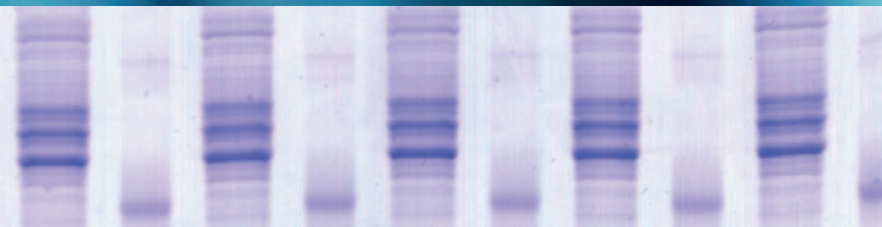


# SDS PAGE

# SERVA



## Reagents and Equipment

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SERVA SDS PAGE Gels

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Electrophoresis Buffers, Ready-to-Use

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Reagents

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Gel Media

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SERVA Protein Standards

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SERVA Stains for SDS PAGE

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SDS PAGE Equipment

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## All you need for... SDS PAGE

Separation of proteins by SDS PAGE is like sieving proteins according to their size. The sieve is the polyacrylamide matrix where the acrylamide/Bis concentration determines the pore size of the sieve. The driving force is the electric field that moves the completely SDS covered and denatured

proteins to the anode. This results in separation of proteins according to their molecular weight.

Whether you use SERVA's precast vertical or horizontal gels or self-cast gels, SERVA offers a comprehensive product range for protein separation, staining and detection.

- 1 SERVA Gels for Vertical SDS PAGE
- 2 SERVA Gels for Horizontal SDS PAGE
- 3 Electrophoresis Buffers, Ready-to-Use
- 4 Reagents
- 5 Gel Media
- 6 SERVA Protein Standards
- 7 SERVA Stains for SDS PAGE
- 8 SDS PAGE Equipment



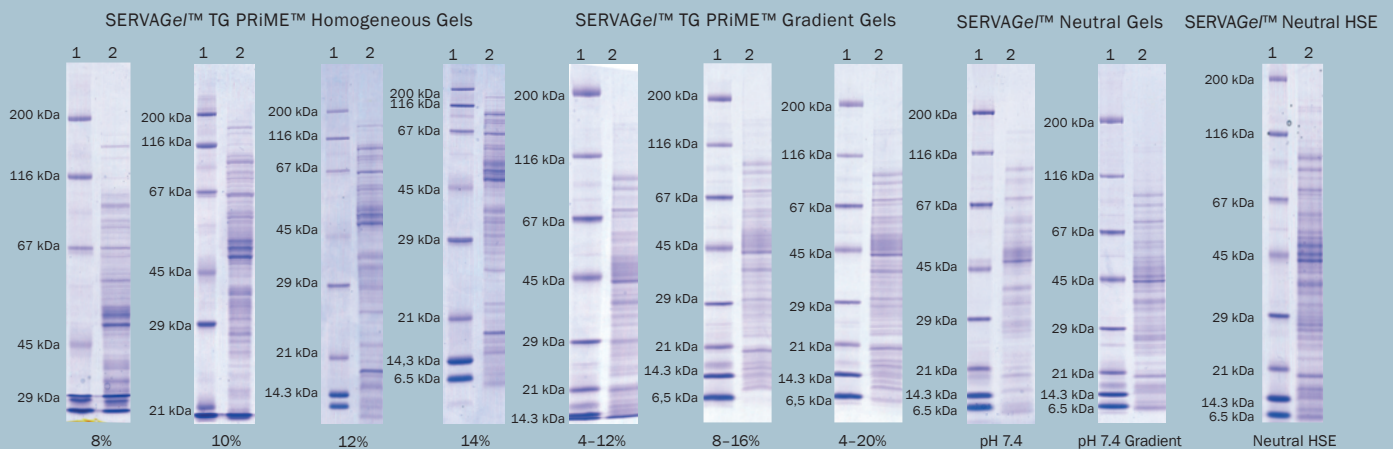
SERVA produces gels for more than 30 years – hard to find a place with more experience in manufacturing, developing and supporting the use of electrophoresis gels!

