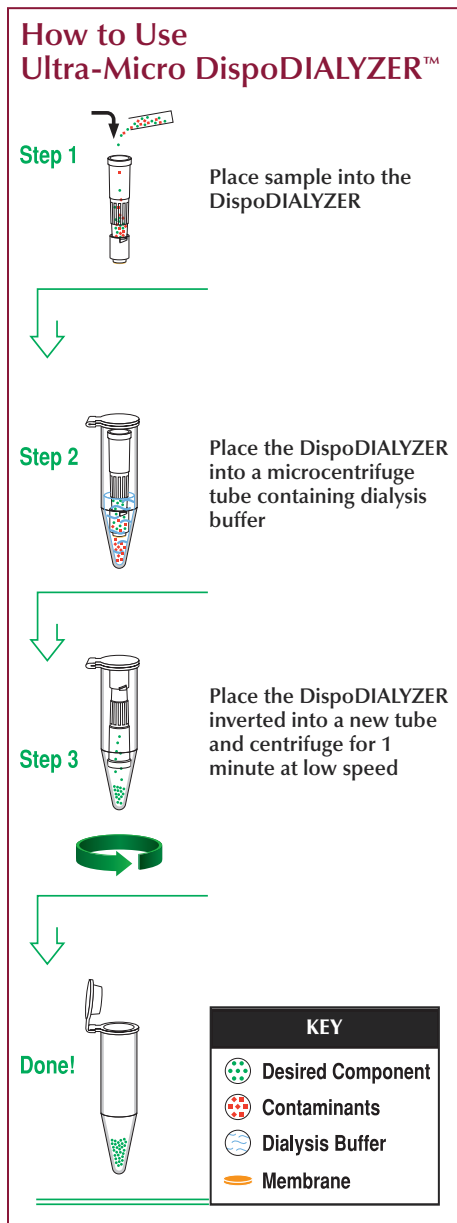
C. Polycarbonate MEMBRANES:

0.01 µm Pore Size	SP-741520
0.05 µm Pore Size	SP-741521
0.60 µm Pore Size	SP-741522

Ultra-Micro DispoDIALYZER™ (Single Use)

Samples from 1 µl to 5 µl

The 1 µl to 5 µl Ultra-Micro DispoDIALYZER is a unique disposable DIALYZER for the dialysis of very small samples. The entire dialysis unit installed with different MWCO membranes is small enough that dialysis can be carried out in a microcentrifuge tube. Sample recovery is quick and easy with almost 100% of the sample recovered after only a short centrifugation step. Ultra-Micro DispoDIALYZER includes two 1.5 ml capped microcentrifuge collection tubes.



Applications

- Exchange of buffers
- Removal of detergents
- Concentration of samples
- HPLC, HPCE
- Purification of proteins, DNA, and RNA
- Removal of excess radiolabel or PCR-primers
- GC, GC-MS, NMR

Advantages

- Micro-volume dialysis
- Economical
- Easy to use
- Leakproof
- Low protein binding
- High sample recovery
- Rapid dialysis/purification

Ultra-Micro DispoDIALYZERS

Membrane MWCO (Daltons)	Qty. of 25	Qty. of 50	Qty. of 100
Cellulose Acetate			
100	SP-740603	SP-740604	SP-740605
500	SP-740606	SP-740607	SP-740608
Regenerated Cellulose			
1,000	SP-740609	SP-740610	SP-740611
2,000	SP-740612	SP-740613	SP-740614
5,000	SP-740615	SP-740616	SP-740617
10,000	SP-740602	SP-740600	SP-740601
25,000	SP-740618	SP-740619	SP-740620
50,000	SP-740621	SP-740622	SP-740623

Micro DispoDIALYZER™ (Single Use)

Samples from 5 µl to 100 µl



The Micro DispoDIALYZER is a unique disposable DIALYZER for the dialysis of small sample volumes from 5 µl to 100 µl. Sample recovery is quick and easy using the Micro DispoDIALYZER; almost 100% of the sample is recovered after a short centrifugation step. The Micro DispoDIALYZER includes installed membrane of different MWCO, foam float, cap, and two 1.5 ml collection tubes.

Advantages

- Economical
- Hassle-free
- Available for small sample sizes
- Membranes available with Molecular Weight Cut-Off's (MWCO's) to suit almost any application
- Easy to use
- Leakproof
- Low protein binding
- High sample recovery
- Rapid dialysis/purification

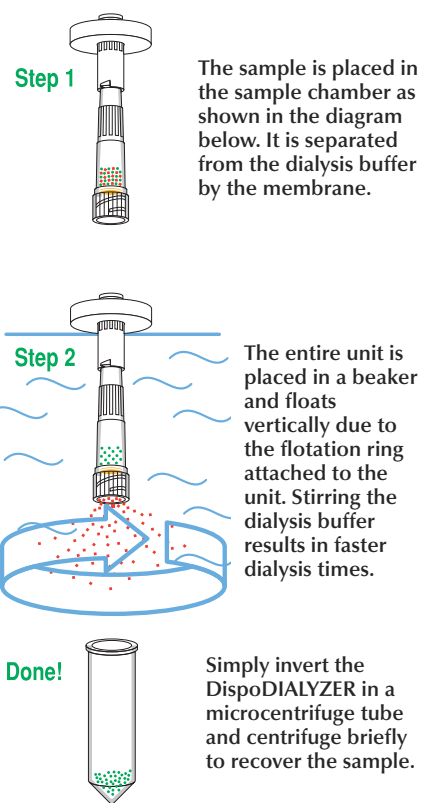
Applications

- Exchange of buffers
- Removal of detergents
- Concentration of samples
- HPLC, HPCE
- Purification of proteins, DNA, and RNA
- Removal of excess radiolabel or PCR-primers
- GC, GC-MS, NMR

Micro DispoDIALYZERS

Membrane	Qty. of 25	Qty. of 50	Qty. of 100
Cellulose Acetate			
100	SP-740714	SP-740700	SP-740701
500	SP-740721	SP-740722	SP-740723
Regenerated Cellulose			
1,000	SP-740715	SP-740702	SP-740703
2,000	SP-740716	SP-740704	SP-740705
5,000	SP-740717	SP-740706	SP-740707
10,000	SP-740718	SP-740708	SP-740709
25,000	SP-740719	SP-740710	SP-740711
50,000	SP-740720	SP-740712	SP-740713

How to Use Micro DispoDIALYZER™



KEY	
	Desired Component
	Contaminants
	Dialysis Buffer
	Membrane

Fast Macro DispoDIALYZER™ (Single Use) and Accessories

Samples from 1 ml to 10 ml

The Fast Macro DispoDIALYZER is also available for larger samples. This unit is available with 5,000 or 10,000 Dalton regenerated cellulose membranes. The other basic features of this unit are the same as those of the smaller volume DispoDIALYZERS described earlier. The Fast Macro DispoDIALYZER includes shell, two rings, and two membranes of MWCO 5KDa or 10KDa.

Applications

- Exchange of buffers
- Removal of detergents
- Concentration of samples
- HPLC, HPCE
- Purification of proteins, DNA, and RNA
- Removal of excess radiolabel or PCR-primers
- GC, GC-MS, NMR

Fast Macro DispoDIALYZERS

Membrane	MWCO (Daltons)	MWCO (Daltons)
Qty.	5,000	10,000
25	SP-740803	SP-740802
50	SP-740804	SP-740800
100	SP-740805	SP-740801

Concentrator

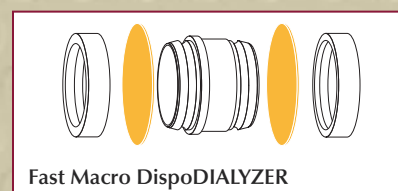
Sample concentration is easy with the Concentrator. Simply place any DIALYZER, complete with membrane, into the Concentrator. The liquid is evaporated through the membrane and removed by the Concentrator. When concentration is complete simply puncture the membrane and remove your sample. This technique is superior to other concentration methods, such as centrifugation, in which the sample may stick to the membrane surface or burst through the membrane.

Cat. #	Description
SP-741112	Concentrator

Membrane Minder

The Membrane Minder is an ingenious device designed for the safe and easy movement and manipulation of delicate membranes. The Membrane Minder is also ideal for use with filters, gel pieces, small tissue samples and other small parts. The Membrane Minder utilizes a vacuum to gently manipulate small objects at the push of a button. A range of suction cups and vacuum needles are supplied with the Membrane Minder to ensure the right tool is available, whatever the application.

Cat. #	Description
SP-740109	Membrane Minder



Advantages

- Macro-volume dialysis
- Economical
- Easy to use
- Leakproof
- Low protein binding
- High sample recovery
- Rapid dialysis/purification



96-Well DispoDIALYZER™ (Single Use)

Samples from 25 µl to 300 µl



The 96-Well DispoDIALYZER is a novel product for the simultaneous preparation of 96 samples. Each well in this system has a separate membrane, thus eliminating the possibility of sample contamination and leakage. The 96-Well DispoDIALYZER provides very high reproducibility among different wells and sample recovery is excellent. Wells are sealed with 8-cap strips (Included in each package are two plates and twenty-four 8-cap strips).

Advantages

- High recovery (> 95%)
- 96-well high-throughput format
- Individual membranes means no cross-contamination between wells
- High well to well reproducibility
- Range of possible sample volumes: 25 µl to 300 µl
- Range of membrane Molecule Weight Cut-Off's (MWCO's) available: 1K, 2K, 5K, 10K, and 25K Daltons
- High quality regenerated cellulose membranes
- Membranes are free from sulphur and heavy metal contamination

Applications

- Salt removal
- Buffer exchange
- Parallel sample prep after fraction collection
- Oligonucleotide purification
- Detergent removal
- HPLC
- HPLC-MS

How to Use 96-Well DispoDIALYZER™

The 96-Well DispoDIALYZER

Step 1
Place the sample into the wells of the 96-Well DispoDIALYZER and assemble strip caps

Step 2
Float the entire plate in dialysis buffer

Done!
Retrieve the purified samples for downstream applications

KEY	
	Desired Component
	Contaminants
	Dialysis Buffer
	Membrane

96-Well DispoDIALYZERS

Regenerated Cellulose Membrane Cat. #	MWCO (Daltons)
SP-740900	1,000
SP-740901	2,000
SP-740902	5,000
SP-740903	10,000
SP-740904	25,000

Introduction to Equilibrium Dialysis

Equilibrium dialysis is a specific application of dialysis that is important for the study of the binding of small molecules and ions by proteins. It is one of several methods available for this purpose, and its attractive feature continues to be its physical simplicity. Another attractive feature of equilibrium dialysis is the ability to perform interaction studies without the use of fluorescent or radiolabeled tags.

Generally, the objective of an equilibrium dialysis experiment is to measure the amount of a ligand bound to a macromolecule. This is typically done through an indirect process because in any mixture of the ligand and macromolecule, it is difficult to distinguish between the bound and free ligand. If, however, the free ligand can be dialyzed through a membrane, until its concentration across the membrane is at equilibrium, the free ligand concentration can be measured easily. Data obtained under different experimental conditions then provides information on various binding parameters of the compounds such as the binding constants and the number of binding sites or binding capacity.

Equilibrium DIALYZERS are offered in five different types. These products can meet virtually all of your bind-interaction application requirements:

Multi-Equilibrium DIALYZER™ - Reusable

For simultaneous and highly reproducible equilibrium dialysis of up to 20 samples with volumes from 0.2 to 5 ml, see page 113.

Fast Micro-Equilibrium DIALYZER™ - Reusable

The reusable Fast Micro-Equilibrium DIALYZER is suitable for 25 µl to 1500 µl samples for quicker equilibration times using membranes with larger surface areas, see page 114.

DispoEquilibrium DIALYZER™ - Single Use

A disposable version of the Micro-Equilibrium DIALYZER suitable for samples from 25 to 75 µl, see page 116.

96-Well Equilibrium DIALYZER™ - Single Use

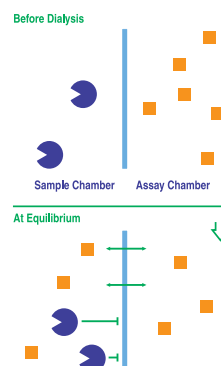
A 96-well disposable equilibrium DIALYZER for high throughput interaction studies. For samples up to 50 µl to 300 µl, see page 117.

Applications

- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions
- Serum protein binding

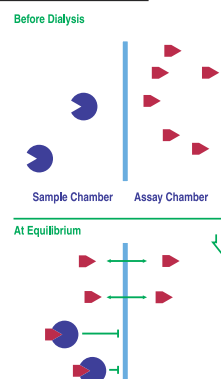
How Does Equilibrium Dialysis Work?

