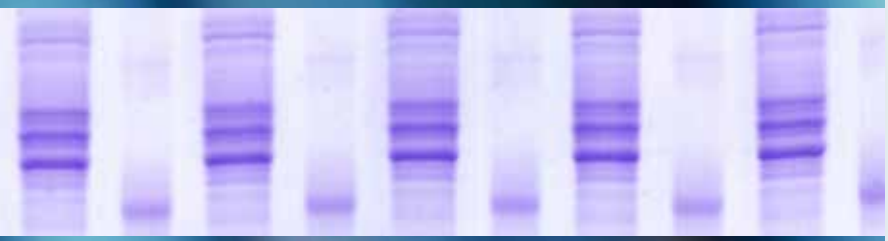
SDS PAGE

SERVA
serving scientists



Reagents and Equipment

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. Gel Media and Electrophoresis Buffers
4. SERVA Protein Standards
5. SERVA Stains for SDS PAGE
6. SDS PAGE Equipment

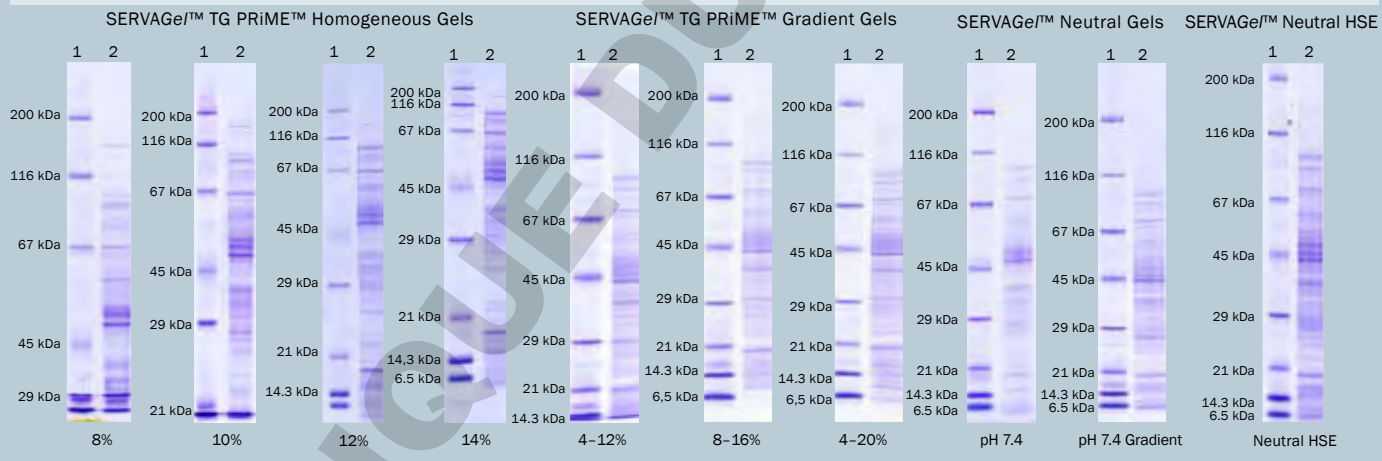
Premium Resolution PRiME™ in Minigel Electrophoresis

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

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

SERVAGel™	15 sample wells	12 sample wells	10 sample wells	2D well	Size
SERVAGel™ TG PRiME™ 8 %	43284.01	43260.01	43261.01	-	10 gels
SERVAGel™ TG PRiME™ 10 %	43285.01	43263.01	43264.01	-	10 gels
SERVAGel™ TG PRiME™ 12 %	43286.01	43266.01	43267.01	43268.01	10 gels
SERVAGel™ TG PRiME™ 14 %	43287.01	43269.01	43270.01	43271.01	10 gels
SERVAGel™ TG PRiME™ 4-12 %	43288.01	43273.01	43274.01	-	10 gels
SERVAGel™ TG PRiME™ 4-20 %	43289.01	43276.01	43277.01	-	10 gels
SERVAGel™ TG PRiME™ 8-16 %	43290.01	43279.01	43280.01	43281.01	10 gels
SERVAGel™ Neutral HSE	43249.01	43245.01	43246.01	43247.01	10 gels
SERVAGel™ Neutral pH 7.4	43256.01	43220.01	43222.01	-	10 gels
SERVAGel™ Neutral pH 7.4 Gradient	43257.01	43221.01	43223.01	-	10 gels