## 1

## SERVA Gels for Vertical SDS PAGE

- | SERVAge™ TG PRIME™ - fast, high resolution, similar separation pattern as classical Tris/Glycine gels but long shelf life
- | SERVAge™ Neutral pH 7.4 – high resolution separation of proteins from 5 - 200 kDa on one gel, long shelf life
- | SERVAge™ Neutral HSE - high speed electrophoresis with high resolution, long shelf life

SERVAge™	15 sample wells	12 sample wells	10 sample wells	2D well	Size
SERVAge™ TG PRIME™ 8 %	43284.01	43260.01	43261.01	-	10 gels
SERVAge™ TG PRIME™ 10 %	43285.01	43263.01	43264.01	-	10 gels
SERVAge™ TG PRIME™ 12 %	43286.01	43266.01	43267.01	43268.01	10 gels
SERVAge™ TG PRIME™ 14 %	43287.01	43269.01	43270.01	43271.01	10 gels
SERVAge™ TG PRIME™ 4-12 %	43288.01	43273.01	43274.01	-	10 gels
SERVAge™ TG PRIME™ 4-20 %	43289.01	43276.01	43277.01	-	10 gels
SERVAge™ TG PRIME™ 8-16 %	43290.01	43279.01	43280.01	43281.01	10 gels
SERVAge™ Neutral HSE	-	43245.01	43246.01	43247.01	10 gels
SERVAge™ Neutral pH 7.4	-	43220.01	43222.01	-	10 gels
SERVAge™ Neutral pH 7.4 Gradient		43221.01	43223.01	-	10 gels



1 SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215)    2 *E. coli* extract

Product	Size	Cat. No.
SERVAge™ TG PRIME™ Starter Kit	1 kit	43206.01
SERVAge™ Neutral HSE Starter Kit	1 kit	43207.01

Each kit contains 4 gels, sample and running buffer, DTT and protein standard.

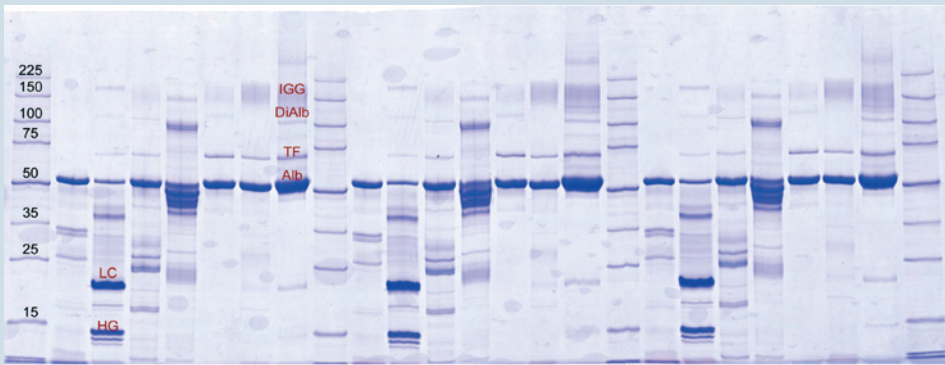
- | Short set-up times, gels are ready-to-use
- | Casted in stable plastic cassettes (10 cm x 10 cm x 0.7 cm)
- | Separation distance: 7 cm



## SERVA Gels for Horizontal SDS PAGE

SDS PAGE using flatbed (horizontal) electrophoresis units is a valuable alternative to mainly common vertical PAGE. The use of precast horizontal gels, as supplied with the SDS Gel Kits, results in lower buffer consumption, easy handling of the gels, most efficient temperature control and superb resolution.