Non-Binding Ligand



If the ligand and protein do not bind to each other the ligand is free to cross the membrane. At equilibrium, the concentration of the ligand in the assay chamber will be exactly half that initially placed in the sample chamber.

Binding Ligand


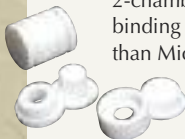




If the ligand and protein form a complex, the bound ligand will be unable to diffuse across the membrane and will remain in the sample chamber. The concentration of the ligand will still be equivalent on either side of the membrane upon reaching equilibrium. In this case, however, the ligand concentration in the assay chamber is reduced by the total amount of ligand bound to the protein divided by two.



Guide to Equilibrium Dialysis Products

PREPARATION PRODUCTS for binding studies, protein-protein interactions, and protein-drug binding assays

	Sample Volumes (µl)		Number of Membranes	Stirring Device	Materials	Membranes MWCO (Da)	Specials Accepted	Ordering Information
	min	max						
REUSABLE EQUILIBRIUM DIALYSIS PRODUCTS								
 <p>Multi-Equilibrium DIALYZER™ Up to 20 parallel equilibrium assays</p>	188	250	1/Chamber	Built-in	PTFE chamber Delrin® plugs	Regenerated Cellulose 5,000 or 10,000	Yes	Includes Drive Unit, 1 pkg of 200 membranes (10,000 MWCO), 20 emptying stoppers, 4 carriers, 120 plugs, 24 spacers, 1 filling clamp and stand; 20 cells; (Tank - SP-741919 for temperature control available as an option).
	750	1,000						
	1,500	2,000						
	3,750	5,000						
 <p>Fast Micro Equilibrium DIALYZER™ A reusable equilibrium dialysis 2-chamber system for protein binding studies (2-5 times faster than Micro-Equilibrium DIALYZER)</p>	19	25	1	No	PTFE Body	Regenerated Cellulose 1,000 or 5,000, Cellulose Acetate 100 to 300,000 Polycarbonate 0.01 µm to 0.60 µm	Yes	Includes 1 chamber, 1 link and 2 solid caps per package.
38	50							
75	100							
188	250							
375	500							
EQUILIBRIUM DIALYSIS PRODUCTS								
 <p>Dispo Equilibrium DIALYZER™ Single sample, single use product for interaction studies</p>	25	75	1		PP Body PE Caps	5,000 or 10,000	Yes	Includes 2 chambers with membrane, 2 caps (one black, one white), 2 sample tubes (0.65 ml) and 2 special pipette tips. Other membrane sizes available.
	Page 116							
 <p>96-Well Equilibrium DIALYZER™ Single use product for 96 simultaneous assays</p>	50	300	1/Chamber	Rotator	PP Body PE Caps	5,000 or 10,000	Yes	Includes plates w/ membranes, 12 top strips and 12 bottom strips.
	Page 117							

PTFE=Teflon®; PP=Polypropylene; PE= Polyethylene; PC=Polycarbonate
MWCO=Molecular Weight Cut-Off

Multi-Equilibrium DIALYZER™ (Reusable)

Samples from 0.25 ml to 5 ml

The Multi-Equilibrium DIALYZER provides highly standardized equilibrium dialysis conditions for up to 20 parallel assays. The instrument offers outstanding uniformity of: membrane area, sample volume, degree of agitation.

The advantages of this system are that up to 20 cells can be used simultaneously for rapid dialysis under standardized conditions. Experiments conducted using the Multi-Equilibrium DIALYZER are extremely reproducible and leakproof and can be performed at a constant temperature.

The DIALYZER cells are made of Teflon®, an extremely inert material, and will not interfere with the samples. Multiple cell systems are available (5, 10, 15, 20 cells) at various cell volumes (0.2, 1.0, 2.0 and 5.0 ml). The unit can be sterilized by autoclaving and the cells can be filled easily with a filling clamp.



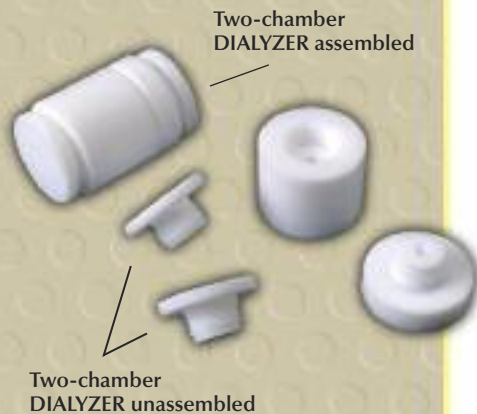
Cat. #	Description
Multi-Equilibrium DIALYZER Systems	
SP-741800	Complete Multi-Equilibrium DIALYZER System <ul style="list-style-type: none"> • Ready-to-Use Macro Teflon Dialysis cells (1 ml) and plugs, pkg/20 • Variable Speed Drive Unit (12" x 12" x 7.5") for 20 Cells, and 110V Power Supply, pkg/1 • Stand, pkg/1 • Filling Clamp, pkg/1 • Carriers for 5 Teflon Dialysis Cells, pkg/4 • Emptying Stoppers, pkg/20 • Macro Spacers, pkg/24 • Dialysis Membranes, MWCO 10,000 Daltons, pkg/200 • Power Supply Adapter (110 V)
Membranes for Multi-Equilibrium DIALYZER	
SP-742100	MWCO 5,000 Daltons, pkg/200
SP-742102	MWCO 10,000 Daltons, pkg/200
Multi-Equilibrium DIALYZER Individual Components	
SP-741904	Macro Teflon Dialysis Cells (2 ml), pkg/5
SP-741905	Macro Teflon Dialysis Cells (5 ml), pkg/5
SP-741906	Macro Teflon Dialysis Cells, (1 ml), pkg/5
SP-741907	Micro Teflon Dialysis Cells (0.2 ml), pkg/5
SP-741909	Macro Spacer, pkg/1
SP-741911	Macro Cell Carrier, pkg/1
SP-741908	Micro Spacer, pkg/1
SP-741910	Micro Cell Carrier, pkg/1
SP-741912	Power Supply Adapter (110 V)
SP-741912A	Power Supply Adapter (220 V)
SP-741913	Filling Clamp, pkg/1
SP-741914	Black Plugs, pkg/32
SP-741901	Emptying Stoppers, pkg/5
SP-741919	Tank with Fittings (14.5 x 9.5 x 8.25 in), pkg/1

Advantages

- Easy to use
- Leakproof
- Reproducible
- Fast dialysis times
- Available for a range of sample sizes
- Up to 20 parallel, simultaneous assays
- Autoclavable
- Low protein binding
- High sample recovery
- Made of Teflon—totally inert

Applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions



Fast Micro-Equilibrium DIALYZER™ (Reusable)

High membrane area/sample volume ratio and faster equilibrium times

The Fast Micro-Equilibrium DIALYZER uses membranes and chambers with high surface area to sample volume ratios. Two chambers of equivalent volume are joined together with a membrane between them, as shown. When dialysis is complete the chambers can be opened at each end to extract the sample for analysis. The entire system can also be placed in a thermostat for temperature-controlled dialysis.

The Fast Micro-Equilibrium DIALYZER can also be used with three chambers instead of two by adding an additional link chamber. One of the main advantages of using this configuration is that the results can be obtained without waiting for equilibrium to be reached, thus reducing the assay time. This is achieved by placing the ligand/smaller compound in the central chamber; the protein/larger component in one of the terminal chambers and control buffer, containing neither component, in the remaining chamber. Comparing the concentration of the ligand/smaller compound in the two terminal chambers will then yield information on the protein larger characteristics of the assay components.

Applications

- Protein binding assays
- Protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions

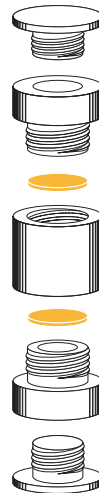
Advantages

- Easy to use
- Leakproof
- Reusable
- Autoclavable
- Made of Teflon® – totally inert
- High sample recovery
- Low protein binding
- Available for a range of sample sizes
- Membranes available with Molecular Weight Cut-Off's (MWCO's) to suit almost any application

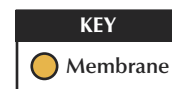
2-Chamber System



3-Chamber System



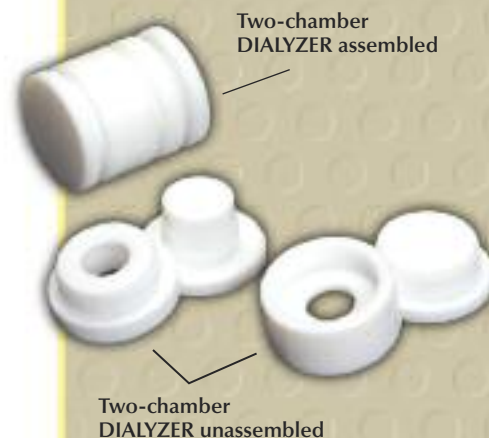
The binding and ligand elements are placed in one chamber (the sample chamber) while the other chamber (the assay chamber) contains an equivalent volume of the same buffer without either element. When equilibrium has been reached the concentration of the ligand in the assay chamber can be measured and analyzed to obtain the results of the assay. When the ligand is free in solution it can readily pass through the membrane, but when complexed, it is too large and is retained by the membrane.



Fast Micro-Equilibrium DIALYZER™ (continued)

Each DIALYZER includes two chambers (body plus link) and two solid caps

The Fast Micro-Equilibrium DIALYZER uses membranes and chambers with high surface area to sample volume ratios. Each DIALYZER includes two chambers (body plus link) and two solid caps.



Fast Micro-Equilibrium DIALYZERS

Chamber Volume (µl)	Qty. of 1	Qty. of 5
25	SP-7416251D	SP-7416255D
50	SP-7416501D	SP-7416505D
100	SP-74161001D	SP-74161005D
250	SP-74162501D	SP-74162505D
500	SP-74165001D	SP-74165005D
1000	SP-741610001D	SP-741610005D
1500	SP-741615001D	SP-741615005D

Link-Chambers

Chamber Volume (µl)	Qty. of 1	Qty. of 5
25	SP-7416251L	SP-7416255L
50	SP-7416501L	SP-7416505L
100	SP-74161001L	SP-74161005L
250	SP-74162501L	SP-74162505L
500	SP-74165001L	SP-74165005L
1000	SP-741610001L	SP-741610005L
1500	SP-741615001L	SP-741615005L

Fast Micro-Equilibrium DIALYZER Membranes (pack of 25)

MEMBRANES:	18 mm	24 mm
A. Regenerated Cellulose MEMBRANES		
1k Da MWCO	SP-7425-RC1K	SP-7420-RC1K
2k Da MWCO	SP-7425-RC2K	SP-7420-RC2K
5k Da MWCO	SP-7425-RC5K	SP-7420-RC5K
10k Da MWCO	SP-7425-RC10K	SP-7420-RC10K
25k Da MWCO	SP-7425-RC25K	SP-7420-RC25K
50k Da MWCO	SP-7425-RC50K	SP-7420-RC50K
B. Cellulose Acetate MEMBRANES		
100 Da MWCO	SP-7425-CA100	SP-7420-CA100
500 Da MWCO	SP-7425-CA500	SP-7420-CA500
1k Da MWCO	SP-7425-CA1K	SP-7420-CA1K
2k Da MWCO	SP-7425-CA2K	SP-7420-CA2K
5k Da MWCO	SP-7425-CA5K	SP-7420-CA5K
10k Da MWCO	SP-7425-CA10K	SP-7420-CA10K
25k Da MWCO	SP-7425-CA25K	SP-7420-CA25K
50k Da MWCO	SP-7425-CA50K	SP-7420-CA50K
100k Da MWCO	SP-7425-CA100K	SP-7420-CA100K
300k Da MWCO	SP-7425-CA300K	SP-7420-CA300K
C. Polycarbonate MEMBRANES		
0.01 µm Pore Size	SP-7425-PC01	SP-7420-PC01
0.05 µm Pore Size	SP-7425-PC05	SP-7420-PC05
0.10 µm Pore Size	SP-7425-PC10	SP-7420-PC10
0.60 µm Pore Size	SP-7425-PC60	SP-7420-PC60

MWCO=Molecular Weight Cut-Off

DispoEquilibrium DIALYZER™ (Single Use)

Samples from 25 µl to 75 µl



The DispoEquilibrium DIALYZER is a single use product for interaction studies and is currently the only such device on the market. The DispoEquilibrium DIALYZER is leakproof and provides high sample recovery (almost 100 percent). This system is pre-installed with various Molecular Weight Cut-Off (MWCO) membranes and designed for one-time use with samples such as radiolabeled compounds, avoiding the hassle associated with cleaning the DIALYZER after use.

