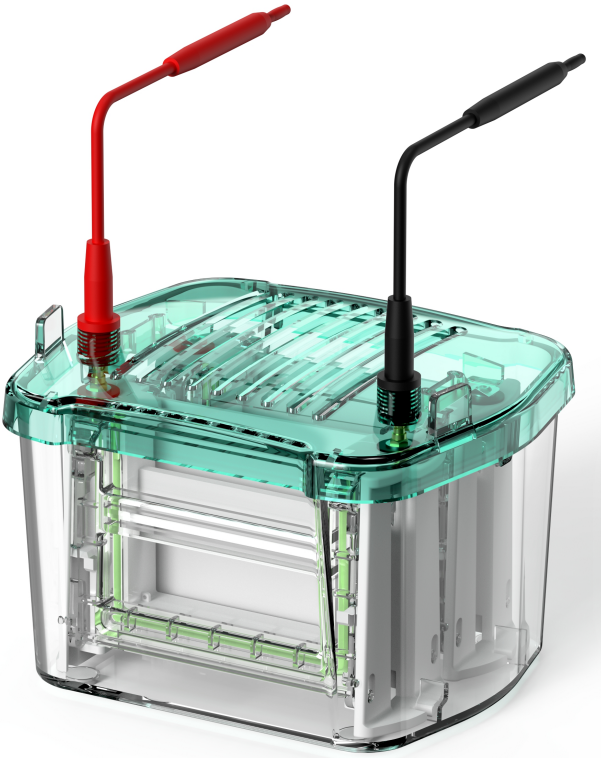
Servicebio®



User Manual

Vertical Electrophoresis System | Transfer Electrophoresis System

SVE-4 | SVT-4

Please read the instructions carefully and keep them properly before using the product for future reference.

Wuhan Servicebio Technology Co., Ltd.

CONTENTS

SVE-4 Vertical Electrophoresis System
User Manual

01 Product Overview

Warning

- Do not operate the product with power on (The electrophoresis chamber cover must be closed after sample loading before connecting the electrophoresis power supply. Avoid touching the electrophoresis tank during electrophoresis to prevent electrical shock hazards.)
- All components of this product can be cleaned with water and should be air-dried or wiped with an absorbent paper. Do not bake at high temperatures to prevent damage or deformation.
- Do not soak the product in alcohol for extended periods to avoid aging and cracking.

Electrophoresis Technology widely applied in fields such as biological research, analytical chemistry, clinical chemistry, toxicology, pharmacology, immunology, and food chemistry, electrophoresis refers to the phenomenon where charged particles migrate towards electrodes of opposite charge in a direct current electric field. This method enables the separation and analysis of small molecules, and is frequently employed in modern medicine to study proteins, nucleic acids, enzymes, and even viral cells.

Electrophoresis is not only utilized for protein separation and quantification but also finds numerous emerging applications in immunological experiments. For instance, it is used for the electrophoretic determination of hepatitis B antigen (HBAg) in diagnosing hepatitis B and alpha-fetoprotein (AFP) in diagnosing primary liver cancer.

02 Product Features

1.In-situ Gel Casting Mode: Enables gel casting and electrophoresis without the need to disassemble the electrophoresis glass, streamlining the process. It is also compatible with prefabricated gel products of the same model specification for electrophoresis needs.

2.Specially Designed Gel Casting Base: Features a unique design that allows for easy one-handed tightening of the gel casting base.

3.One-Step Tightening Press Cap: A uniquely designed press cap that, with a single step, secures the glass plates by compressing the sealing strip for a tight seal.

4.Versatile Glass Plate and Comb Compatibility: Capable of accommodating multiple thicknesses of glass plates and sample combs (1.5mm, 1mm, 0.75mm), catering to diverse volume requirements.

5.Simultaneous Electrophoresis of Four Gels.

6.Compatibility with SVT-4 Transfer Electrophoresis Systems.