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

Product	Size	Cat. no.
SERVAGel™ TG PRiME™ Starter Kit	1 kit	43206.01
SERVAGel™ Neutral HSE Starter Kit	1 kit	43207.01

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

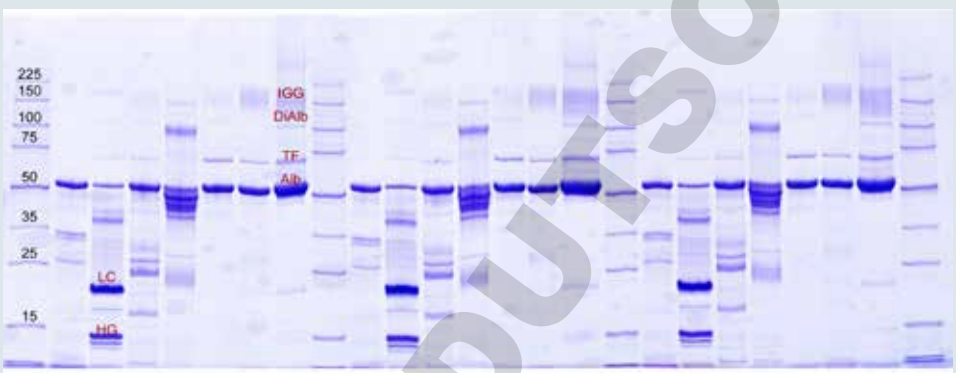
- **Short set-up times, gels are ready-to-use**
- **Casted in stable plastic cassettes (10 cm x 10 cm x 0.7 cm)**
- **Separation distance: 7 cm**

2 SERVA Gels for Horizontal SDS PAGE

SDS Gel Kits

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 0.43 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 platinium electrodes with three variable positions. For ordering information please see page 10.

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**

1D SDS TA Gel Kits

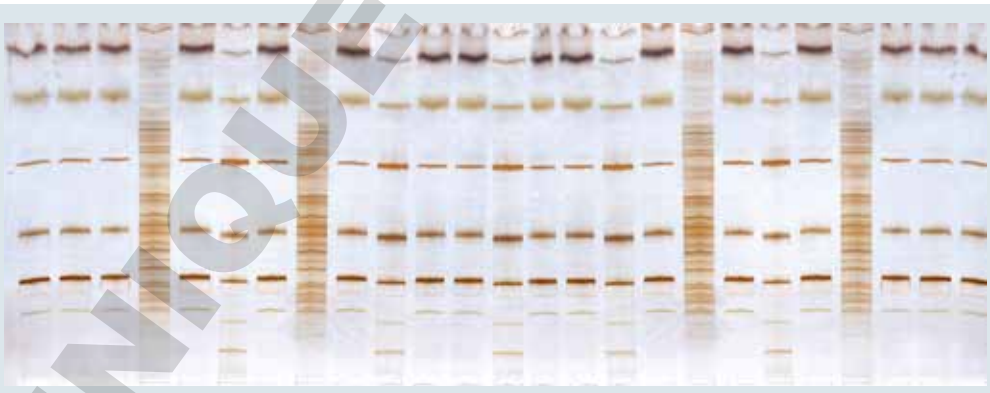
The ready-to-use 1D SDS TA Gel Kits are the ideal alternative for ExcelGel™ SDS gels from GE. The gels have been developed in Heidelberg in close co-operation with researchers formerly using GE's ExcelGel ensuring comparable results.

The thin gel layer and running conditions at temperature-controlled 15 °C enables high resolution of protein bands, fast staining/destaining properties and much easier handling compared to vertical PAGE. The backing film is available as standard, but also as a non-fluorescence (NF) version. Standard film-backed gels are recommended for Coomassie® or silver staining.