Each chamber can be used for sample sizes of 25 to 75 µl. The DispoEquilibrium DIALYZER utilizes high-quality regenerated cellulose membranes with MWCO's of 1,000 to 50,000 Daltons and cellulose acetate membranes with MWCO's of 100 to 100,000 Daltons. Sample recovery is very easy through centrifugation or via removal with micropipettes. Includes two caps (one black, one white), two 0.65 ml sample tubes per chamber, and two pipette tips for delivery/recovery.

Applications

- Protein and protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions

DispoEquilibrium DIALYZER

With Membrane

MWCO (Daltons)	Qty of 25	Qty of 50	Qty of 100
Regenerated Cellulose			
1,000	SP-742206	SP-742207	SP-742208
5,000	SP-742204	SP-742200	SP-742201
10,000	SP-742205	SP-742202	SP-742203
25,000	-	-	SP-742218
50,000	-	-	SP-742217
Cellulose Acetate			
100	SP-742209	-	-
500	SP-742212	-	-
25,000	-	-	SP-742210
50,000	-	-	SP-742211
100,000	-	-	SP-742219

Cat. #	Description
SP-742222	Extra Loading Pipette Tips, pkg/100

Advantages

Easy to use and disposable

Small sample volumes: 25 µl to 75 µl each chamber

Rapid dialysis due to ultra-thin membrane

High-quality regenerated cellulose membranes with MWCOs of 5,000 and 10,000 Daltons

Leakproof

96-Well Equilibrium DIALYZER™ (Single Use) and Accessories

Samples from 50 µl to 250 µl

The single use, 96-Well Equilibrium DIALYZER is a unique product for the simultaneous assay of 96 samples. Each well in this system has a separate membrane and thus eliminates the possibility of sample cross-contamination. Reproducibility is very high across the different wells of the Equilibrium DIALYZER and sample recovery is excellent. The 96-wells are sealed with 8-cap strips or a single-well, pierceable, self-sealing plate seal mat. Thus all 96 wells can be used with samples or some can be capped and used for future experiments. The 96-Well Equilibrium DIALYZER utilizes high-quality regenerated cellulose membranes available with MWCO of 5,000 or 10,000 Daltons. Rotator is required. Includes twenty-four 8-cap strips.

Single and Dual Plate Rotators

A Single or Dual Plate Rotator with variable rotation rates is available for use with the 96-Well Equilibrium DIALYZER. The rotator speeds up the equilibrium dialysis process by keeping the sample in constant motion thereby ensuring higher reproducibility of results.

8-Plate Rotator Incubators

The 8-Plate Rotator Incubator is used for temperature controlled studies in the 96-Well Equilibrium DIALYZER. The Rotator Incubator consists of a hybridization oven and a special carousel to hold up to 8 plates simultaneously.

Applications

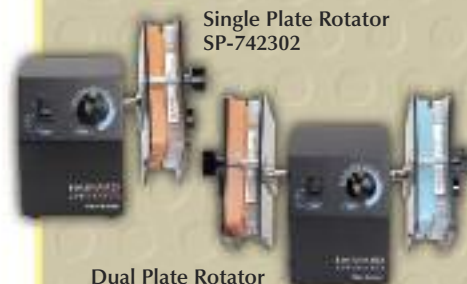
- Protein and protein-drug binding assays
- Receptor binding assays
- Ligand binding assays
- Protein-protein interactions
- Protein-DNA interactions

Cat. #	Description
SP-742330	96-Well Equilibrium Dialysis Plate, Membrane MWCO 5,000 Daltons, pkg/1
SP-742331	96-Well Equilibrium Dialysis Plate, Membrane MWCO 10,000 Daltons, pkg/1
SP-742323	8-Cap Strips, pkg/12
SP-742322	Plate Seal Mat with Individual Well Inserts, Pierceable and Self-Sealable, pkg/2
SP-742302	Single Plate Rotator, pkg/1
SP-742334	Dual Plate Rotator, pkg/1
SP-742335	8 Plate Rotator Incubator, 110 V, pkg/1
SP-742336	8 Plate Rotator Incubator, 220 V, pkg/1
SP-742337	Carousel, Only for 8-Plate Rotator

96-Well Equilibrium
DIALYZER Plate
SP-742330
SP-742331



Single Plate Rotator
SP-742302



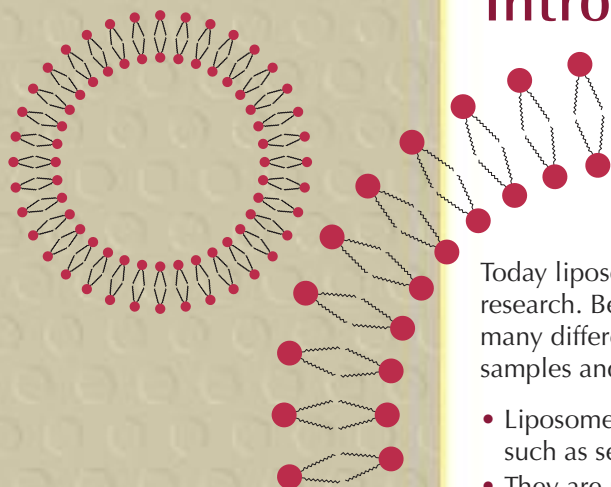
Dual Plate Rotator
SP-742334



8-Plate Rotator Incubator
SP-742335

Advantages

- 96-well SBS format
- Individual membrane for each well
- Small sample volumes:
50 µl to 250 µl
- Pre-assembled with regenerated cellulose membranes
- Membranes are free of sulfur and heavy metal contamination
- High well-to-well reproducibility
- Excellent sample recovery (>95%)



Introduction to Liposomes

Today liposomes are an important part of biological, pharmaceutical, and medical research. Because liposomes are the most effective carriers for the introduction of many different types of agents into cells, the applications of liposome-based samples and products are extremely wide. A few examples are presented below:

- Liposomes are used for studying protein-liposome interactions with compounds such as serum lipoproteins, lectins, toxins, and clotting components.
- They are used for the entrapment of anti-tumor agents, anti-microbial drugs, anti-inflammatory and immunomodulatory agents, and CNS-active drugs. The therapeutic applications presently include cancer therapy, arthritis, metal chelation therapy, enzyme replacement therapy, hemophilia (factor VIII), myocardial infarction, and as radiopharmaceutical markers.
- Liposomes are used for studying in vitro and in vivo liposome-cell interactions.
- They are used for reconstitution experiments especially for ion transport systems.
- In molecular biology, liposomes are used for the mediated delivery of macromolecules into eukaryotic cells.
- In immunology, antigens encapsulated in liposomes are used to generate antibodies, to mediate active and passive immunization and for many other applications.
- The use of liposomes in gene-based technology and in broader biotechnology and pharmaceutical applications is increasing day by day.

The Liposomat requires no prior experience in liposome preparation in order to achieve fast, easy and reproducible results.

Using these systems, liposomes can be prepared with virtually any lipid, depending on the specifications of the experiment and the types of biomolecules that need to be encapsulated. Liposome preparation with these instruments is highly reproducible and compared to other liposome preparation methods on the market, these liposomes are very stable. Under sterile conditions, liposomes prepared using the Liposomat can be stored for one year or longer.

Liposome Specifications

With a few exceptions, liposomes are composed of natural or synthetic phospholipids, mostly lecithins. Hence, they can be metabolized in vivo and are generally non-toxic and non-antigenic.

Agents can be entrapped in liposomes without the formation of chemical bonds and sensitive molecules can be protected within them. Because of their restricted permeability, liposomal preparations offer a controllable, time-dependent release system.

The entrapment of a drug within liposomes changes its pharmaco-kinetics and can result in a better therapeutic index and enhanced cellular uptake. Since different agents need different lipid agents to create an optimal coat, in vivo experiments following liposome preparation are often the optimal means of determining which lipid represents the best compromise between permeability and in vivo stability for any given agent.

Advantages

Fast, easy to use

Unilamellar

Reproducible

Uniformly-sized (25 to 800 nm)

Very high encapsulation

Low lipid loss (1 to 2%)

Stable liposomes
(one year or longer)

Applications

Drug delivery

DNA delivery and gene therapy

Cell-cell interactions

Cosmetics

Diagnostics

Liposome Preparation

Stability of Liposomes

No general rule for maintaining liposome stability exists since it depends on several parameters, such as the type of lipid used, the properties of the drug/agent in the liposomes, their size, lamellarity, and homogeneity, the electrolyte content and pH of the medium used, and also on the specifications of the desired application.

Size Control

The size of liposomes can be adjusted experimentally by varying several parameters: the dialysis rate, type of detergent, type of lipid(s), lipid/detergent molar ratio, lipid concentration, electrolyte content and pH.

Detergents

The detergents used are gentle in their action and are not expected to hydrolyze or peroxidize liposome components. The most frequently used detergents are sodium cholate, n-octyl- β -D-glucopyranoside and n-octyl-tetraoxyethylene (POE4). Other detergents are sodium salts of glycocholic acid, deoxycholic acid, taurocholic acid, chenocholic acid, n-hexyl- and n-heptyl-glucopyranoside and lauryldimethylamine oxide.

Unilamellar Liposomes of Various Lipid Mixtures Prepared by Controlled Detergent Removal Using the Liposomat (total lipid concentration varied between 10 and 13 mg/ml)

Lipid Composition	Molar Ratio	Detergent	Molar Lipid/Detergent Ratio	Liposome Diameter (nm)
EYL	-	cholate	0.60	55 \pm 3
EYL	-	cholate	0.76	68 \pm 3
EYL/chol	8:2	cholate	1.15	81 \pm 4
EYL/chol	7:3	cholate	0.52	61 \pm 4
EYL/PE	3:7	cholate	0.22	36 \pm 2
EYL/PI	8:2	cholate	0.60	59 \pm 2
EYL/PA	10:2	cholate	0.62	42 \pm 2
EYL/SA	10:2	cholate	0.62	49 \pm 2
EYL/cerebroside	-	cholate	0.60	81 \pm 4
DPPC/DMPA	9:1	cholate	0.20	97 \pm 4
DSPC/DCP	9:1	cholate	0.20	74 \pm 4
DPPC/DMPA	9:1	cholate	0.62	90 \pm 4
EYL	-	n-octyl-glucoside	0.20	176 \pm 3
EYL	-	n-octyl-glucoside/n-heptyl glucoside	0.80/0.17	117 \pm 3
EYL	-	n-heptyl glucoside	0.13	79 \pm 2
EYL	-	n-hexyl glucoside	0.05	59 \pm 2
DSPC/chol/DCP	7:2:1	n-octyl-glucoside	0.20	79 \pm 4
Hydrogenated soya Lecithin/DMPA	9:1	n-octyl-glucoside	0.20	130 \pm 5

EYL = egg yolk lecithin

chol = cholesterol

PE = phosphatidylethanolamine

PI = phosphatidylinositol

PA = phosphatidic acid

SA = stearylamine

DMPA = dimyristoyl phosphatidic acid

DPPC = dipalmitoyl phosphatidylcholine

DSPC = distearoyl phosphatidylcholine

DCP = dicetylphosphate

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Toll Free: (800) 227-4750 • Tel: +1 (508) 893-8999
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Liposome Preparation (continued)

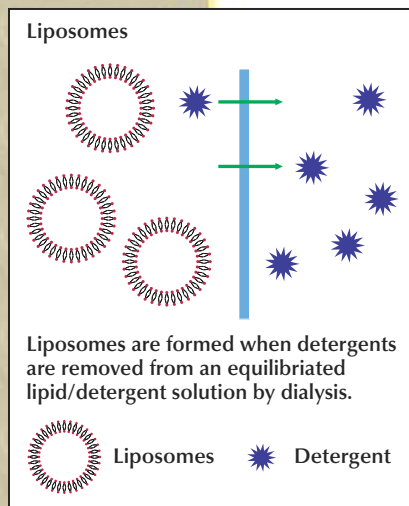


Liposomat
SP-746400

Liposomat

- The Liposomat is ideal for the preparation of liposomes of volumes from 3 ml to 50 ml or higher.
- The system has two serpentine channels superimposed on each other and separated by a membrane.
- Each channel has a volume of 3 ml and a length of 3 meters. The mixed lipid/detergent micelles run through one of the channels while the buffer flows through the other channel.
- Due to controlled dialysis and the high surface area in the system, liposomes can be formed within 30 minutes.
- The serpentine chambers can also be immersed in a water bath for liposome production at constant temperature.