03 Product Specifications

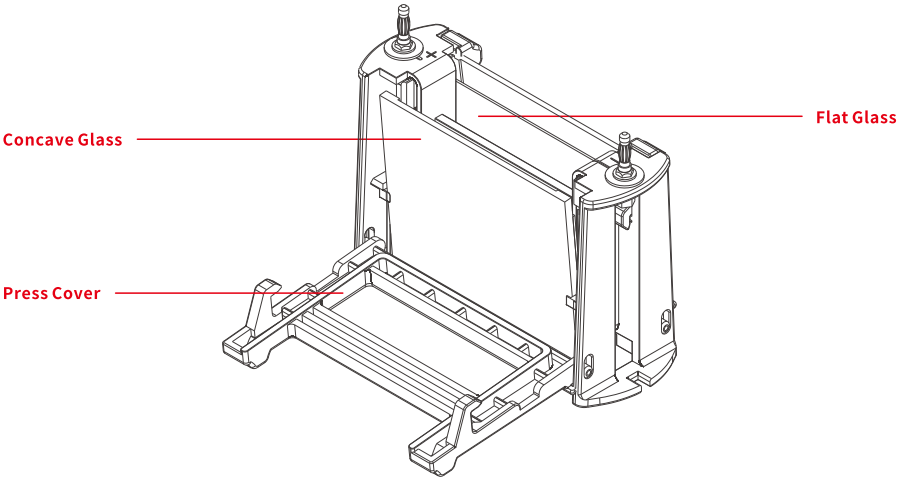
Cat.No.	SVE-4
Number of Gels	1-4
Gel Size	83×73mm
External Dimensions	153×183×159mm
Comb Specifications	1.0mm：11 teeth / 15 teeth 1.5mm：11 teeth / 15 teeth 0.75mm：11 teeth / 15 teeth
Maximum Buffer Capacity	1.6L
Weight	1Kg

04 Operating Procedures

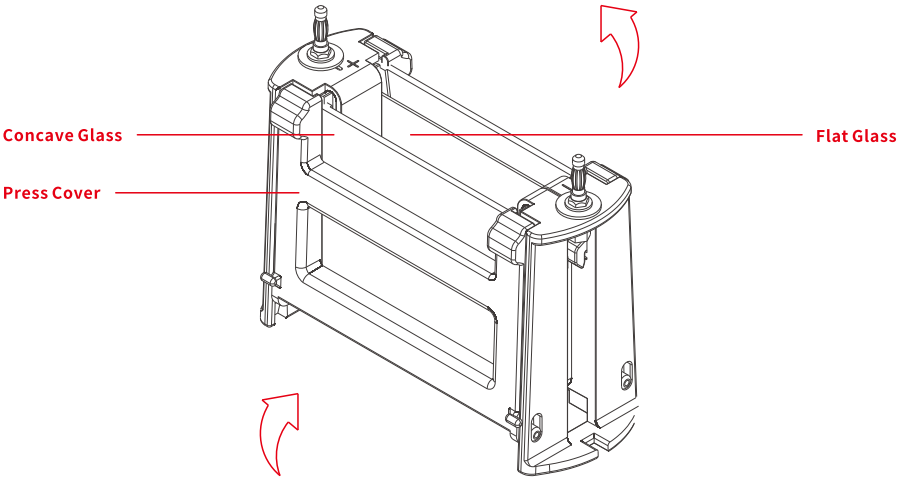
This electrophoresis tank allows for the simultaneous Gel Casting and electrophoresis of up to four gels. Before Gel Casting , ensure that the concave glass, flat glass, electrophoresis unit body, Gel Casting device, and other components are clean and dry, and check that all glass edges are free from chips, cracks, or imperfections.

4.1 Preparation

1.Open and Insert Glasses: First, fully open the press cover on the electrophoresis unit body. Insert the flat glass and concave glass (concave side facing inwards to form a chamber with the flat glass) in sequence from an oblique angle, ensuring they are placed fully at the bottom.



2.Holding the electrophoresis unit body by its sides, lift the press cover. Use your thumbs to press down on the middle crossbar. The upper end of the press cover should be flush with the upper surface of the support, indicating it is securely fastened (repeat for the other side).

