Blue*Line*
Instruments for Electrophoresis

INSTRUCTION MANUAL

BlueVertical™ PRiME™

Vertical Electrophoresis Chamber

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WARNING

These units are capable of delivering potentially lethal voltage when connected to a power supply and are to be operated only by qualified technically trained personal.

Please read the entire operator's manual thoroughly before operating this unit.
The BlueLine vertical electrophoresis systems are designed to give long service and reproducible results in your laboratory. A few moments spent reading these instructions will ensure that your expectations are reflected in the successful use of the apparatus.

First check that the apparatus has been received complete and undamaged following shipment. Any faults or losses must be notified to responsible **SERVA Electrophoresis GmbH** distributor immediately. **SERVA Electrophoresis GmbH** Heidelberg cannot accept responsibility for goods returned without prior notification.

Refer to the packing list and check that all components and accessories are present.

Warranty is 12 months from the date of delivery.
Please retain all packaging materials until the warranty period has expired.

Ver. 02/13

Contents

1. PACKING LIST

BlueVertical™ PRiME™
Cat. no.: BV 104

No. of Items	Description	Cat. no.
1	Main Unit	BV 104
1	Dummy Plate	BV 104-7

2. Specifications

- Rugged acrylic construction
- All acrylic joints chemically bonded
- Doubly insulated cables, rated safe up to 1000 volt
- Gold plated electrical connectors, corrosion-free and rated safe up to 1000 volt
- Safety lid with integrated power connectors
- Pure platinum electrodes (0.2 mm diameter)
- Size: 16 cm x 15.6 cm x 9.5 cm (w x h x d)
- Weight: 1.2 kg

Table 1: Specifications

Volume inner buffer chamber	200 ml
Volume outer buffer chamber	450 ml
Voltage (max)	500 V
Current (max)	250 mA
Operating temperature	4 °C – 65 °C
Electrodes	Platinum wire (0.2 mm, 99.99 % pure)
Dimensions	16 x 15.6 x 9.5 cm (WxHxD)
Weight	1.2 kg

3. Operational conditions

This apparatus is intended for indoor use only. Maximum relative humidity up to 80 % (for temperatures up to 31 °C) decreasing linearly to 50 % relative humidity (for temperatures up to 40 °C), at maximum altitude of 2000 m (MSL).

4. Using the vertical gel electrophoresis unit

4.1. Safety precautions

- **Read** the instructions carefully before using the apparatus.
- Always disconnect the electrophoresis unit from the power supply before removing the safety cover.
- **Do not** attach the safety lid to the internal gel running unit while it is out of the bottom buffer chamber.
- **Do not** exceed the maximum operating voltage or current (see Table 1).
- **Do not** operate the electrophoresis units in metal trays.
- Polymerised gels may contain some unpolymerised acrylamide monomer, which is a volatile, cumulative neurotoxin and suspected carcinogen. Wear effective protective clothing and gloves. Follow recommended handling and disposal procedures.
- **Do not** fill the unit with running buffer above the maximum fill lines.
- **Do not** move the unit when it is running.
- **Caution:** During electrophoresis very low quantities of various gases are produced at the electrodes. The type of gas produced depends on the composition of the buffer employed. To disperse these gases make sure that the apparatus is run in a well ventilated area.

4.2. General care and maintenance

- Before use clean and dry the apparatus with **distilled water only**.
  Important: Acrylic plastic is not resistant to aromatic or halogenated hydrocarbons, ketones, esters, alcohols (over 30 %) and acids (over 25 %).

- Before use, and then on a monthly basis, check the unit for any leaks at the bonded joints. Place the unit on a sheet of dry tissue and then fill with **distilled water only** to the maximum fill line. Any leakage will cause dampening of the tissue paper. If any leakage is seen **do not attempt to repair or use the apparatus**, but notify **SERVA Electrophoresis GmbH** Heidelberg resp. the **SERVA Electrophoresis GmbH** distributor immediately.

- The platinum electrodes are partially shrouded for protection. However, when cleaning the main tank **do not** use cleaning brushes in the electrode area. Usually a thorough rinse with distilled water is all that is required.

- Ensure that the connectors are clean and dry before usage or storage.

4.3. Buffer volume/running conditions

The buffer volume can be seen in Table1. The running conditions (Table 2) vary according to the number of gels and their composition. The current required will increase in proportion to the number of gels providing that the voltage is not limiting, e. g. two gels require twice the current of one but the same voltage.
By increasing the gel concentration the electrical resistance is increased and the rate of migration decreases. Higher voltages can be applied but be careful not to overheat the gel.