Cat. #	Description
Liposomat SP-746400	Liposomat Device for Preparation of Liposomes (3 ml to 50 ml) with Dual Pump, Flow-Through Dialysis Chamber and 100 Membranes (MWCO 5,000 Daltons), qty/1
SP-746401	Membranes for Liposomat (MWCO 5,000 Daltons), qty/100
SP-746402	Long Tubing for Use of Liposomat with Thermostat, qty/1





QUANTITATION/ DETECTION



DQ300 Fluorometer

DNA, RNA, and Protein Quantitation

The DQ300 Fluorometer is a compact, dual channel unit designed to produce quick, easy, and accurate fluorescence measurements.

Technical Specifications

Excitation Range:

- UV Channel 365 – 395 nm
- Blue Light Channel 465 – 485 nm

Emission Range:

- UV Channel 440 – 470 nm
- Blue Light Channel 515 – 575 nm

- Sensitivity 1 ng/ml DNA using PicoGreen®
- 1 ng/ml RNA using RiboGreen®
- 10 ng/ml DNA using Hoechst 33258
- 100 ng/ml protein using NanoOrange™

Unit Dimensions (w x h x d) 14 x 6.9 x 18.4 cm

Safety Certifications EN61010-1, UL61010-1, CSA22.2 61010-1, CE

Advantages

Choose either ultraviolet or blue excitation wavelengths

Detects DNA accurately in the presence of interfering RNA or protein

Assay low volume samples with the optional Minicell adapter

Operates in two modes: Discrete (one time 5-second average) or Continuous (user defined serial measurements)

Logs up to 1000 data points in internal memory

RS232 cable connects to the serial port of a PC and outputs results using spreadsheet supplied interface software

Ordering Information

Cat. #	Description
DQ300	Fluorometer

Includes:

- Fluorometer
- Power Supply Kit
- Spreadsheet Interface Software CD-ROM
- Methacrylate Cuvettes–4 pcs
- RS232 Serial Cable

Ordering Information

Cat. #	Description
DQ310	Minicell Adapter Kit (for 50–250 µl samples)

Includes:

- Minicell Adapter
- Borosilicate Glass Tube Cuvettes–400 pcs

Accessories and Replacement Parts

Cat. #	Description
DQ305	Standard Polystyrene Cuvettes–100 pcs (10 x 10 mm square, 3.5 ml)
DQ306	Standard Methacrylate Cuvettes–100 pcs (10 x 10 mm square, 3.5 ml)
DQ315	Minicell Borosilicate Glass Tube Cuvettes–400 pcs (cylindrical, 250 µl)
DQ201	Hoechst 33258 Dye–100 mg
DQ302	DQ Fluorometry Standard–250 µg, 1 mg/ml

Vision Life Science Spectrophotometer

The Vision diode array spectrophotometer offers predefined methodologies for nucleic acid quantification (DNA, RNA, and oligonucleotides), protein assays (BCA, Biuret, Bradford, and Lowry) and for cell culture density measurements. The visualization of the nucleic acid scan is particularly useful, especially for RNA samples where impurities may be present in the 230 nm region, yet not have an adverse effect on the A260/A280 ratio.

The combination of the life science methods with the rapid scanning, kinetics, and concentration capabilities of the Vision make it a very useful addition to any molecular biology laboratory. In kinetics mode, the basic plot of absorbance against time may be supplemented with the result for $\delta A/\text{min}$ plus the correlation coefficient is also calculated for the duration of the assay. This slope may be multiplied automatically by a factor to convert it directly to rate of reaction.

Technical Specifications

Lamp Source	Xenon
Optical System	Dual Channel Monochromator
Wavelength Range	190-1100 nm
Wavelength Accuracy	± 2 nm
Bandwidth	5 nm
Absorbance Range	-0.3 to 2.5 A
Photometric Reproducibility	± 0.002 A at 0-0.5 A, 546 nm
Photometric Accuracy	± 0.003 A at 0-0.5 A, 546 nm
Stray Light	0.5%T at 220 and 340 nm
Outputs	USB (Standard), Bluetooth (Option)
Dimensions (w x h x d)	26 x 10 x 39 cm
Weight	6 kg
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
SP-2001	UV/Visible Life Science Spectrophotometer
SP-2001PT	UV/Visible Life Science Spectrophotometer w/Printer
SP-2001BL	UV/Visible Life Science Spectrophotometer w/Bluetooth
SP-2001SD	UV/Visible Life Science Spectrophotometer w/SD card

Accessories and Replacement Parts

Cat. #	Description	Material	Pathlength	Volume	Qty
SP-200453	Disposable	Methacrylate	10 mm	2.5 ml	100
SP-208411	Disposable	Polystyrene	10 mm	2.5 ml	100
SP-300077	Disposable	UV-plastic	10 mm	800 μl	100
SP-300081	Disposable	UV-plastic	10 mm	70 μl	100
SP-200258	Standard Reusable w/ lid	UV grade silica	10 mm	2 ml	1
SP-200387	Standard Reusable w/ lid	Optical glass	10 mm	2 ml	1
SP-200270	Standard Reusable w/ stopper	UV grade silica	10 mm	2 ml	1
SP-200398	Standard Reusable w/ stopper	Optical glass	10 mm	2 ml	1
SP-200281	Semi-micro with stopper and black walls	UV grade silica	10 mm	800 μl	1
SP-200277	Semi-micro with lid and black walls	UV grade silica	10 mm	800 μl	1
SP-200415	Semi-micro with lid and black walls	Optical glass	10 mm	800 μl	1
SP-200295	Micro cell with lid and black walls	UV grade silica	10 mm	400 μl	1
SP-200299	Micro cell with stopper and black walls	UV grade silica	10 mm	400 μl	1
SP-210369	Microvolume cell with black walls	UV grade silica	10 mm	70 μl	1
SP-210368	Ultra microvolume cell with black walls (includes micro sample viewer)	UV grade silica	5 mm	5-7 μl	1
SP-300083	Ultra microvolume cell with black walls 10 μL	UV grade silica	10 mm	10 μl	1



Advantages

Simple selection software—with stored methods for life science applications

Wavelength scanning, kinetics, and concentration functionality with full graphics display

Nucleic acid scans for purity checking

Integrated printer (option)

Wireless Bluetooth connectivity (option)

SD card (option)

Unique, integral cuvette tray for storage of expensive cells and support of valuable samples

Compatible with disposable low volume UV cuvettes

Stores up to 90 protocols

UV-20



UV-25

MacroVue™ UV-20 and UV-25 UV Transilluminators

Two models of the MacroVue UV Transilluminator are available—the UV-20 has an active area of 20 x 20 cm and the UV-25 has an active area of 21 x 26 cm.

Technical Specifications

Illuminated Area:

UV-20	20 x 20 cm
UV-25	21 x 26 cm

Lamps

UV-20	Five 8 W, 302 nm UV (included)
UV-25	Six 8 W, 302 nm UV (included)

Optional 8 W, 254 nm UV lamps available separately

UV Intensity (Approx):

UV-20	Selection Switch
High	9,000 $\mu\text{W}/\text{cm}^2$
Low	7,000 $\mu\text{W}/\text{cm}^2$
UV-25	Selection Dial
Range	0-9,000 $\mu\text{W}/\text{cm}^2$

Unit Dimensions (w x h x d):

UV-20	33.7 x 12.1 x 24.1 cm
UV-25	36.2 x 12.3 x 29.2 cm

Safety Certifications EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Advantages

Uniform illumination

Adjustable intensity operation for analytical or preparative applications

Shortwave UV lamps are available to change illumination from 302 nm to 254 nm

UV safety cover minimizes personal exposure

Ordering Information

Cat. #	Description
UV20-115V	MacroVue UV-20, 115 VAC
UV20-230V	MacroVue UV-20, 230 VAC
UV25-115V	MacroVue UV-25, 115 VAC
UV25-230V	MacroVue UV-25, 230 VAC

Each Model Includes:

- UV Transilluminator
- UV Lamps, 302 nm (installed)—5 lamps (UV-20) or 6 lamps (UV-25)
- Hinged Clear UV-Blocking Safety Cover

Accessories and Replacement Parts

Cat. #	Description
UVLM-8	UV Lamp, 8 W, 302 nm
UVLS-8	UV Lamp, 8 W, 254 nm
UV20RK-1	Hinged UV-Blocking Safety Cover for UV-20
UVT-WS	UV Transmitting Work Surface (24 x 36 cm)

MacroVue™ UVis-20 Combination UV + Visible Light Transilluminator



The MacroVue UVis-20 UV + Visible Light Transilluminator houses both 302 nm midrange UV and visible (white) light lamps. Each filter is 20 x 20 cm.

Technical Specifications

Illuminated Area Two 20 x 20 cm surfaces
 Ultraviolet Lamps:
 UV Five 8 W, 302 nm UV (included)
 White Light Two 8 W visible light (included)
 UV intensity (approx.) 8,000 $\mu\text{W}/\text{cm}^2$
 Unit Dimensions (w x h x d) 48.6 x 14.3 x 33.7 cm
 Safety Certifications EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
UVIS-20-115V	MacroVue UVis-20, 115 VAC
UVIS-20-230V	MacroVue UVis-20, 230 VAC

Each Model Includes:

- Combination UV + White Light Transilluminator
- UV Lamps, 302 nm–5 Lamps (installed)
- Cool White Lamps–2 Lamps (installed)
- Hinged Clear UV-Blocking Safety Cover

Accessories and Replacement Parts

Cat. #	Description
UVLM-8	UV Lamp, 8 W, 302 nm
UVLS-8	UV Lamp, 8 W, 254 nm
UVLW-8	Cool White Lamp, 8 W
UVIS20RK-1	Hinged UV-Blocking Safety Cover
UVT-WS	UV Transmitting Work Surface (24 x 36 cm)

Advantages

Versatile. Just push a button to change from one type of illumination to the other

Illuminates uniformly

Dual intensity UV lamps and long life filters accommodate analytical and preparative applications

Shortwave UV lamps are available to change illumination from 302 nm to 254 nm

UV safety cover minimizes personal exposure

TotalLab™ Analysis Software

Hoefler offers a choice of software solutions for the analysis of 1D gels and blots



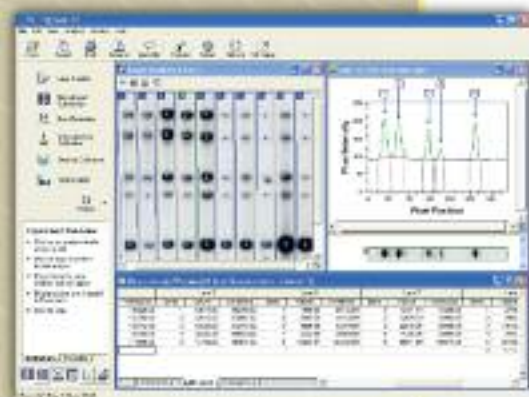
TL 100 Control Center

- TL 100 – basic entry level software for fast, consistent analysis
- TL 120 – for an in-depth and comprehensive automatic analysis of 1D gels and band pattern matching studies

Please select the software that best meets your needs by identifying your area of work below:

Molecular Weight Calibration

The TL 100 and TL 120 versions both enable precise molecular weight determination of band material from a variety of 1D gels. TL 120 contains tools which allow increased control over calibration for particularly distorted 1D gel images.



1D Gel Image Analyzed by TL 100

Quantitation and Normalization of Band Material

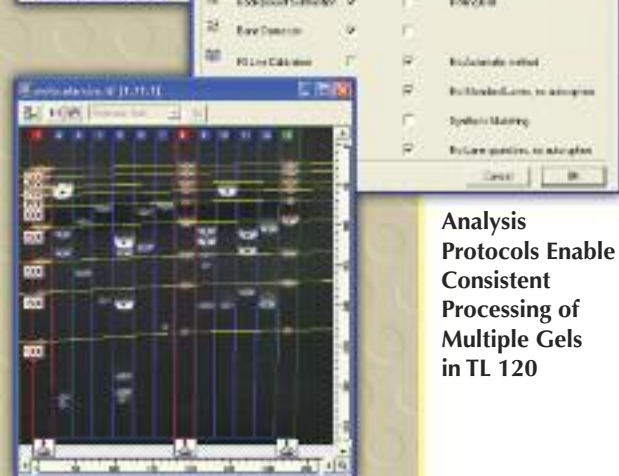
The TL 100 and TL 120 software solutions both contain a complete range of tools to quantify band material and for the calculation of normalized band volumes. For in-depth quantitative studies, the advanced features in TL 120 offer a higher degree of flexibility and facilitate accurate quantitation of bands on more problematic 1D gel images.