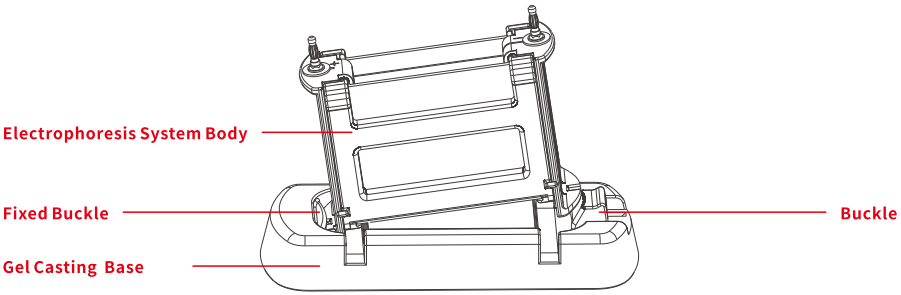


Note

- Before starting the experiment, check that the concave and flat glasses are aligned vertically, the glasses are fully seated at the bottom, and the press covers at both ends of the glasses are securely fastened.

3.Once the electrophoresis glasses are securely fastened and aligned, insert one leg of the electrophoresis unit body into the fixed Buckle position of the Gel Casting device base. Press down on the other side; due to the molded angle of the buckle, it will automatically open and securely fasten the electrophoresis unit body in place once pressed into position.

Note：The electrophoresis unit body can be installed and used in either orientation.



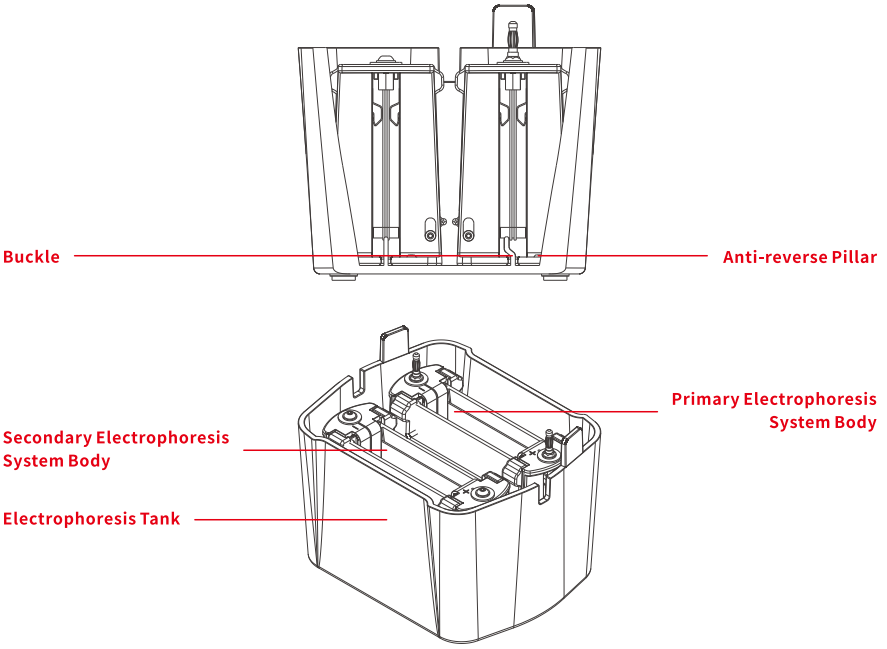
4.2 Gel Casting

Slowly pour the prepared gel solution into the gel chamber between the two glass plates until it reaches 2/3 to 3/4 of the chamber's height (depending on the actual experimental requirements). Use double-distilled water or anhydrous ethanol to fill the chamber evenly from side to side to create a sealing effect (be careful when adding the liquid to avoid generating bubbles).Let it stand for 20 minutes to 1 hour to allow the gel to polymerize. Pour out the double-distilled water or anhydrous ethanol and use absorbent paper to clean up any residual liquid in the gel chamber.

Fill the gel chamber with the prepared stacking gel (to the top of the plate glass), and then insert the sample comb. Let it stand for 30 to 45 minutes to allow the gel to fully polymerize.

4.3 Sample Loading

Press down on the buckle of the gel-casting base to remove the main electrophoresis system body and place it into the lower tank of the electrophoresis system. There is a Buckle on each side of the bottom of the water tank, and one side has an anti-reverse pillar to prevent incorrect placement. Align the buckles and the anti-reverse pillar and insert it at a 20° angle. If it is placed incorrectly, it cannot be installed and leveled (only the Buckle of the main electrophoresis system body is S-shaped and needs to be inserted at an angle, while the secondary electrophoresis system body can be inserted vertically. There are red and black markings on the left and right sides of the lower part of the electrophoresis system, corresponding to the red and black electrode markings.)