The NF gels are made for fluorescence detection of proteins, e.g. SERVA Lightning Red for pre-labelling of protein samples and immediate detection of separated protein bands after electrophoresis.

Gels can be run in horizontal electrophoresis systems like SERVA's HPE™ BlueTower or HPE™ BlueHorizon systems, and as well in a Multiphor II. One kit contains 4 precast gels (260 mm x 125 mm x 0.43 mm) with 25 sample wells each, SDS anode and cathode buffer (250 ml each) and 8 electrode wicks to be soaked with anode/cathode buffer prior to electrophoresis.

- Replaces GE's ExcelGels
- Gel format 260 mm x 125 mm, gel layer 0.43 mm
- 25 sample wells, 15 µl each
- Film backing available as non-fluorescent and standard
- Film-backing can easily be removed for Western blotting



Proteins (*E. coli* lysate, protein standards) separated on 12.5 % 1D SDS TA gel.

Product	Slots	Qty.	Cat. no.
1D SDS TA Gel Kit 12.5 %	25	1 kit	43415.01
1D SDS TA Gel Kit NF 12.5 %	25	1 kit	43379.01
1D SDS TA Gel Kit 7.5 %	25	1 kit	43416.01
1D SDS TA Gel Kit NF 7.5 %	25	1 kit	43414.01

ExcelGel™: trademark owned by GE

High resolution horizontal SDS PAGE

Easy handling, low buffer consumption, long shelf life

Replaces GE's ExcelGels

3 Gel Media and Electrophoresis Buffers

For the perfect gel – buy directly from the manufacturer! For manufacturing of various polyacrylamide gels (e.g. SERVAGel™ TG PRiME precast vertical mini gels) SERVA has developed a profound knowledge base in making acrylamide and buffer solutions. Today, due to ongoing optimisation processes SERVA offers ready-to-use Acrylamide/Bis and buffer solutions of highest quality.

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
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/LDS sample buffer (4x)	10 ml	42525.01
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
SDS Solution, 20 % electrophoresis grade	100 ml	20768.01
	500 ml	20768.02
	1 L	20768.03

- **Ready-to-use solutions for saving time and work**
- **Safe working, reduced health risk**
- **Quality controlled for electrophoresis**