Lane Relationship Studies

The TL 120 software has a powerful band matching facility which is flexible yet easy to use. There are tools available to visualize the results of matching and identify similarities within a single gel. When you have performed intra gel matching, lanes can be classified and identified.



RF Calibration Accounts for Distortions Across the Gel in TL 120



Analysis Protocols Enable Consistent Processing of Multiple Gels in TL 120

Summary of Features in the TotalLab Range

	TL 100	TL 120
Automatic detection of lanes and bands	•	•
Automatic background subtraction	•	•
Lane templates	•	•
Image manipulation tools	•	•
Molecular weight calibration	•	•
Quantity calibration and normalization	•	•
Profile deconvolution	•	•
Reports	•	•
Array, dot/slot blot analysis	•	•
Colony counting	•	•
A toolbox for general image analysis	•	•
Analysis protocols for batch processing		•
RF calibration		•
Band picking		•
Band pattern matching – single gel		•
Dendrogram – single gel		•

Ordering Information

Cat. #	Description
ULT162	TotalLab TL 100 Analysis Software (Single user license)
ULT163	TotalLab TL 120 Analysis Software (Single user license)

2DView and 2DView lite 2-Dimensional Protein Electrophoresis Analysis Software

2DView image analysis software has been developed to simplify and increase efficiency in analyzing 2D images—providing the tools needed to investigate 2D data in detail.

Image Quality Control—Automatic image quality control assessment and feedback at the start of the workflow highlights many potential issues with the image quality before you proceed to the next step.

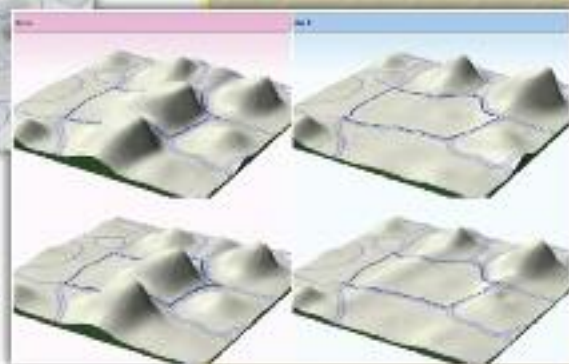
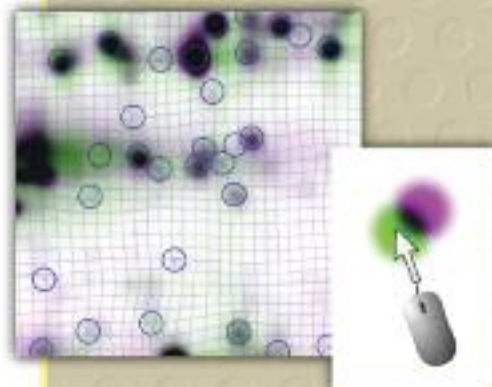
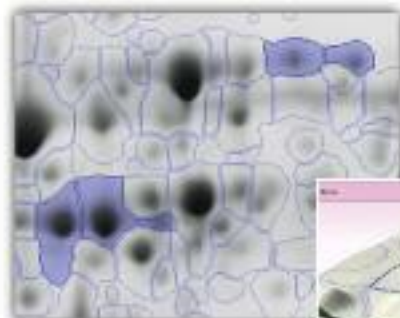
Image Alignment—Advanced image alignment that guides you through the process of adding vector landmarks in a logical manner across your gel image. Automatic alignment process uses the landmarks you set up to fully align all experimental images.

Pre-filter—Allows you to remove artifacts from your analysis, based on normalized volume or spot area, and save you time at the review stage. You can also select areas of the gel to filter out, for example a damaged area, noisy area, spots on the edge of the gel or spots on the scanner bed.

Group Setup—As well as setting up your overall group, (such as control vs. treated) you can also group images based on other characteristics (such as male/female, day of sample collection, etc). This means you can measure differential expression patterns between any groups at the review stage. Any spot IDs remain the same across different groups so you get multiple views of the same analysis results.

View Results and Identify Spots—each spot can be assessed using the 2D/3D montage views and expression profiles. Spots can be ranked for review by fold change and ANOVA (p-value). Spot editing is greatly simplified as a single edit on one image is automatically applied to all images across the entire experiment. Interesting spots are highlighted on the image view as a guide for manual picking.

Report—A simple, printable report provides an overview of the spots which warrant further investigation and were selected for picking



Features and Benefits

Simplicity—Easy to follow workflow guides users through each analysis step allowing effortless identification of significantly changing proteins

Speed—Typical analysis times of 10 minutes per image with a fast, streamlined workflow. The time you save compared to traditional analysis approaches allows you to focus on further research or run more gels for more reliable conclusions.

Objectivity—Easy-to-use guided workflow promotes a consistent analysis approach enabling new and inexperienced users to obtain objective and reproducible results for their 2D gels.

Ordering Information

Cat #	Description
E2D-1000	2DView Full 2-Dimensional Protein Electrophoresis Analysis software (Used for single stain analysis with unlimited gels within an experiment)
E2D-1001	2DView lite 2-Dimensional Protein Electrophoresis Analysis software (Used for single stain analysis with 6 gels within an experiment)
E2D-1002	2DView upgrade module (Upgrade 2DView lite to 2DView Full 2-Dimensional Protein Electrophoresis Analysis software)
E2D-1003	2DView Full DIGE Expansion module Expansion module for the 2DView Full 2-Dimensional Protein Electrophoresis Analysis software (Enables the analysis of DIGE experiments with unlimited gels as well as single stain)



AUXILIARY ELECTROPHORESIS PRODUCTS



AUXILIARY ELECTROPHORESIS PRODUCTS



PCR Workstation

The PCR Workstation provides effective decontamination of solutions, reagents and equipment before carrying out sensitive PCR reactions, particularly when amplifying DNA fragments which are either in limited supply or low copy number. Four timer-controlled 15 W UV bulbs enable the user to control the exposure time and dose of high energy UV irradiation required to denature nucleic acids preventing background contamination. Safety interlocks switch-off the UV bulbs automatically when the cabinet side doors are opened, preventing accidental exposure to the UV source. The cabinets construction from UV impermeable 10 mm acrylic also serves as an effective barrier against some radioactive isotopes, allowing the user to work in increased safety with β -emitters such as ^{32}P and ^{35}S . A single white light bulb illuminates the work area when the cabinet is in use.

Features and Benefits

Four 15-Watt UV bulbs—generate sufficient high energy UV irradiation to denature nucleic acids in as little as 30 minutes, minimizing unwanted background contamination in PCR reactions

Optimal reflectors—provide uniform irradiation of the whole work surface area within the cabinet

Timer-control—affords the user total control over exposure time and UV-dosage

Timer override switch—for constant UV irradiation

Safety interlocks—immediately cut out the UV source when the side doors are opened, preventing accidental UV exposure

10 mm optical acrylic—acts as a safety barrier to UV and β radiation, allowing the cabinet to be used as a radiation work station if preferred

White light—illuminates the work area when the cabinet is in use

Recommended for use with the RPP-TY6854 safety tray and RPP-TL6854 easy-clean tray liners (not included)

Technical Specifications

External Dimensions (w x h x d) 56 x 77 x 42 cm

Internal Dimensions (w x h x d) 54 x 75 x 40 cm

Thickness of Acrylic 10 mm, confers protection against UV and β -emitters

UV Bulbs 4 x 15 W; 254 nm wavelength

White Light Bulb 1 x 15 W; visible wavelength

Timer Control 0-120 minutes

Universal Voltage Input 100-240 VAC, 50/60 Hz

Weight 19 kg

Safety Certifications EN61010-1, CE

Ordering Information

Cat. #	Description
PCR1000	UV Sterilization Cabinet

Accessories and Replacement Parts

Cat. #	Description
PCR-UVLS	UV Germicidal Bulb, 15 W, 254 nm
RPP-TY6854	Radiation Safety Tray, 68 x 54 cm (w x l)
RPP-TL6854	Liners, 68 x 54 cm (w x l)—25/pk

PR250 Mini Orbital Shaker

A powerful variable speed shaker which provides efficient orbital motion



Technical Specifications

Platform 23 x 27 cm
 Speed 50 to 250 rpm
 Timer 0 to 99:59 hr
 Unit Dimensions (w x h x d) 28 x 11 x 27 cm
 Safety Certifications EN61010-1:2001, CE

Ordering Information

Cat. #	Description
PR250-115V	PR250 Mini Orbital Shaker, 115 VAC
PR250-230V	PR250 Mini Orbital Shaker, 230 VAC

Includes:

- Shaker
- Flat Top Platform
- Screw Driver

Accessories and Replacement Parts

Cat. #	Description
PR250-FTBL	Flat top platform
PR250-UTBL	Universal platform with adjustable bars
PR250-F100	Platform for 12 x 100-150 ml flasks
PR250-F250	Platform for 6 x 250-300 ml flasks

Advantages

- Quiet operation
- Small footprint
- Digital LED display
- Variable speed 50-250 rpm
- Accessory table options available



PR250-UTBL



PR250-F250



PR250-F100



Variable Volume Pipettes

Ergonomically designed with low plunger force for repetitive dispensings reduces fatigue and stress injuries

Hoefler Variable Volume Pipettes are designed to facilitate a wide range of research application liquid handling requirements. Six sizes are available from 0.5 µl for PCR protocols to the large 5 ml volume for large sample dilutions.

Hoefler Variable Volume Pipettes have a tapered tip cone design which can accommodate tips from a wide variety of pipette tip manufacturers. Pipettes are fully autoclavable to eliminate cross contamination. All Hoefler Pipettes come with a shelf bracket, calibration tool, and calibration certificate.

Technical Specifications

Cat. #	Volume Range	Increment	Tip Size
LH-010010	0.5 to 10 µl	0.1 µl	10 µl
LH-010020	2 to 20 µl	0.5 µl	200, 300 µl
LH-010100	10 to 100 µl	1 µl	200, 300 µl
LH-010200	20 to 200 µl	1 µl	200, 300 µl
LH-011000	100 to 1000 µl	5 µl	1000 µl
LH-015000	1000 to 5000 µl	50 µl	5000 µl

Advantages

Available in six sizes from 0.5-10 µl to 1-5 ml

Fully autoclavable to eliminate cross contamination

Tapered cone design enables use with pipette tips from a wide variety of manufacturers

A large display window for easy volume selection

Volume adjustment by turning the plunger button eliminates the risk of accidental volume changes during pipetting

Ordering Information

Cat. #	Description
LH-010010	Variable Single Channel Pipette 0.5-10 µl
LH-010020	Variable Single Channel Pipette 2-20 µl
LH-010100	Variable Single Channel Pipette 10-100 µl
LH-010200	Variable Single Channel Pipette 20-200 µl
LH-011000	Variable Single Channel Pipette 100-1000 µl
LH-015000	Variable Single Channel Pipette 1000-5000 µl

CF1000 Mini Centrifuge

Personal sized centrifuge ideal for microfiltration and quick spins

The Hoefer Mini Centrifuge is a compact and easy to operate instrument that weighs just two pounds and requires less than six inches of bench space. It is supplied with rotors and adapters to accommodate 0.4 ml, 0.5 ml, and 1.5 ml microcentrifuge tubes as well as 0.2 ml PCR strip tubes. The ergonomically designed easy-open lid allows one-handed operation. A safety feature ensures that the motor will not operate if the lid is in the open position.

Technical Specifications

Dimensions 6" x 6" (153 x 153 mm)
Electrical 115 V, 60 Hz or 240 V, 50/60 Hz
Fuse 0.5 A, 250 V
Speed 6000 rpm / 2,000 xg
Safety Certifications EN61010-1, CE

Ordering Information

Cat. #	Description
CF1000-115V	Mini Centrifuge, 115V
CF1000-230V	Mini Centrifuge, 230V

Includes:

- Mini Centrifuge
- 1.5 ml Rotor
- PCR Strip Tube Rotor
- Allen Wrench
- 0.5-0.6 ml Tube Adaptors—6 pcs
- 0.4-0.25 ml Tube Adaptors—6 pcs

Accessories and Replacement Parts

Cat. #	Description
CF1002	1.5 ml Rotor
CF1004	PCR Strip Tube Rotor
CF1006	Allen Wrench
CF1008	Individual adapters 0.5-0.6 ml tubes—6 pcs
CF1010	Individual adapters 0.4-0.25 ml tubes—6 pcs
CF1012	Individual adapters Thermal Cycler 0.2 ml tubes—6 pcs



Advantages

- Compact and easy to operate
- Interchangeable rotors for microcentrifuge tubes and PCR strip tubes
- Easy open translucent lid incorporates a highly durable hinge pin
- Can be operated by closing and opening the lid

UVC5000 Ultraviolet Crosslinker



The UVC5000 UV Crosslinker features a pull-out drawer and microprocessor controls to ensure optimal UV irradiation of DNA. It is also suitable for UV bonding and photonicking of DNA.