Table 2: Running conditions using BlueVertical™ in different electrophoresis applications

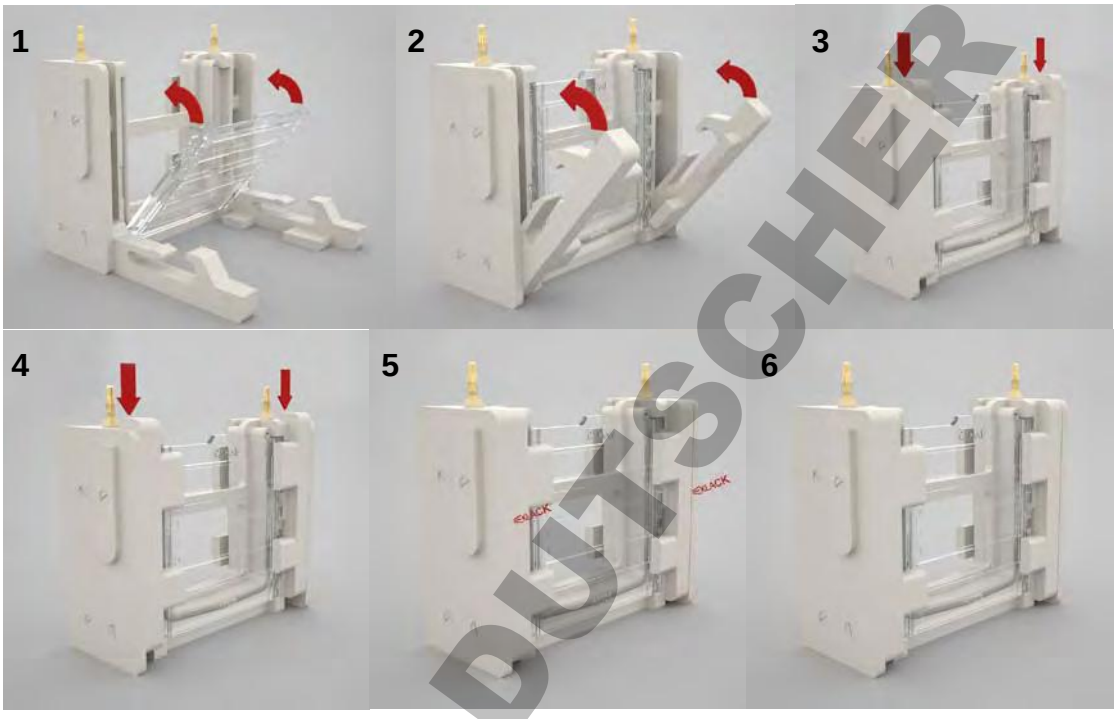
Type of electrophoresis	**Type of SERVA*Gel*™ Precast Gel**	**Running conditions**
SDS PAGE	SERVA*Gel*™ HSE	• $Volt_{const.}$: 400 Volt • Time: 20 minutes
SDS PAGE	SERVA*Gel*™ TG PRiME™	• $Volt_{const.}$: 300 Volt • Time: 35 minutes
SDS PAGE	SERVA*Gel*™ TG Neutral	• $Volt_{const.}$: 150 Volt • Time: 70 minutes
Native PAGE	SERVA*Gel*™ N	• $Volt_{const.}$: 130 Volt • Time: 60 – 120 minutes
Isoelectric Focusing	SERVA*Gel*™ IEF	• $Volt_{const.}$: 100 Volt for 60 minutes • $Volt_{const.}$: 200 Volt for 60 minutes • $Volt_{const.}$: 500 Volt for 30 minutes • Time: 150 minutes

For detailed information about the running conditions of SERVA*Gel*™precast vertical mini gels, please see the manuals supplied with the gels.

4.4. Performing electrophoresis

4.4.1. Insertion of precast gel cassettes into the inner core running unit

- Clean the silicone gasket, located in the inner core unit. If the gasket becomes unseated from its groove simply press it back into place.
- Insert the precast gel cassette into the inner core running unit.



- When running only one gel, a dummy plate is required on the opposite side to retain the required buffer level.
- Place the gel running unit into the buffer tank using the locating pegs as guides.
- Add the appropriate volumes of running buffer to the inner and outer buffer chambers (see Table 1).
- **Important: Do not** overfill (please see marking “max fill”).

4.4.2. Sample loading

- Load the samples using a gel loading pipette tip. During sample loading the pipette tip should be 1 - 2 mm above the bottom of the well to minimise dilution of the sample and to keep the sample as a tight layer.

- Avoid cross-contamination by overloading the sample wells.

- Fill unused wells with the equivalent volume of sample buffer to maintain uniform electrical resistance across the gel.