- | Gel format 250 x 125 mm, gel layer 0.45 mm
- | Complete kit with 4 gels and buffers
- | Film-backing can be easily removed for Western Blotting



Urinary proteins separated on SDS Gel 10 % 25 S

The HPE™ BlueHorizon™ is a cooled flatbed system for horizontal electrophoresis applications like SDS PAGE. The gel format is up to 260 x 205 mm, the electrode lid is equipped with two platinum electrodes with three variable positions. For ordering information please see page 11.



Gel Kit	Slots	Cat. No.
SDS Gel Kit 10 %	25	43359.01
	52	43360.01
SDS Gel Kit 15 %	25	43361.01
	52	43362.01
SDS Urine Gel Kit	25	43391.01

- | High resolution 1D SDS PAGE
- | Low buffer consumption
- | Easy handling, long shelf life

## 3

## Electrophoresis Buffers, Ready-to-Use

To obtain optimal protein separation in vertical SDS PAGE it is crucial to use the appropriate buffer system. The standard Tris/Glycine (Laemmli) buffer system is suitable for the MW range 200 – 7 kDa. The Tris/Tricine buffer system allows higher resolution down to 3 kDa.

Product	Size	Cat. No.
Laemmli Buffer (10x), for SDS PAGE	2 L	42556.01
	10 L	42556.04
Laemmli Sample Buffer (2x), for SDS PAGE	20 ml	42526.01
	5x 20 ml	42526.02
SERVA Tris-Glycine/SDS sample buffer (2x)	20 ml	42527.01
SERVA Tris-Glycine/SDS electrophoresis buffer (10x)	1 L	42529.01
SERVA Tris-Tricine/SDS sample buffer (2x)	20 ml	42551.01
SERVA Tris-Tricine/SDS electrophoresis buffer (10x)	1 L	42552.01
SERVA Tris-Tricine/SDS electrophoresis buffer (20x)	1 L	42560.01
SERVA Tris-MOPS/SDS electrophoresis buffer (20x)	1 L	42561.01
SDS Solution, 20 % electrophoresis grade	100 ml	20768.01
	500 ml	20768.02
	1 L	20768.03

## 4

## Reagents

Reagents „electrophoresis grade“ are in-house tested for electrophoresis applications.

Product	Size	Cat. No.
Dithiothreitol, electrophoresis grade	1 g	20711.01
	5 g	20711.02
	25 g	20711.03
Dodecylsulfate-Na-salt, electrophoresis grade	100 g	20771.01
	500 g	20771.02
Glycine, electrophoresis grade	500 g	23391.01
	1 kg	23391.02
	5 kg	23391.03
2-Mercaptoethanol, electrophoresis grade	50 ml	28626.01
	500 ml	28626.02
Tris-(2-carboxyethyl)phosphine hydrochloride, electrophoresis grade	1 g	36971.01
	5 g	36971.02
Tris(hydroxymethyl)aminomethane, electrophoresis grade	500 g	37181.01
	1 kg	37181.02
	2,5 kg	37181.03
Tris(hydroxymethyl)methylglycine, electrophoresis grade	100 g	37196.01
	500 g	37196.02

Ready-to-use solutions for saving time and work

Application tested for best results in SDS PAGE

No weighing of SDS - increased working safety

## Gel Media

SERVA's ready-to-use acrylamide/Bis solutions are suitable for all protein electrophoresis techniques – from standard SDS PAGE to high performance 2D electrophoresis. The solutions are made from highly purified acrylamide and N,N'-methylene bisacrylamide, stabilized and application tested. Both acrylamide and N,N'-methylene bisacrylamide are available as powder.