Technical Specifications

UV Lamps Five 8 W, 254 nm UV (included)

Maximum Settings:

Energy 999,900 $\mu\text{J}/\text{cm}^2$

Time 999.9 min

Features Microprocessor controlled UV sensor feedback system, large LED readout, multiple set functions (pre-set or user-specified UV energy or time), pullout drawer

Unit Dimensions (w x h x d):

External 40.0 x 22.2 x 34.9 cm

Chamber 28.9 x 8.6 x 28.6 cm

Weight 9 kg

Safety Certifications EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Advantages

The UVC5000 Ultraviolet Crosslinker can be stacked on top of the HB1000 Hybridization Oven to maximize laboratory space

Choice of preset and manual controls for energy or time limit exposures. Preset limits deliver 120,000 μJ or five min of exposure

Large LED display and touch keypad

UV-blocking window allows safe viewing of the process

Microprocessor measures and controls UV output, ensuring maximum dose consistency

Ordering Information

Cat. #	Description
UVC5000-115V	UVC5000 Ultraviolet Crosslinker, 115 VAC
UVC5000-230V	UVC5000 Ultraviolet Crosslinker, 230 VAC

Each Model Includes:

- UV Crosslinker
- UV Lamps, 254 nm – 5 lamps

Accessories and Replacement Parts

Cat. #	Description
UVLS-8	UV Lamp, 8 W, 254 nm

UVC500 Crosslinker



Cross-link in seconds instead of hours

Ultraviolet cross-linking of nucleic acids to a membrane takes only seconds as compared to conventional methods of baking membranes requiring multiple hours. The UVC500 Crosslinker eliminates both time-consuming vacuum baking and the calibration problems of using UV transilluminators. In addition, because the UVC500 Crosslinker's energy monitoring is so accurate, you will not overnick or destroy your DNA sample.

You do not need to time the reaction

The UVC500 Crosslinker produces uniform, consistent results because its internal photo-feedback system automatically adjusts to the variations in UV intensity that occur as the light tubes age. You do not need to time the reaction because the Crosslinker continually measures the energy within the chamber, and automatically deactivates the UV light after the appropriate energy dose has been reached.

Dual set functions give more flexibility

To operate the Crosslinker, you preset the energy required in microjoules (μJ), or the total time in minutes from 0.1 to 999.9. The Crosslinker is also useful for other applications such as DNA nicking, thymine dimer formation, screening Rec A mutations, UV sensitivity testing, UV sterilization and decontamination or any other application using 254 nm UV radiation.

The Crosslinker features a large countdown LED display that indicates the amount of energy or time remaining, and mechanical energy/time sets that record the original time or energy dialed in. The UVC500 has internal dimensions of 30 x 25 x 13 cm. It has a safety interlock to prevent accidental exposure, and a fold-down front door that acts as a workshelf when open.

Technical Specifications

UV Lamps	Five 8 W, 254 nm UV (included)
Maximum Settings	Energy: 999,900 $\mu\text{J}/\text{cm}^2$ Time: 999.9 min
Unit Dimensions (w x h x d):	
External	40 x 22.2 x 34.9 cm
Chamber	25.4 x 12.7 x 30.5 cm
Weight	7.5 kg
Safety Certifications	EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
UVC500-115V	UVC500 Ultraviolet Crosslinker, 115 VAC
UVC500-230V	UVC500 Ultraviolet Crosslinker, 230 VAC

Accessories and Replacement Parts

Cat. #	Description
UVLS-8	UV Lamp, 8 W, 254 nm

Advantages

- Bind DNA or RNA to membranes in seconds
- Internal UV dosimeter and digital timer eliminate visual monitoring or timing exposures
- Excellent results using nitrocellulose or nylon membranes
- Crosslink membranes up to 25 x 30 cm
- Microprocessor controlled UV sensor feedback system
- Large LED readout
- Multiple set functions (pre-set or user-specified UV energy or time)
- Fold down door



HB1000 Hybridization Oven

The HB1000 Hybridization Oven is designed to create the appropriate environment for nucleic acid hybridization

Technical Specifications

- Variable Speed 10 to 18 RPM
- Heating Element 1200 Watts
- Operating Range Ambient +10°C to 99.9°C
- Temperature Control Accuracy +0.1°C
- Temperature Display LED
- Temperature Stability:
 - Outside Oven +0.3°C to 68°C
 - Inside Bottles +0.1°C to 68°C
- Temperature Uniformity:
 - Inside Oven +0.1°C to 68°C
 - Inside Bottles +0.1°C to 68°C
- Bottle Capacity:
 - Twenty 35 x 150 mm
 - Ten 35 x 300 mm
- Unit Dimensions (w x h x d):
 - External 44.5 x 40.6 x 41.3 cm
 - Internal 35.6 x 27.3 x 23.4 cm
- Weight 19.5 kg
- Safety Certification EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Advantages

- Stackable design to maximize laboratory space
- Temperature control: ambient +10°C to 99.9°C
- Variable speed control (10 to 18 RPM) for consistent wetting of samples, for washing or hybridizing
- A large LED displays current chamber temperature. An adjacent touch pad sets the temperature
- The rotary tube rack can be replaced with a rocker plate for dish-style incubation and washing protocols in one benchtop unit
- A removable protective tray allows easy spill cleanup
- The rotary wheel can hold twenty 35 x 150 mm, or ten 35 x 300 mm tubes at one time
- Stainless steel internal construction
- Multiple tube sizes available

Ordering Information

Cat. #	Description
HB1000-115V	Hybridization Oven, 115 VAC
HB1000-230V	Hybridization Oven, 230 VAC

Accessories and Replacement Parts

Cat. #	Description
HB1110X	Bottle, 35 x 150 mm
HB1111X	Bottle, 35 x 300 mm
HB1140X	Rocker Plate

SE1200 Easy Breeze™ Air Gel-Drying System

Hoefer's compact SE 1200 Easy Breeze Air Gel-Drying System comes complete with two gel frames—everything you need to dry two gels as large as 20 x 20 cm, or eight 8 x 10 cm gels.

Technical Specifications

Environmental Operation Conditions:

Indoor Use 4-40°C

Humidity Up to 80%

Unit Dimensions (w x h x d) . . . 32 x 27 x 51 cm

Safety Certifications: EN61010-1, UL3101-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
SE1200-115V	SE1200 Easy Breeze, 115 VAC
SE1200-230V	SE1200 Easy Breeze, 230 VAC

Includes:

- Easy Breeze Drying Oven
- Standard Gel-Drying Frame Assemblies—2 sets
- Loading Platform
- Porous Cellophane Sheets—50 pcs
- Mylar® Sheets—25 pcs

Accessories and Replacement Parts

Cat. #	Description
SE1210	Gel-Drying Frame Assemblies Standard—up to 20 x 20 cm gel
SE1210-L	Large—up to 21 x 26 cm gel
SE1214	Gel-Loading Platform Standard—for SE 1210 gel frame
SE1214-L	Large—for SE 1210-L gel frame
SE1202	Porous Cellophane Standard, 33 x 33 cm—50 pcs
SE1142	Large, 35 x 44 cm—50 pcs
SE1204	Mylar Sheets Standard, 33 x 33 cm—25 pcs



Advantages

Air circulates above and below the gel frames producing even heating that dries gels without cracking

Drying oven accommodates six Hoefer gel frames, allowing you to dry as many as 6 standard or 24 minigels at a time

Gel frames are easy to assemble and load. Gels are held taut and smooth—no wrinkling

Choose between high and low temperature settings, or dry gels without heat using just the fan

No need to monitor the unit. Most gels dry in 2 to 3 hours.

Requires no vacuum pump, cold trap or bulky connections

Optional large frames available



SE1210

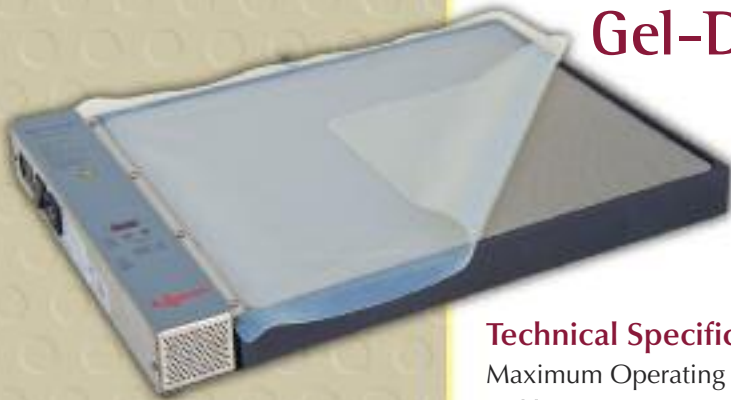
SE1210-L



SE1214

SE1214-L

GD2000 Vacuum Gel-Drying System



The Hoefer GD2000 Vacuum Gel-Drying System uses a dry-heat vacuum method to dry gels rapidly, evenly, and safely.

Technical Specifications

Maximum Operating Ranges:

Heater 800 W, thermostatically controlled
 Independent Pump Outlet . . . 575 W

Power Requirements 115 VAC, 50/60 Hz or 230 VAC, 50/60 Hz

Environmental Operating Conditions:

Indoor Use 15-40°C
 Humidity Up to 80% for 15-31°C, decreasing linearly to 50% for 31-40°C

Unit Dimensions (w x h x d) . . . 55.0 x 8.5 x 43.5 cm

Safety Certifications EN61010-1, UL61010A-1, CSA22.2 1010.1, CE

Ordering Information

Cat. #	Description
GD2000-115V	Vacuum Gel-Drying System, 115 VAC
GD2000-230V	Vacuum Gel-Drying System, 230 VAC

Includes:

- GD2000 Gel Dryer w/Silicone Rubber Overlay Sheet
- VP200 Vacuum Pump
- Stainless Steel Screen
- Porous Polyethylene Cover Sheet
- Mylar® Cover Sheet
- Porous Cellophane—50 sheets
- Filter Paper—10 sheets
- Vacuum Tubing—3 m

Cat. #	Description
GD2001	Vacuum Gel Dryer, 115 VAC, Basic
GD2002	Vacuum Gel Dryer, 230 VAC, Basic

Includes: Same as above without VP200 Vacuum Pump or Vacuum Tubing

For more information on the VP200 Vacuum Pump, see page 139.

Accessories and Replacement Parts

Cat. #	Description
SE1141	Filter Paper, 35 x 44 cm—25 sheets
SE1142	Porous Cellophane, 35 x 44 cm—50 sheets
SE1143	Clear Silicone Rubber Overlay Sheet
SE1144	Mylar Cover Sheet
SE1145	Porous Polyethylene Cover Sheet
SE1146	Stainless Steel Screen
VT3	Vacuum Tubing, 8 mm ID, 3 m

Advantages

Dries acrylamide and agarose gels as large as 33 x 44 cm in as little as 30 minutes

Heat and vacuum are applied from beneath the gel through a heavy aluminum platen for even heat and vacuum distribution under the gel

Independent timers for heat and for vacuum

Thermostat adjusts from 40 to 80°C ± 2°C

A quiet, oil-free diaphragm pump maintains the low vacuum necessary for rapid gel drying

VP200 Vacuum Pump

The VP200 Vacuum Pump is especially well suited to dry gels on the Hoefer GD2000 Vacuum Gel Dryer—the pump is highly resistant to water vapor, acid, and gel staining solution vapors. Two vapor trap flasks capture condensate at both the pump inlet and outlet. Each flask is held in place by a single clamp for quick and easy removal and cleaning. The pump is robust, easy to use, and requires minimal maintenance.



