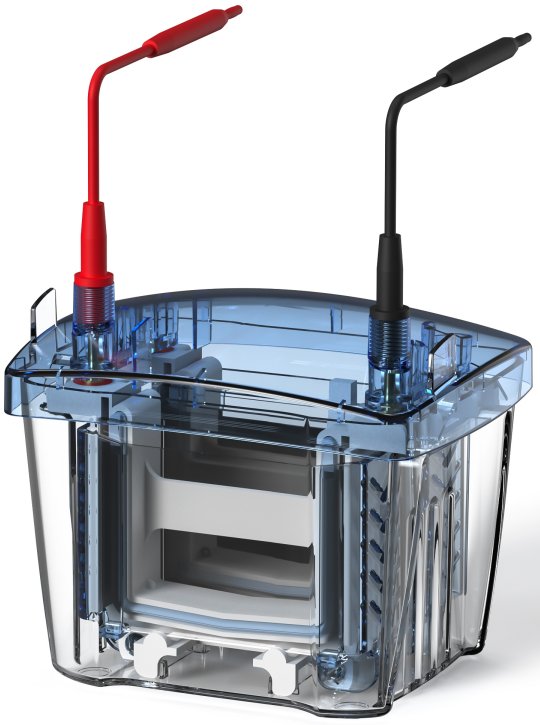
FISHER MOLECULAR BIOLOGY



User Manual

Vertical Electrophoresis System | Transfer Electrophoresis System

BVE-4 | BVT-4

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

Distributed by:

SIC Società Italiana Chimici
Life Sciences

Via Rio nell'Elba, 140 / 00138 Rome – ITALY
Phone: +39 06-8818936/8800211 - Fax: +39 06-8815319
Email: info@sichim.com Web-Site : www.sichim.com

CONTENTS

BVE-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.It adopts a separate gel casting mode for stable and reliable performance, while being compatible with the electrophoresis requirements of prefabricated gel products of this model and specification.

2.The uniquely designed gel casting frame is compact and space-saving, allowing for flexible combination and full utilization of space.

3.It can be adapted to various thicknesses of glass plates and sample combs (1.5mm, 1mm, 0.75mm), meeting different usage requirements.

4.It allows for simultaneous electrophoresis of two or four gels.

5.It can be used in conjunction with BVT-4

03 Product Specifications

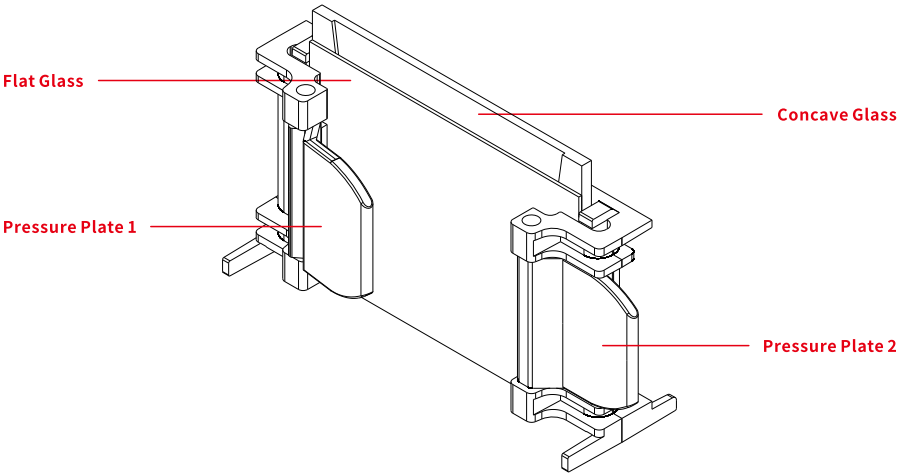
Cat.No.	BVE-4
Number of Gels	1-4
Gel Size	83×73mm
External Dimensions	140×180×185mm
Comb Specifications	1.0mm：11 teeth / 15 teeth 1.5mm：11 teeth / 15 teeth 0.75mm：11 teeth / 15 teeth
Maximum Buffer Capacity	1.5L

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.First, place the gel casting clip on the desktop and fully open the pressure plate on the clip (Pressure Plate State 1). Insert the flat glass plate and concave glass plate (as shown in the figure below), ensuring that the bottoms of the flat glass plate and concave glass plate are aligned. Rotate the pressure plate to compress the glass plates tightly (Pressure Plate State 2).