Product	Size	Cat. No.
Acrylamide/Bis Solution, 29:1 (40 % w/v), 3.3 % C	500 ml	10680.01
	4x 500 ml	10680.02
	1 L	10680.03
Acrylamide/Bis Solution, 37.5:1 (40 % w/v), 2.6 % C	500 ml	10681.01
	4x 500 ml	10681.02
	1 L	10681.03
Acrylamide/Bis Solution, 29:1 (30 % w/v), 3.3 % C	500 ml	10687.01
	4x 500 ml	10687.02
	1 L	10687.03
Acrylamide/Bis Solution, 37.5:1 (30 % w/v), 2.6 % C	500 ml	10688.01
	4x 500 ml	10688.02
	1 L	10688.03
Acrylamide 4X solution (40 % w/v)	1 L	10677.01
N,N'-Methylene bisacrylamide 2X solution, 2 % (w/v)	1 L	29197.01
Acrylamide 2X, research grade	100 g	10675.01
	1 kg	10675.02
Acrylamide 4X, analytical grade	100 g	10674.02
	1 kg	10674.03
N,N'-Methylene bisacrylamide 4X, analytical grade	10 g	29196.01
	50 g	29196.02
	250 g	29196.03
Ammoniumpersulfate (APS), electrophoresis grade	50 g	13376.01
	250 g	13376.02
N, N, N', N'- Tetramethyl-ethylenediamine, for electrophoresis	10 ml	35930.01
	25 ml	35930.02

Ready-to-use solutions for saving time and work

Safe working, reduced health risk

Quality controlled for electrophoresis

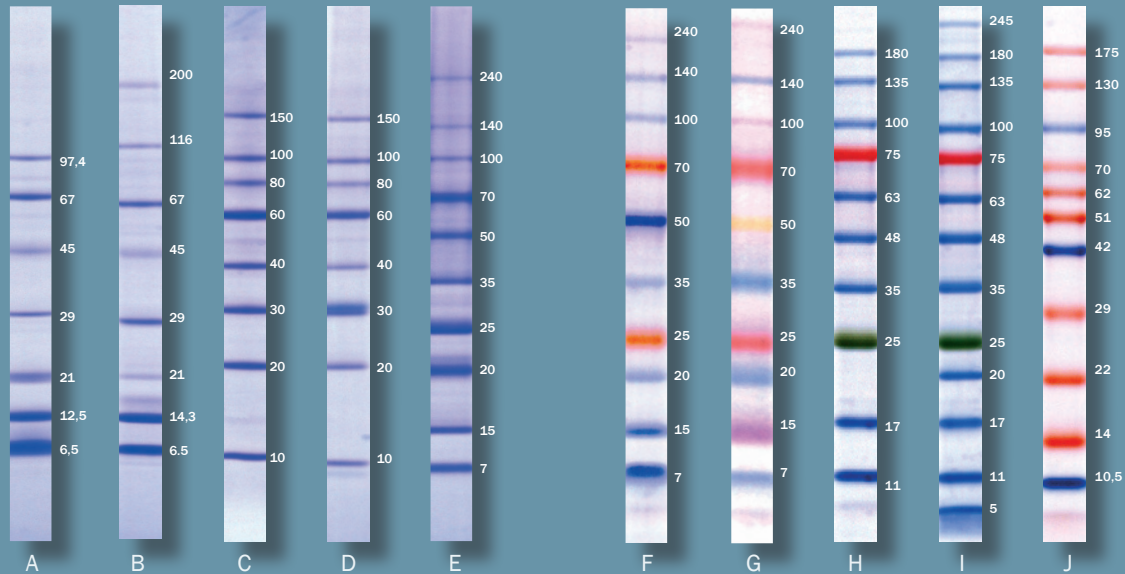


## Unstained protein standards

- To determine the molecular weight of proteins
- Natural and recombinant origin
- Ready-to-use or lyophilized

## Prestained protein standards

- For monitoring protein separation during SDS PAGE
- Verification of Western Blotting transfer efficiency
- Ready-to-use