Inject the electrophoresis buffer into the main cavity of the electrophoresis support (between the two sets of glasses), with the liquid level height consistent with the upper edge of the concave glass, and the liquid level of the buffer outside the cavity should be at least 20mm above the bottom of the glass plate to ensure that it covers the bottom of the glass. Carefully pull out the sample comb from the Gel Casting glass, and check the sample holes to ensure that there is no residual gel or air bubbles in the sample holes. If residual gel is found, it should be blown away with a blowing pipe, and the air bubbles in the sample holes should also be blown out. Add the samples into the sample holes according to the experimental requirements to complete the sample spotting step.

4.4 Electrophoresis

Cover the upper cover according to the correct position of the positive and negative poles (red for positive pole, black for negative pole), insert the electrophoresis wire into the electrophoresis power supply according to the correct color, and select the appropriate voltage and current to start electrophoresis (specific electrophoresis parameters should be adjusted according to the actual experimental parameters).

Note

- After the electrophoresis gel is prepared in the glass, if secondary clamping is required for electrophoresis, the glass should be manually pushed to the top after the electrophoresis glass is clamped and tightened to prevent leakage.

05 Packing List

SVE-4	
Name	**Qty.**
Primary Electrophoresis System Body	1
Secondary Electrophoresis System Body	1
Gel Casting Base	2
Electrophoresis Tank	1
1.0mm Electrophoresis Glass	4
1.5mm Electrophoresis Glass	4
1.0mm 11-teeth sample comb	4
1.5mm 11-teeth sample comb	4
Single gel Blocking Plate	2
Gel Cutting Board	3
Pre-formed Gel Seal Strip	4

SVT-4 Transfer Electrophoresis System
User Manual

01 Product Overview

This product is designed to be used in conjunction with SVE-4 vertical electrophoresis systems.It utilizes an electric field to transfer proteins, nucleic acids, and other components from the post-electrophoresis gel onto blotting membranes, enabling further analysis and research of charged particles through biochemical analysis methods.

02 Product Features

1.Dual-plate structure, compatible with SVE-4 electrophoresis system.

2.The electrophoresis tank is molded from high-transparency polycarbonate in a single injection process, featuring corrosion resistance, high transparency, and product stability.

3.The transfer clamp have clearly marked positive and negative poles, equipped with handles for convenient operation.

4.High blotting efficiency, with a blotting time of approximately 20~40 minutes.

5.Structurally stable materials allow for simultaneous ice bath cooling to prevent overheating interference and ensure reliable experimental results.

6.Capable of blotting four gels simultaneously.

03 Product Specifications

Product Model	SVT-4
Number of Gels	1-4
Blotting Membrane Size	70×90mm
External Dimensions	153×183×159mm
Maximum Buffer Capacity	1.6L