Technical Specifications

Maximum Pumping Speed	120 VAC 60 Hz 1.2 cfm 230 VAC 50/60 Hz 1.7/2.0 m ³ /h
Ultimate (total) Pressure (absolute)	9 mbar
Ultimate (total) Pressure (absolute) with Glass Ballast	20 mbar
Max. Permitted Outlet Pressure (absolute)	2 bar
Motor Power	180 W
Motor Protection	Overload cutout (manual reset)
Rated Current Draw	120 VAC 60 Hz- 2.9 A 230 V~ 50/60 Hz-1.5/1.45 A
Degree of Protection IEC 529	IP 54
Operating Temperature	0-40°C
Storage Temperature	-10-60°C
Operating Relative Humidity (non-condensing)	30-85%
Sound Pressure Level (enveloping surface method at 1 m)	41 dBA
Rated Motor Speed at 50/60 Hz	1500/1800 rpm
Inlet/Outlet Port Hose Nozzle Tubing Size	ID 10 mm, 1/8-27 NPT
Dimensions (w x h x d)	31 cm x 29.5 cm x 24 cm
Weight	11.7 kg
Safety Certifications	EN61010-1, CE

Ordering Information

Cat. #	Description
VP200-115V	Vacuum Pump, 115 VAC
VP200-230V	Vacuum Pump, 230 VAC

Accessories and Replacement Parts

Cat. #	Description
VP200RK-2	Replacement Ballast
VT3	Vacuum Tubing, 8 mm ID, 3 m



RCB20-PLUS Refrigerated and Heated Circulation Bath

The Hoefer RCB20-PLUS Refrigerated & Heated Circulation Bath provides efficient temperature control for all types of electrophoresis and transfer techniques.

- Provides temperature control in the -10 to +100°C range, regulated to $\pm 0.03^\circ\text{C}$
- Compact footprint—the RCB20-PLUS is just 23 cm wide x 40 cm deep
- Delivers heat with a 1000 W heater
- Designed for continuous use, the RCB20-PLUS has a 12 L per minute circulation pump

Appropriate for use with these other Hoefer instruments—the SE250, SE260, SE600, SE600X Chroma, SE660 and SE900 vertical electrophoresis units, the SUB20C and SUB25C horizontal units, and the TE22, TE42, and TE62 transfer units.

Technical Specifications

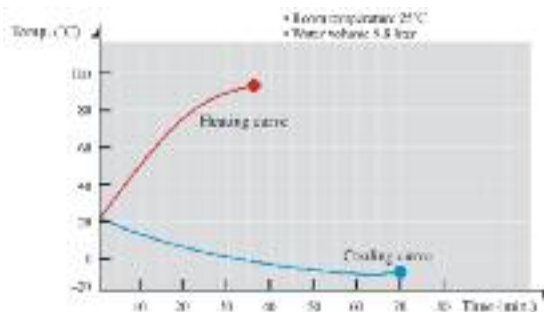
Bath Capacity	4-6 L
Working Temperature Range	-10 to +100°C
Resolution	$\pm 0.03^\circ\text{C}$
Heater Wattage	1000 W
Refrigerant	R134A
Environmental Operating Conditions:	
Indoor Use	5-40°C
Humidity	Up to 80% for temperatures up to 31°C, linear decrease to 50% at 40°C
Unit Dimensions (w x h x d)	23 x 66 x 40 cm
Weight	25 kg
Safety Certifications	EN61010-1, CE

Advantages

Outfitted with Low Liquid Volume sensor to prevent damaging the unit

Compressor includes a sensor that identifies irregular temperatures and prevents overheating

Easy to use external circulatory connector



Ordering Information

Cat. #	Description
RCB20-PLUS-115V	Refrigerated and Heated Circulation Bath 100-120 VAC, 50/60 Hz
RCB20-PLUS-230V	Refrigerated and Heated Circulation Bath 220-240 VAC, 50/60 Hz

Each Includes:

- Refrigerated/Heated Circulation Bath
- Tygon® Tubing, 3/8" ID—two 3-foot lengths
- QuickFit Connectors—2 sets
- Stainless Steel Pump Connector Barbed Fittings, 3/8" and 1/2"—2 pcs each

Accessories and Replacement Parts

Cat. #	Description
RCB21	Tubing Kit (Tygon Tubing, 3/8" ID two 3-foot lengths and QuickFit Connectors: QF3/8 and QFX3/8)
QF1/4	QuickFit Connectors: Female 1/4"—2 pcs
QF3/8	QuickFit Connectors: Female 3/8"—2 pcs
QFX3/8	QuickFit Connectors: Male 3/8"—2 pcs



FH225V Ten-Place Filtration Manifold

The FH225V Ten-Place Filtration Manifold holds ten 25 mm diameter filters in place with simple chimney weights. The manifold rests on a clear, chemical resistant PVC collection box. The Filtration Manifold is recommended for detection of pathogens like Giardia in water analysis.

- Holds ten individual stainless steel chimney weights, each with a capacity of 13 ml
- Precision-machined chimney weights, made of Type 316 solid stainless steel, provide a secure, liquid-tight seal. No need for clamps or O-rings.
- Clear PVC collection box acts as a vacuum chamber, exerting equal vacuum on all ten positions
- With the optional FH240 rack, individual filtrates can also be collected into test tubes or 27 mm scintillation vials
- Individual on/off valves allow you to regulate each position separately
- PVC collection box is resistant to trichloroacetic acid (TCA)

Technical Specifications

Filter Size 25 mm diameter circles
 Sample Volume 13 ml
 Maximum Temperature 45°C
 Unit Dimensions (w x h x d) 32.4 x 20.3 x 15.2 cm

Ordering Information

Cat. #	Description
FH225V	Ten-Place Filtration Manifold

Includes:

- Filter Holding Manifold w/Vacuum Gauge
- 10 Individual Teflon® Valves
- PVC Collection Box w/Gasket
- Tubing Connector
- Stainless Steel Chimney Weights–10 pcs

Accessories and Replacement Parts

Cat. #	Description
FH251	PVC Collection Box w/Gasket and Tubing Connector
FH2208	Gasket, 100 cm
FH225VM	Filter Holding Manifold w/Vacuum Gauge and Valves
FH252-25	Chimney Weight
FH240	Scintillation Vial Rack Assembly
FH254	Teflon Valve
FH258	Hose Connector
FH225-24-25	Perforated Stainless Steel Screen



FH252-25



FH2208

FH225VM



FH251



Mini-Peristaltic Pump

For use with horizontal units with buffer recirculation ports

The Mini-Peristaltic Pump can be used with either a single tube or two tubes simultaneously. Two of the Pump Head Tubing Pieces are included with the pump. Additional Pump Head Tubing Pieces may be purchased separately.

Two front panel controls provide flow rates from approximately 0.8 to 24.5 ml/min. The control knob provides variable adjustment from 0 to 100% of the selected flow rate range. The second control is a two position toggle switch marked x1, x2 which selects low or high flow rates (see table below.)

The easy loading, four roller pump head is on top of the stout metal box. The back of the pump head effortlessly rotates into an "open" position and either one or two tubes can be dropped into slots. The loaded section simply rotates back against spring loaded jaws and locks into place. The tubing is automatically in proper wiping contact with the pump head rollers. Each pump is provided with a 12.5 mm (0.5") rod clamp on the back so that multiple pumps can be mounted vertically on a lattice rod.

Advantages

- Continuous low flow rates ideal for buffer recirculation in horizontal units
- Pump can take one or two tubes simultaneously, 1/16" ID
- Control knob for pumping speed
- Toggle switches for direction and x1 or x2 speed range selection
- Low electrical and mechanical noise
- Small size

MPII Flow Rates in ml/min

Switch Setting	With One Tube		With Two Tubes	
	Min.	Max.	Min.	Max.
x1	0.8 ml/min	7.00 ml/min	1.6 ml/min	14.00 ml/min
x2	1.5 ml/min	12.25 ml/min	3.0 ml/min	24.50 ml/min

Technical Specifications

- Output Pressure In excess of 20 p.s.i.
- Power 12 VDC 800 mA, 2.5 mm Connector, 115/230 VAC, 50/60 Hz, Universal power supply, 10 W
- Dimensions (w x h x d) 114 x 189 x 105 cm
- Weight 0.96 kg
- Tubing ID 1/16"
- Safety Certifications EN61010-1, CE

Ordering Information

Cat. #	Description
PP24	Mini-Peristaltic Pump
PP24-TB	Pump Head Tubing Pieces, w/connectors on each end for 1/16" ID tubing, 2.5", pkg/10

Peristaltic Pump

For use with gradient makers and for buffer recirculation

This ultra compact, high flow rate peristaltic pump is ideal for gradient gel manufacturing (for gradient makers, see page 31) as well as buffer recirculation in horizontal units.



Technical Specifications

Operational Temperature Range	5°C to 40°C
Noise	<70dBA at 1 m
Control Ratio	10:1
Supply	15 VAC
Dimensions (w x h x d)	80 x 84 x 133 mm
Weight	1.0 kg
Safety Certifications	EN61010-1, CE

Materials of Construction

Drive	Extruded anodized aluminum
Front Support	Anodized aluminum plate
Pumphead Track	Extruded anodized aluminum
Pumphead Rollers	Acetal
Pumphead Rotor	Aluminum

Ordering Information

Cat. #	Description	RPM
PP120-115V	Peristaltic Pump, 115 VAC	20-200
PP120-230V	Peristaltic Pump, 230 VAC	20-200

Accessories and Replacement Parts

Cat. #	Description
PP120-TB	1 m Platinum Silicone Tube, bore 3.2 mm/wall 1.6 mm

Advantages

High flow rate—single channel flows up to 120 ml/min

Highly compact—with single control potentiometer for direction, speed, and start/stop

Analog speed control and remote switching via a 15D connector

Reversible—for easy fluid recovery

Continuous tubing

Adjustable occlusion (pressure)

The background of the page is a solid blue color. Overlaid on this are faint, semi-transparent images of laboratory equipment. On the left, there is a large, L-shaped lead shield. On the right, there is a rectangular radiation warning sign with a radiation symbol and the word 'DANGER' visible. A thin yellow vertical line runs down the left side of the page, passing through the shield.

RADIATION PROTECTION

Radioactive compounds have been used in research laboratories for many years. In life science research, radioactive compounds are used in the detection of nucleic acids, proteins, and other metabolic compounds.



Shielding

Many different styles and sizes of shield are available depending on the requirements of the user. Most shields are available in two sizes and have either a large flat base for under-bench protection or a curved base for use with a safety tray.

Adjustable 0 to 15° Angle

These shields are easily adjusted from an upright position to an angle of 15° depending on the application required. They can also be used in either a wide or tall position. When configured in a horizontal position, it creates a convenient side shield. The standard 12 mm thick Gamma shield can be used with ¹²⁵I.

Technical Specifications

Beta 10 mm acrylic Gamma 12 mm lead acrylic	Dimensions (h x w)
RPP-S015	540 x 350 mm
Base	350 x 540 mm
RPP-GS015	540 x 350 mm
Base	350 x 540 mm

Ordering Information

Cat. #	Description
RPP-S015	Adjustable Angle Shield, Beta
RPP-GS015	Adjustable Angle 12 mm Thick Shield, Gamma

Features and Benefits

Space-saving easily detachable support feet allow for flat storage when not in use (Fixed 15° Angle Shields only)

Unobstructed view provided by 10 mm clear optical acrylic or 12 mm lead acrylic

Wide range of sizes available to fit your particular needs

NEW Fixed 15° Angle Shields (with detachable support)

Fixed 15° angle shields provide clear, non-distorted vision, reducing light images and shadows especially when the user is in a seated position.

Technical Specifications

Beta 10 mm acrylic Gamma 12 mm lead acrylic	Dimensions (h x w)
RPP-450	450 x 300 mm
RPP-450G	450 x 300 mm
RPP-530	530 x 350 mm
RPP-530G	530 x 350 mm
RPP-600	600 x 400 mm
RPP-600G	600 x 400 mm

Ordering Information

Cat. #	Description
RPP-450	Small Fixed 15° Angle Shield, Beta
RPP-450G	Small Fixed 15° Angle Shield, Gamma
RPP-530	Large Fixed 15° Angle Shield, Beta
RPP-530G	Large Fixed 15° Angle Shield, Gamma
RPP-600	Extra-Large Fixed 15° Angle Shield, Beta
RPP-600G	Extra-Large Fixed 15° Angle Shield, Gamma

Shielding (cont.)

Fixed 45° Angle Shields

Fixed 45° angle shields provide clear, non-distorted vision reducing light images and shadows, especially when the user is in a standing position.