Product	Size	Cat. No.
Protein Test Mixture 6 for SDS PAGE (A)	10 mg	39207.01
Protein Test Mixture 4 for SDS PAGE (not shown)	10 mg	39208.01
Protein Test Mixture 5 for SDS PAGE (not shown)	10 mg	39209.01
SERVA Unstained SDS PAGE Protein Marker 6.5 - 200 kDa, liquid mix (B)	500 µl	39215.01
SERVA Prestained SDS PAGE Protein Marker 6.5 - 200 kDa, liquid mix (not shown)	2x 250 µl	39216.01
SERVA Recombinant SDS PAGE Marker 10 - 150 kDa, liquid mix (C)	500 µl	39217.01
SERVA Recombinant SDS PAGE Marker 10 - 150 kDa PLUS, liquid mix (D)	500 µl	39218.01
SERVA Unstained Protein Standard III (E)	500 µl	39249.01
SERVA Dual Color Protein Standard III (F)	500 µl	39252.01
SERVACHrom Protein Standard III (G)	500 µl	39255.01
SERVA Triple Color Protein Standard II (H)	500 µl	39257.01
SERVA Triple Color Protein Standard III (I)	500 µl	39258.01
SERVA Pink Color Protein Standard II (J)	500 µl	39259.01

■ Triple Color/Pink Color Protein Standards are stable at 25 °C for up to two weeks

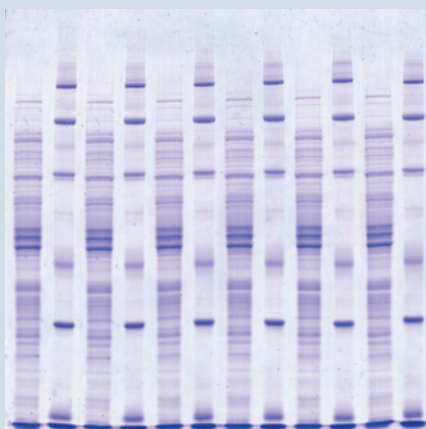
## SERVA Stains for SDS PAGE

To detect electrophoretically separated proteins, colorimetric staining methods are common. Coomassie® and silver are mainly used. The best

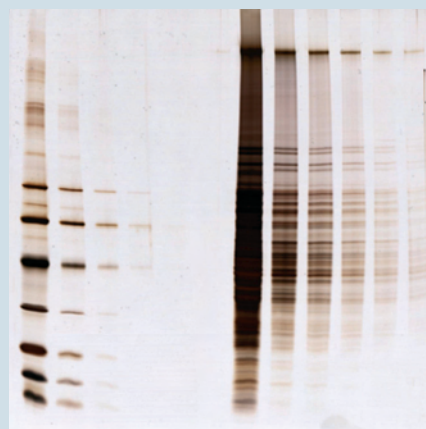
method for a specific application strongly depends on the detection limit, the compatibility with downstream applications and detection instruments.

### Selection guide for colorimetric staining kits

	<b>Quick Coomassie® Stain</b>	<b>DensiStain Blue G Staining Solution</b>	<b>Realtime Stain</b>	<b>Silver Staining Kit SDS PAGE</b>
Type of Stain	1-step, non-toxic colloidal Coomassie® G-250 stain	Sensitive, colloidal Coomassie® G-250 stain	1-step, Coomassie® G-250 pre-stain	Fast, MS-compatible silver stain
Pre-Staining	-	-	✓	-
Post-Staining	✓	✓	-	✓
Sensitivity	5 ng	30 ng	50 ng	0.1 ng
Staining time	15 min	30 min	10 min pre-staining	45 - 60 min
Quantification	✓	✓	✓	-
MS compatible	✓	✓	✓	✓
Re-usable	✓	✓	-	-
No. of mini gels stained	40 - 120	20 - 60	40 wells/400 wells	25
Cat. No.	35081.01	35078.01	35084.01 35085.01	35076.01