04 Operating Procedures

4.1 Preparation

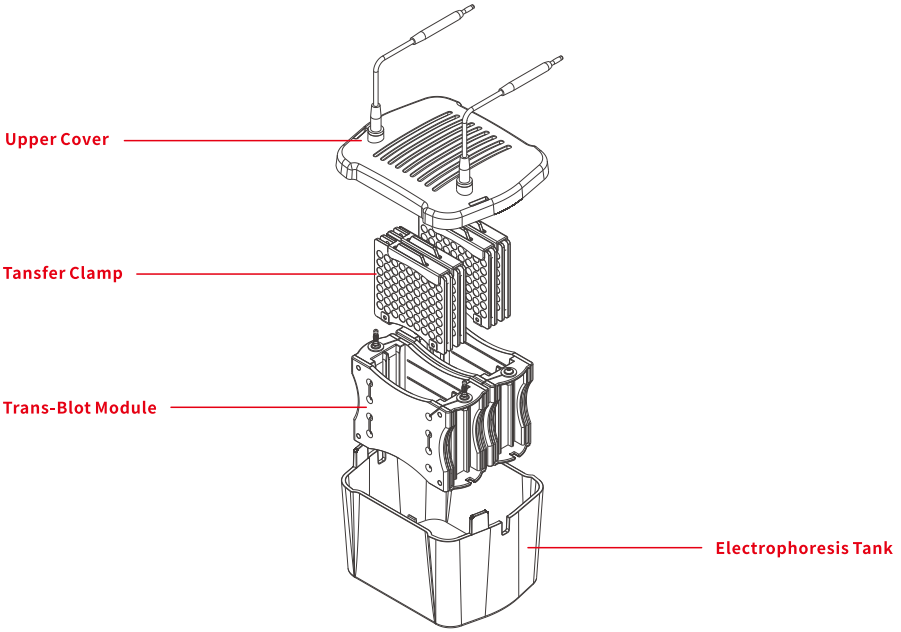
Prepare in advance 8 sheets of 7×9cm thin blotting filter paper or 2 sheets of thick filter paper of the same size, and 1 sheet of 7×9cm PVDF membrane (For target proteins larger than 20kda, membranes with a pore size of 0.45um are selected, and for those smaller than 20kda, membranes with a pore size of 0.2um are selected).

4.2 Activation

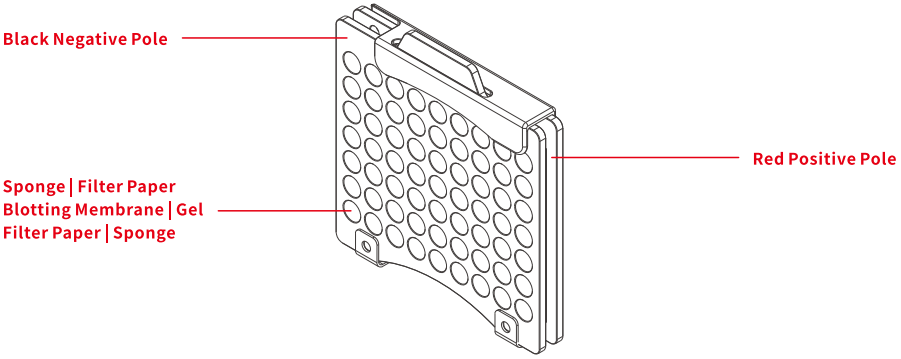
The PVDF membrane needs to be activated with methanol for 2 minutes before use.

4.3 Installation

Place the blotting materials in the blotting sandwich in the order of "Positive Pole (+) | Sponge | Filter Paper | Blotting Membrane | Gel | Filter Paper | Sponge | Negative Pole (-)" and remove any air bubbles. The red side indicates the positive pole direction, and the black side indicates the negative pole direction. Insert the blotting sandwich into the trans-blot module with the red side facing the red indicator and the black side facing the black indicator. A single trans-blot module can accommodate two blotting assemblies simultaneously.



4.4 Electrophoresis Transfer



Connect the electrophoresis power supply, set the transfer conditions, and initiate the membrane transfer process.

05 Packing List

SVT-4	
Name	**Qty.**
Transfer Clamp	4
Trans-Blot Module	2
Electrophoresis Tank	1
Transfer Sponge	1
Transfer Filter Paper	1

06 Precautions

1.The main components of this series of products are fragile. During packaging, transportation, and use, please be careful not to bump or drop them, as this may cause damage that prevents the product from functioning properly.

2.For metal parts such as platinum wires and electrode columns in this product, pay attention to issues like oxidation, breakage, and loosening during use, cleaning, and maintenance. Please replace and maintain them promptly. Platinum wires are extremely prone to breaking, so handle them with care during use.

3.After daily use, please clean the product with deionized water promptly and place it in a dust-free area to dry for future use.

Warranty Card

User Name		Tel.	
Cat.No.		Manufacturing No.	

Maintenance Records

Warranty date	Fault and repair log	Date of repair	Maintenance engineer

Servicebio®

Wuhan Servicebio Technology Co., Ltd.

027-5111-3188

4006-027-178

www.servicebio.com

5th Floor, 22 Building, Biopark, No. 388 Gaoxin 2nd Road, East Lake High-tech Developing Zone, Wuhan, Hubei China, 430079