4.4.3. Start of electrophoresis

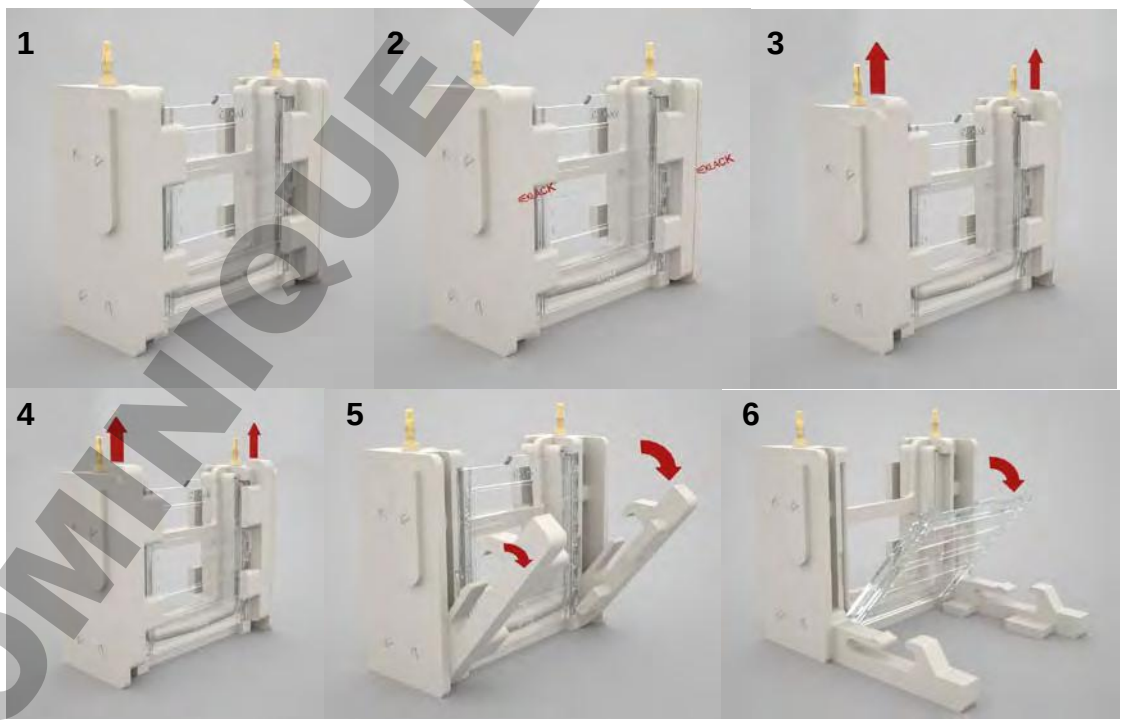
- Close the safety lid firmly making sure that the electrical connectors form a good contact.

- Connect the electrophoresis apparatus to the power pack and connect the power pack to the mains supply, e. g. SERVA BluePower 500x4 (BP-500x4). Turn all settings to zero before turning on the mains supply. Adjust the controls to the desired settings. Follow manufacturers instructions.

4.4.4. End of run

- Turn the power supply settings to zero, turn off mains supply and disconnect the power leads.

- Remove the safety lid, take out the internal gel running unit and discard the buffer.



- Discard the buffer from the outer buffer tank. Rinse the chambers twice with distilled water then dry the electrode connectors with tissue. Ensure that the connectors are clean and dry before usage or storage (see chapter 4.2).

For further information about the SERVA Blue*Line*, please contact the technical service of SERVA Electrophoresis GmbH in Heidelberg, phone Tel.: +49 (0)6221 13840-44.

5. Recommended reagents for vertical electrophoresis

SERVA reagents for electrophoresis underly stringent quality and application control to ensure best performance and results. We recommend the usage of SERVA electrophoresis reagents especially along with Blue*Line* electrophoresis instruments as the quality of consumables is fine-tuned to the equipment (application tests).