SDS electrophoresis on SERVAGE™ stained with Quick Coomassie® Stain



SDS electrophoresis on SERVAGE™ stained with Silver Staining Kit SDS PAGE

Quick Coomassie® – stain your gel in 15 min only

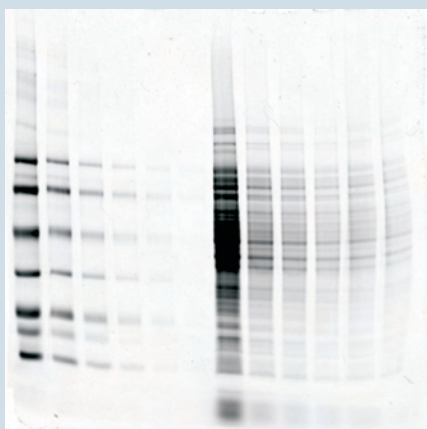
Realtime Stain – view protein band separation in real time during electrophoresis



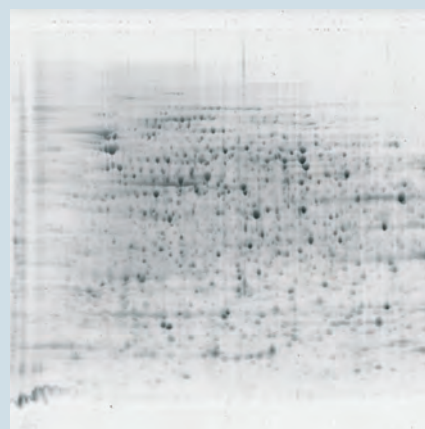
SERVA developed a range of easy-to-use, highly sensitive, fluorescence-dye based kits. The SERVA Lightning Red Kit is a rapid label of proteins prior to SDS PAGE, making any staining and washing steps unnecessary after electrophoresis.

### Selection guide for fluorescence staining kits

	<b>SERVA Lightning Red for 1D SDS PAGE</b>	<b>SERVA ProteinStain Fluo-R</b>	<b>SERVA ProteinStain Fluo-Y</b>	<b>SERVA Purple</b>
Type of Stain	Highly sensitive, fast, red fluorescent pre-stain	Highly sensitive red fluorescent stain	2-step, golden fluorescent stain	Highly sensitive, fast, red fluorescent stain
Pre-Staining	✓	-	-	-
Post-Staining	-	✓	✓	✓
UV-Transilluminator	-	✓	✓	-
Fluorescence imager/ Laser scanner	✓	✓	✓	✓
Excitation	530	473/488	330/390	405/500
Emission	610	610	570	610
Sensitivity	<0.5 ng	2 ng	1 ng	0.05 ng
Staining time	30 min pre-staining	1 h mini gels, 6 h large gels	15 - 45 min	1 h - 1.5 h
Quantification	✓	✓	✓	✓
WB/MS compatible	✓	✓	✓	✓
No. of mini gels stained	500 wells/1250 wells	20	20	12/60/250
Cat. No.	43401.01/43401.02	35091.01	35092.01	43386.03/43386.01/43386.02



SDS electrophoresis on SERVAGE™ stained with SERVA Lightning Red



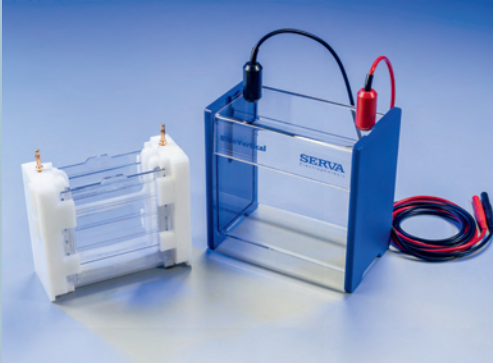
2D electrophoresis on a SERVA 2D HPE Large Gel 12.5 % flatbed gel stained with SERVA Purple

8

## SDS PAGE Equipment

Despite of high quality gels and reagents, the equipment is a key factor to achieve best results in electrophoresis. Only the use of electrophoresis chambers providing an uniform electric field during the run and a reliable power supply result in perfect separations. SERVA developed HPE™ BlueHorizon™,

HPE™ BlueTower, BlueVertical™ PRiME™, BluePower™ Power Supply and BlueShake 3D in close cooperation with researchers throughout the world. The devices are manufactured in Germany according to the specifications determined by SERVA.