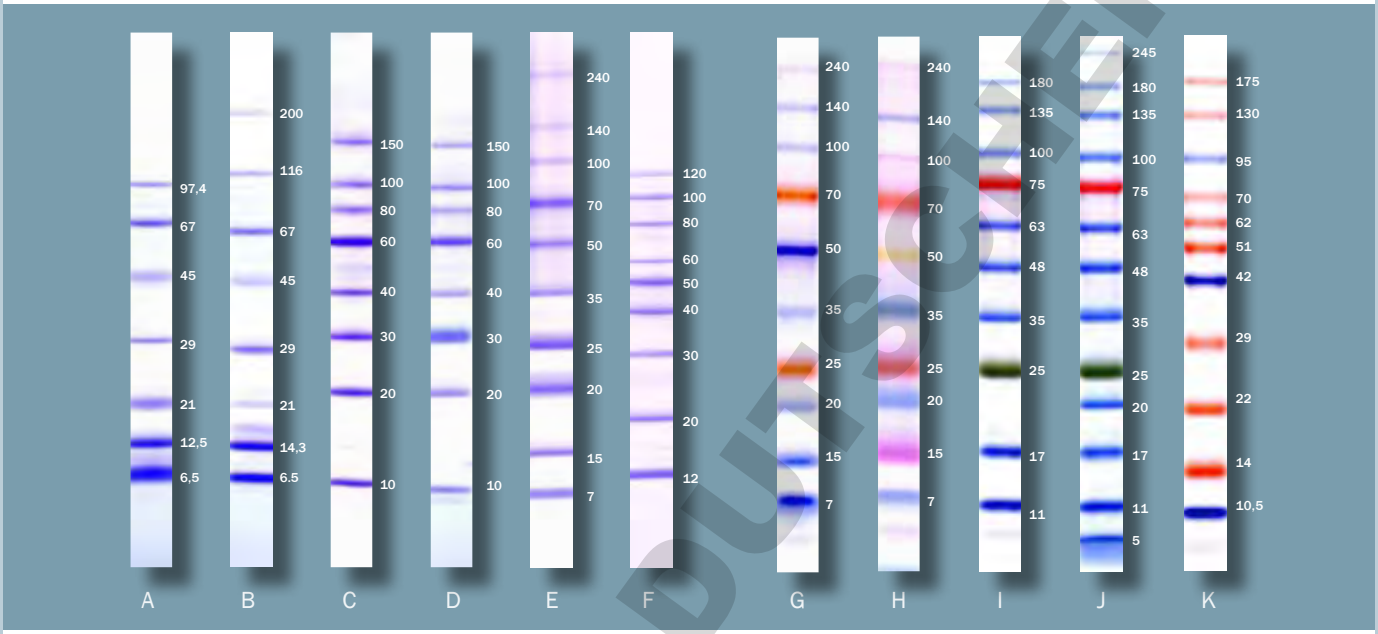
4 SERVA Protein Standards

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 (29 - 97 kDa, not shown)	10 mg	39208.01
Protein Test Mixture 5 for SDS PAGE (6.5 - 29 kDa, 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 II (E)	500 µl	39248.01
SERVA Unstained Protein Standard III (F)	500 µl	39249.01
SERVA Dual Color Protein Standard III (G)	500 µl	39252.01
SERVAChrom Protein Standard III (H)	500 µl	39255.01
SERVA Triple Color Protein Standard II (I)	500 µl	39257.01
SERVA Triple Color Protein Standard III (J)	500 µl	39258.01
SERVA Pink Color Protein Standard II (K)	500 µl	39259.01

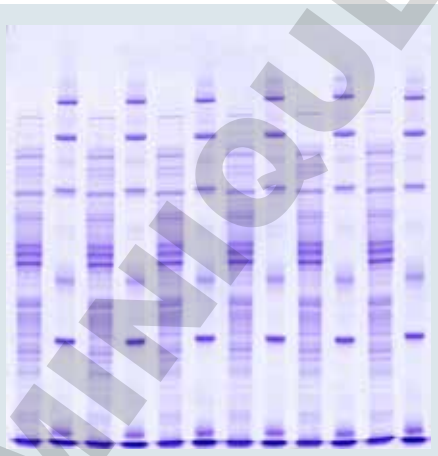
Triple Color/Pink Color Protein Standards are stable at 25 °C for up to two weeks

5 SERVA Stains for SDS PAGE

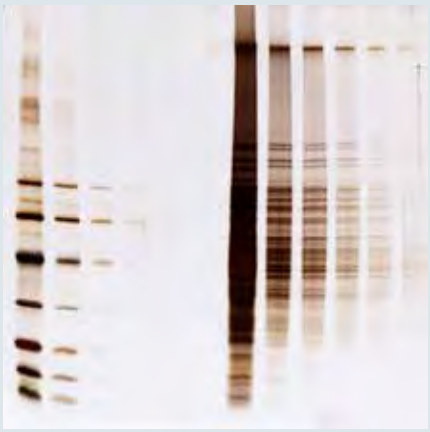
To detect electrophoretically separated proteins, colorimetric staining methods are common. Coomassie® and silver are mainly used. The best method for a specific application strongly depends on the detection limit, the compatibility with downstream applications and detection instruments.