Technical Specifications

	Beta 10 mm acrylic Gamma 12 mm lead acrylic	Dimensions (h x w)
RPP-S45S		450 x 300 mm
Base		300 x 300 mm
RPP-GS45S		450 x 300 mm
Base		300 x 300 mm
RPP-S45L		600 x 350 mm
Base		350 x 300 mm
RPP-GS45L		600 x 350 mm
Base		350 x 300 mm



Ordering Information

Cat. #	Description
RPP-S45S	Small Fixed 45° Angle Shield—flat base, Beta
RPP-GS45S	Small Fixed 45° Angle Shield—flat base, Gamma
RPP-S45L	Large Fixed 45° Angle Shield—flat base, Beta
RPP-GS45L	Large Fixed 45° Angle Shield—flat base, Gamma

Beta 3-Sided Shield

The Beta 3-sided shield can be used with our range of Beta shields, providing further protection.

Technical Specifications

	Beta 10 mm acrylic	Dimensions (w x h x d)
RPP-SB		460 x 500 x 300 mm



Ordering information

Cat. #	Description
RPP-SB	3-Sided Shield, Beta

Gamma Base Plate

This rectangular base plate provides under-bench protection and can be used with any of our gamma shields. The plate is manufactured with cushioned anti-slip feet.

Technical Specifications

	Gamma 12 mm lead acrylic	Dimensions (h x w)
RPP-GBP		450 x 406 mm



Ordering Information

Cat. #	Description
RPP-GBP	Base plate, Gamma

Storage Boxes



A wide range of boxes and bins are available for the storage of samples and waste materials. A range of heavy-duty waste bags (see page 152) with drawstrings for easy sealing are also available to fit inside the waste bins.

Beta Mini-Box with Hinged Lid

The smallest box in our range has a hinged lid and is ideal for storage when space is limited. A box insert is available for 16 x 1.5 ml microcentrifuge tubes.

Technical Specifications

Beta 10 mm acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-B5	105 x 75 x 105 mm	85 x 55 x 85 mm
RPP-BI-16	80 x 40 x 80 mm	

Ordering Information

Cat. #	Description
RPP-B5	Mini-Box with Hinged Lid, Beta
RPP-BI-16	Mini-Box Insert–16 x 1.5 ml Microcentrifuge Tubes



Midi-Boxes with Hinged Lids

As with our mini-box, the midi-box with hinged lid is designed to contain an insert which holds twice as many microcentrifuge tubes. This model is available in either Beta or Gamma radiation protection.

Technical Specifications

Beta 10 mm acrylic Gamma 12 mm lead acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-B6	185 x 80 x 105 mm	165 x 60 x 85 mm
RPP-GB6	189 x 84 x 109 mm	165 x 60 x 85 mm
RPP-BI-32	160 x 40 x 80 mm	

Ordering Information

Cat. #	Description
RPP-B6	Midi-Box with Hinged Lid, Beta
RPP-GB6	Midi-Box with Hinged Lid, Gamma
RPP-BI-32	Midi-Box Insert–32 x 1.5 ml Microcentrifuge Tubes

Maxi-Boxes with Hinged Lids

The maxi-box is designed to hold up to three midi-box inserts as well as inserts for taller tubes. This model is available for either Beta or Gamma radiation protection.

Technical Specifications

Beta 10 mm acrylic Gamma 12 mm lead acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-B14	300 x 160 x 185 mm	280 x 140 x 165 mm
RPP-GB14	304 x 164 x 189 mm	280 x 140 x 165 mm
RPP-BI-6	160 x 40 x 80 mm	

Ordering Information

Cat. #	Description
RPP-B14	Maxi-Box with Hinged Lids, Beta
RPP-GB14	Maxi-Box with Hinged Lids, Gamma
RPP-BI-6	Maxi-Box Insert—15 x 5 ml Scintillation Vials

Storage and Transport Block

The storage and transport blocks are manufactured from solid acrylic and specifically machined to accept 24 x 1.5 ml and 15 x 0.5 ml microcentrifuge tubes.

Technical Specifications

Beta 10 mm acrylic	Dimensions (w x h x d)
RPP-STB	150 x 70 x 120 mm

Ordering Information

Cat. #	Description
RPP-STB	Storage and Transport Block, Beta

Beta Tip Box

Available for Beta radiation protection, this box has a hinged lid with a central hole also covered by a smaller hinged lid. The central hole reduces the exposure to radiation during pipetting procedures. Convenient disposable heavy-duty plastic bags are available.

Technical Specifications

Beta 10 mm acrylic	Capacity	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-B15SC	2 L	150 x 150 x 150 mm	130 x 130 x 130 mm

Ordering Information

Cat. #	Description
RPP-B15SC	Tip Box-15, Beta
RPP-BAG17	Bag 17, 120 x 120 x 120 mm, pk/25



Features and Benefits

For the disposal of used pipette tips—additional hole with cover reduces exposure

Waste bags available for easy removal of contents



Features and Benefits

Combines shielding with a convenient contained work area and storage container

Hinged lid creates the shield when open

When closed the lid is fastened for safety while transporting the unit and its contents

Side handles are fitted for easy lifting



Transport Boxes and Container Covers

Beta Transit Box

This transit box combines a shield with a conveniently contained work area and storage container. The hinged lid creates a 15° angled shield when fully open. The lid can be locked shut for safety while transporting the unit and its contents. Side handles are fitted for easy lifting and cushioned non-slip feet prevent slipping.

Technical Specifications

Beta 10 mm acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-BTB	315 x 95 x 400 mm	295 x 75 x 280 mm

Ordering Information

Cat. #	Description
RPP-BTB	Transit Box, Beta

Beta Carboy Cover

An acrylic cover for the protection of carboys and laboratory equipment. An open base allows the cover to be placed over the container or equipment. It can also be removed without disturbing the container. A hinged lid provides easy access. The cover can be used in conjunction with a laboratory safety tray.

Technical Specifications

Beta 10 mm acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-CBC	400 x 600 x 400 mm	380 x 590 x 380 mm

Ordering Information

Cat. #	Description
RPP-CBC	Carboy Cover, Beta

Hazard Signs

A range of radiation hazard adhesive signs and tapes.

Ordering Information

Cat. #	Description
RPP-LAB25	Radiation Hazard Symbol Labels, 25 x 25 mm, pk/25
RPP-LAB50	Radiation Hazard Symbol Labels, 50 x 50 mm, pk/50
RPP-TAPE	Radiation Hazard Tape, 25 mm x 66 m, roll

Beta and Gamma Bins

A range of bench-top bins are available for storing radioactive materials. All of the bins have hinged lids and cushioned anti-slip feet. Two large size Beta storage bins with hinged lids have wheels for easy maneuverability. Two sizes of bins are also available for Gamma radiation protection. A range of heavy-duty plastic bags with drawstrings fit conveniently inside all of our bin sizes.



Technical Specifications

Beta 10 mm acrylic Gamma 12 mm lead acrylic	Capacity	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-B12	1 L	120 x 150 x 100 mm	100 x 130 x 80 mm
RPP-B17	3.3 L	170 x 170 x 170 mm	150 x 150 x 150 mm
RPP-GB17	3.3 L	174 x 174 x 174 mm	150 x 150 x 150 mm
RPP-B27	10 L	220 x 270 x 220 mm	200 x 250 x 200 mm
RPP-GB27	10 L	224 x 274 x 224 mm	200 x 250 x 200 mm
RPP-B31	15 L	235 x 315 x 255 mm	215 x 295 x 235 mm
RPP-B42	50 L	510 x 420 x 290 mm	490 x 400 x 270 mm
RPP-B60W	47 L	305 x 600 x 290 mm	285 x 580 x 270 mm
RPP-B76W	122 L	426 x 760 x 426 mm	406 x 740 x 406 mm

Ordering Information

Cat. #	Description
RPP-B12	Bin-12, Beta
RPP-B17	Bin-17, Beta —use waste bags RPP-BAG17
RPP-GB17	Bin-17, Gamma —use waste bags RPP-BAG17
RPP-B27	Bin-27, Beta —use waste bags RPP-BAG31
RPP-GB27	Bin-27, Gamma —use waste bags RPP-BAG31
RPP-B31	Bin-31, Beta —use waste bags RPP-BAG31
RPP-B42	Bin-42, Beta —use waste bags RPP-BAG42
RPP-B60W	Bin-60, Beta —use waste bags RPP-BAG60
RPP-B76W	Bin-76, Beta —use waste bags RPP-BAG60

For radiation safety bags, see page 152.

Features and Benefits

Suitable for low level radioisotope waste

Hinged lid

Durable PVC hinges

Beta Cabinet Workstation



Features and Benefits

360° total protection for all operators and those working in nearby areas

Compatible with safety tray (not included)

Ergonomically designed

Hinged doors

The Beta cabinet has two large side doors to provide easy access for the user. It can also be used as a fully enclosed workstation. The dimensions are such that a sizeable working space is provided and the user's vision is unobstructed whether sitting or standing. A small opening at the back of the unit allows for access to electrical or other accessories. When not in use, the doors can be closed and the unit used to store radioactive material.

The rear panel features a convenient holder for two pipettes, which helps to keep the work surface clear. The cabinet is designed to be used on an acrylic base tray or a suitable laboratory safety tray (RPP-TW6854 or RPP-TY6854).

Technical Specifications

Beta 10 mm acrylic	Ext. Dimensions (w x h x d)	Int. Dimensions (w x h x d)
RPP-C	570 x 500 x 390 mm	550 x 490 x 370 mm

Ordering Information

Cat. #	Description
RPP-C	Cabinet, Beta
RPP-TW6854	Base Tray for Cabinet, white, 68 x 54 cm
RPP-TY6854	Base Tray for Cabinet, yellow, 68 x 54 cm
RPP-TL6854	Tray Liners for Cabinet, pk/25, 68 x 54 cm



Radiation Safety Bags

Heavy duty, double heat sealed 500 gauge polyethylene with double string neck pull. For use in Beta and Gamma bins.

Ordering Information

Cat. #	Description
RPP-BAG17	Bag 17, 120 x 120 x 120 mm, pk/25
RPP-BAG31	Bag 31, 290 x 210 x 210 mm, pk/25
RPP-BAG35	Bag 35, 330 x 120 x 120 mm, pk/25
RPP-BAG40	Bag 40, 370 x 210 x 240 mm, pk/25
RPP-BAG42	Bag 42, 400 x 490 x 270 mm, pk/25
RPP-BAG60	Bag 60, 610 x 280 x 280 mm, pk/25

Safety Trays and Liners






Unlike disposable paper bench protectors, safety trays and tray liners are reusable. This reduces running costs and drastically reduces contaminated waste volume. The rigid PVC base features specially designed stabilizing edges and rounded corners for easy cleaning. Additionally, the liner's non-porous surface allows valuable samples to be retrieved—something which is clearly not possible with absorbent paper protectors.

Features and Benefits

- Saves on running cost
- Contains liquid spillages
- Provides clearly defined work area
- Easily cleaned
- Liners made of APET—environmentally friendly when incinerated
- Suitable for most hazardous spillages
- Anti-static and non-porous

Ordering Information

Tray Type	Cat. #	Ext. Dimensions	Int. Dimensions	Liners pk/25
 General Purpose	RPP-TW4626	46 x 26 cm	40.5 x 20 cm	RPP-TL4626
	RPP-TW5434	54 x 34 cm	46 x 26 cm	RPP-TL5434
	RPP-TW5754	57 x 54 cm	45.5 x 43 cm	RPP-TL5754
	RPP-TW6854	68 x 54 cm	56.5 x 42.5 cm	RPP-TL6854
	RPP-TW7046	70 x 46 cm	57 x 35 cm	RPP-TL7046
	RPP-TW11354	113 x 54 cm	100 x 42 cm	RPP-TL11354
 Radiation Hazard	RPP-TY4626	46 x 26 cm	40.5 x 20 cm	RPP-TL4626
	RPP-TY5434	54 x 34 cm	46 x 26 cm	RPP-TL5434
	RPP-TY5754	57 x 54 cm	45.5 x 43 cm	RPP-TL5754
	RPP-TY6854	68 x 54 cm	56.5 x 42.5 cm	RPP-TL6854
	RPP-TY7046	70 x 46 cm	57 x 35 cm	RPP-TL7046
	RPP-TY11354	113 x 54 cm	100 x 42 cm	RPP-TL11354
 Biohazard	RPP-TO4626	46 x 26 cm	40.5 x 20 cm	RPP-TL4626
	RPP-TO5434	54 x 34 cm	46 x 26 cm	RPP-TL5434
	RPP-TO5754	57 x 54 cm	45.5 x 43 cm	RPP-TL5754
	RPP-TO6854	68 x 54 cm	56.5 x 42.5 cm	RPP-TL6854
	RPP-TO7046	70 x 46 cm	57 x 35 cm	RPP-TL7046
	RPP-TO11354	113 x 54 cm	100 x 42 cm	RPP-TL11354

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