Precast gels and Starter Kits		
SERVA*Gel*™ Gels for SDS PAGE		
Product	**Sample wells**	**Cat. No.**
SERVA*Gel*™ TG PRiME™ Starter Kit		43206
SERVA*Gel*™ TG PRiME™ 8 % Tris-Glycine Gel 8 %	12	43260
	10	43261
SERVA*Gel*™ TG PRiME™ 10 % Tris-Glycine Gel 10 %	12	43263
	10	43264
SERVA*Gel*™ TG PRiME™ 12 % Tris-Glycine Gel 12 %	12	43266
	10	43267
	2D	43268
SERVA*Gel*™ TG PRiME™ 14 % Tris-Glycine Gel 14 %	12	43269
	10	43270
	2D	43271
SERVA*Gel*™ TG PRiME™ 4-12 % Tris-Glycine Gel 4-12 %	12	43273
	10	43274
SERVA*Gel*™ TG PRiME™ 4-20 % % Tris-Glycine Gel 4-20 %	12	43276
	10	43277
SERVA*Gel*™ TG PRiME™ 8-16 % % Tris-Glycine Gel 8-16 %	12	43279
	10	43280
	2D	43281
SERVA*Gel*™ TG 8 % Tris-Glycine Gel 8 % **(Available upon request, please inquire.)**	12	43208
	10	43209
SERVA*Gel*™ TG 10 % Tris-Glycine Gel 10 % **(Available upon request, please inquire.)**	12	43210
	10	43211
SERVA*Gel*™ TG 12 % Tris-Glycine Gel 12 % **(Available upon request, please inquire.)**	12	43212
	10	43213
	2D	43226
SERVA*Gel*™ TG 14 % Tris-Glycine Gel 14 % **(Available upon request, please inquire.)**	12	43214
	10	43215
	2D	43227
SERVA*Gel*™ TG 16 % Tris-Glycine Gel 16 % **(Available upon request, please inquire.)**	12	43216
	10	43217
SERVA*Gel*™ TG 4-12 % Tris-Glycine Gel 4-12 % **(Available upon request, please inquire.)**	12	43232
	10	43238
SERVA*Gel*™ TG 4-20 % % Tris-Glycine Gel 4-20 % **(Available upon request, please inquire.)**	12	43230
	10	43236
SERVA*Gel*™ TG 8-16 % % Tris-Glycine Gel 8-16 % **(Available upon request, please inquire.)**	12	43231
	10	43237
	2D	43228
SERVA*Gel*™ Neutral pH 7.4	12	43220
	10	43222
SERVA*Gel*™ Neutral pH 7.4 Gradient	12	43221
	10	43223
SERVA*Gel*™ Neutral HSE Starter Kit	12	43207
SERVA*Gel*™ Neutral HSE	12	43245
	10	43246
	2D	43247

SERVA*Gel*™ Gels for native PAGE (Blue Native BN/Clear Native CN)		
Product	**Sample wells**	**Cat. No.**
SERVA*Gel*™ N Native Starter Kit	12/10	43204
SERVA*Gel*™ N 3-12, Vertical Native Gel 3-12 %	12	43250
	10	43251
SERVA*Gel*™ N 4-16, Vertical Native Gel 4-16 %	12	43252
	10	43253
SERVA*Gel*™ Gels for vertical IEF		
SERVA*Gel*™ IEF Starter Kit	12	43205
SERVA*Gel*™ IEF 3-10, Vetical IEF Gel pH 3-10	12	43240
	10	43242
Buffers for SDS PAGE		
Product	**Cat. No.**	
SERVA Tris-Glycine/SDS Sample Buffer (2x)	42527	
Laemmli Buffer 10x, for SDS PAGE	42556	
SERVA Tris-Glycine/SDS Electrophoresis Buffer (10x)	42529	
Laemmli Sample Buffer (2x), for SDS PAGE	42526	
SERVA Tris-Tricine/SDS Sample Buffer (2x)	42551	
SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x)	42552	
SERVA Tris-Tricine/SDS Electrophoresis Buffer (20x)	42560	
Buffers for native PAGE		
SERVA Tris-Glycine Native Sample Buffer (2x)	42528	
SERVA Tris-Glycine Native Electrophoresis Buffer (10x)	42530	
Native Anode Buffer for BN/CN (10x)	42535	
Native Cathode Buffer for BN/CN (10x)	42536	
Sample Buffer for BN (2x)	42533	
Sample Buffer for CN (2x)	42534	
SERVA Blue G solution for BN , 1 %	42538	
Buffers for vertical IEF		
IEF sample buffer (2x), sterile filtered	42537	
SERVA*Gel*™ IEF Running Buffer Kit	42539	
Reagents		
Glycine	23390	
Tris(hydroxymethyl)aminomethane (TRIS)	37190	
Dodecylsulfate-Na-salt (SDS)	20763 / 20770	
2-Mercaptoethanol	28625	
Dithiothreitol (DTT)	20710	
Dithioerythritol (DTE)	20697	
SERVA Blue G	35050	
SERVA Blue R	35051	
Bromophenol Blue-Na-salt	15375	
SDS Solution, 20 %	20767	

A comprehensive range of SERVA products for electrophoresis is available listed in the Main Catalogue available from **SERVA Electrophoresis**. Please inquire.