Selection guide for colorimetric staining kits

	Quick Coomassie® Stain	***Densi*Stain Blue G Staining Solution**	**Realtime Stain**	**Silver Staining Kit SDS PAGE**
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 SERVAGel™ stained with Quick Coomassie® Stain



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

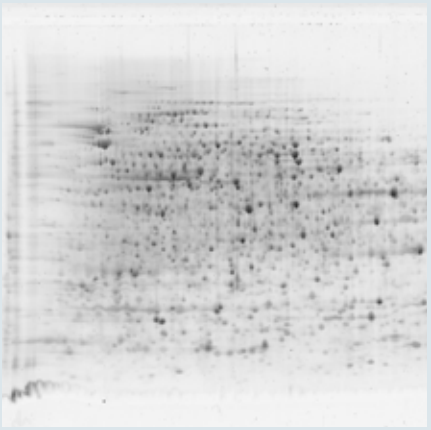
- **Quick Coomassie® – stain your gel in 15 min only**
- **Realtime Stain – view protein band separation in real time during electrophoresis**

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

	SERVA Lightning Red for 1D SDS PAGE	SERVA ProteinStain Fluo-R	SERVA ProteinStain Fluo-Y	SERVA Purple
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 SERVAGel™ stained with SERVA Lightning Red

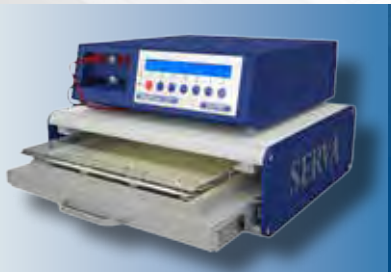


2D electrophoresis on a SERVA 2D HPE Large Gel 12.5 % flatbed gel stained with SERVA Purple

SERVA Lightning Red – a novel, highly sensitive pre-labelling fluorescence dye

6 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 a uniform electric field during the run and a reliable power supply result in perfect separations. SERVA developed HPE ™ BlueHorizon™, HPE™ BlueTower, BlueVertical™ PRiME™ and BluePower™ Power Supply in close cooperation with researchers throughout the world. The devices are manufactured in Germany according to the specifications determined by SERVA.

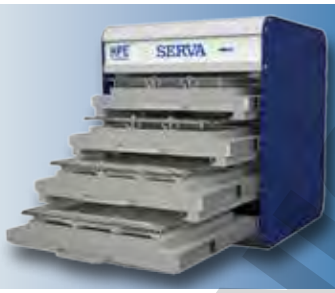


HPE™ BlueHorizon™

The HPE™ BlueHorizon™ is a flatbed system for optimized performance in cooled flatbed 1D SDS PAGE, 2D PAGE, native PAGE and IEF. Systems including power supply and cooling unit are available upon request.

HPE™ Blue Horizon™ Multi Deck

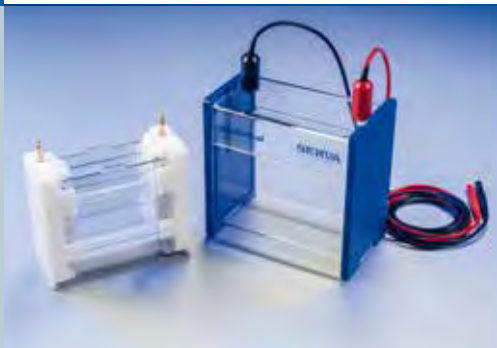
The HPE™ BlueHorizon™ modular deck combines 2, 3 or 4 flat bed systems into one space and budget saving unit that is temperature controlled by one chiller and driven by one single power supply. The Multi Decks offer high throughput capacity for 1D applications like SDS PAGE or IEF and 2D PAGE.



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.

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
BluePower™ Control Kit	1 kit	BP-PCSV01
HPE™ Cooling Unit	1 unit	HPE-CU1



BlueVertical™ PRiME™

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

BIO-1000F Fluorescence Gel Scanner

The Fluorescence Gel Scanner BIO-1000F allows to detect proteins pre-labelled with SERVA Lightning Red and other fluorescence dyes that are excited with blue light and emitting above 520 nm with a sensitivity of about 1 ng protein/band (for SERVA Lightning Red).

Product	Size	Cat. no.
BlueVertical PRiME™	1 unit	BV-104
MP 310 Power Supply (300 V, 700 mA, 150 W)	1 unit	MP-310
MP 510 Power Supply (500 V, 800 mA, 300 W)	1 unit	MP-510
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
BIO-1000F Fluorescence Gel Scanner	1 unit	BIO-1000F

SERVA
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Version 18/01