### BlueVertical™ PRiME™

The BlueVertical™ PRiME™ electrophoresis mini tank system has been developed to run pre-cast gels in 1D SDS PAGE, but also in 2D PAGE, native PAGE, IEF or nucleic acid PAGE applica-

tions. The unique innovative clamp system keeps the gel cassettes in their correct position at the inner core running module, leak-free and ready to start within seconds.

### BluePower™ Power Supplies

The BluePower™ Power Supplies are easy to operate and fully programmable. Change parameters without interrupting the run. The power supplies have a stable metal

housing and a large LCD display. The upgrade with the BluePower™ Control Kit allows to monitor V, mA and W over time as well as loading and storing of program settings.



### Digital Imaging and Analysis System III

The Digital Imaging and Analysis System III is the ideal solution to master the daily tasks of documentation and 1D gel analysis in routine laboratory work. Solid hardware including a digital SLR camera

and easy-to-grasp 1D analysis software are combined to provide an excellent tool to meet your needs. UV-, blue- and white-light transilluminator or epi-white light are optional.



Product	Size	Cat. No.
BlueVertical PRiME™	1 unit	BV 104
BluePower™ 500x4 Power Supply (500 V, 1000 mA, 200 W)	1 unit	BP-500x4
MP 300 V Power Supply (300 V, 700 mA, 150 W)	1 unit	MP-300V
BluePower™ Control Kit	1 kit	BP-PCSV01
Digital Imaging and Analysis System III, basic	1 system	DIAS-III-B
Digital Imaging and Analysis System III plus GelScan 6.0	1 system	DIAS-III
Digital Imaging and Analysis System III plus LabImage 1D L-340	1 system	DIAS-III-L



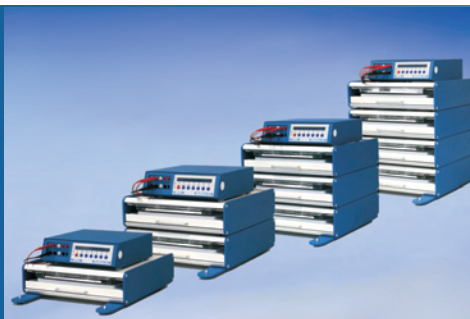


### HPE™ BlueHorizon™

The HPE™ BlueHorizon™ is a PAGE and IEF. Systems including flatbed system for optimized performance in cooled flatbed unit are available upon request.

### HPE™ Blue Horizon™ Multi Deck

The HPE™ BlueHorizon™ modular deck combines 2, 3 or 4 flatbed systems into one space and budget saving unit that is temperature controlled by one chiller and driven by one single power supply. The Multi Decks offer high throughput capacity for 1D applications like SDS PAGE or IEF and 2D PAGE.



### HPE™ BlueTower

The SERVA HPE™ BlueTower System is a multilevel flatbed electrophoresis device providing unmatched resolution, reproducibility and sensitivity. Up to four polyacrylamide gels can be operated simultaneously to conduct either 1- and 2-dimensional separations.

### BlueShake 3D

Due to the large platform of angel of 4°, this shaker is the instrument (35 x 35 cm) the best choice for staining and the chosen rotation large format gels.



Product	Size	Cat. No.
HPE™ BlueHorizon™	1 unit	HPE-BH
HPE™ BlueHorizon™ Double Deck	1 unit	HPE-BHD
HPE™ BlueHorizon™ Triple Deck	1 unit	HPE-BHT
HPE™ BlueHorizon™ Quadra Deck	1 unit	HPE-BHQ
HPE™ BlueTower	1 unit	HPE-T02
HPE™ BlueTower System	1 system	HPE-TS2
HPE™ Power Supply 1500 (1500 V, 400 mA, 300 W)	1 unit	HPE-PS1
HPE™ Power Supply Package	1 system	HPE-PSP
HPE™ Cooling Unit	1 unit	HPE-CU1
SERVA BlueShake 3D	1 unit	BS-3D



# SERVA

SERVA WORLDWIDE

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