Note

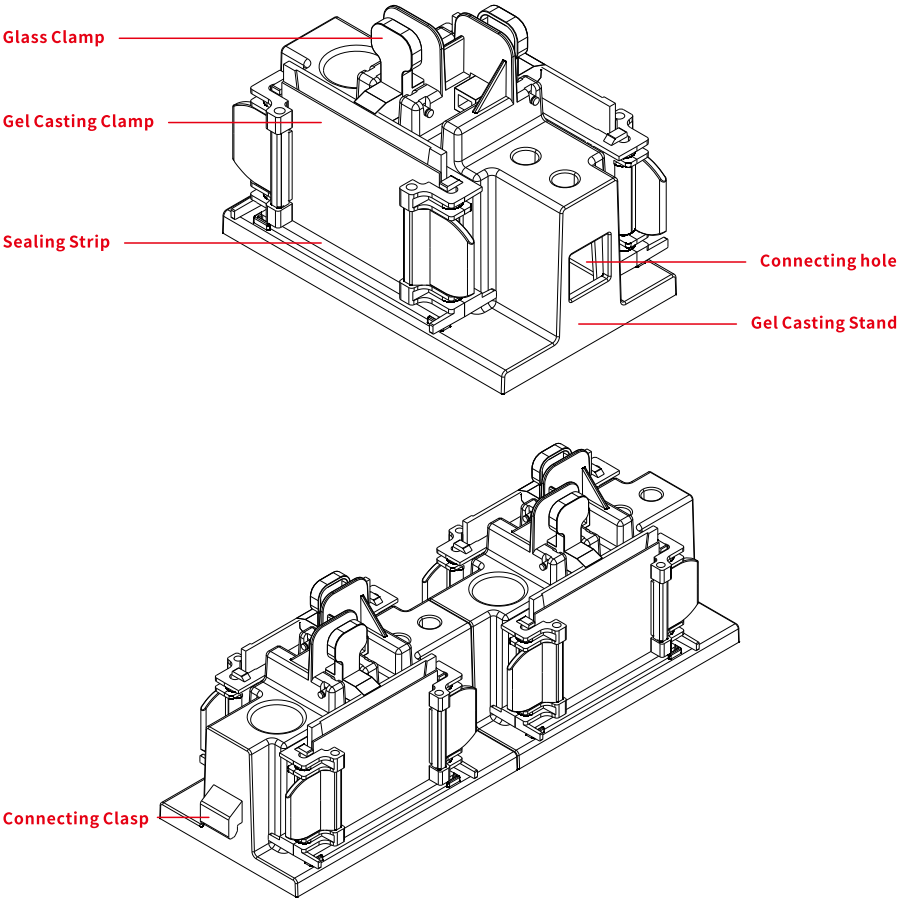
- Before starting the experiment, check that the concave and flat glasses are aligned vertically, the glasses are fully seated at the bottom, and the press covers at both ends of the glasses are securely fastened.

4.2 Gel Casting

Center the lower edge of the glass of the gel casting clamp on the sealing strip, pinch the glass clip tightly, and use the clip to clamp the upper edge of the concave glass to compress the glass. Slowly inject the prepared gel solution into the middle of the two glass plates to 2/3 to 3/4 of the gel chamber (depending on actual experimental requirements). Use double-distilled water or anhydrous ethanol to evenly add it back and forth in the gel chamber to seal it (be careful when adding liquid to avoid generating bubbles). Let it stand for 20 minutes to 1 hour or so to wait for the gel to polymerize. Pour out the double-distilled water or anhydrous ethanol and use blotting paper to clean up the residual liquid in the gel chamber.

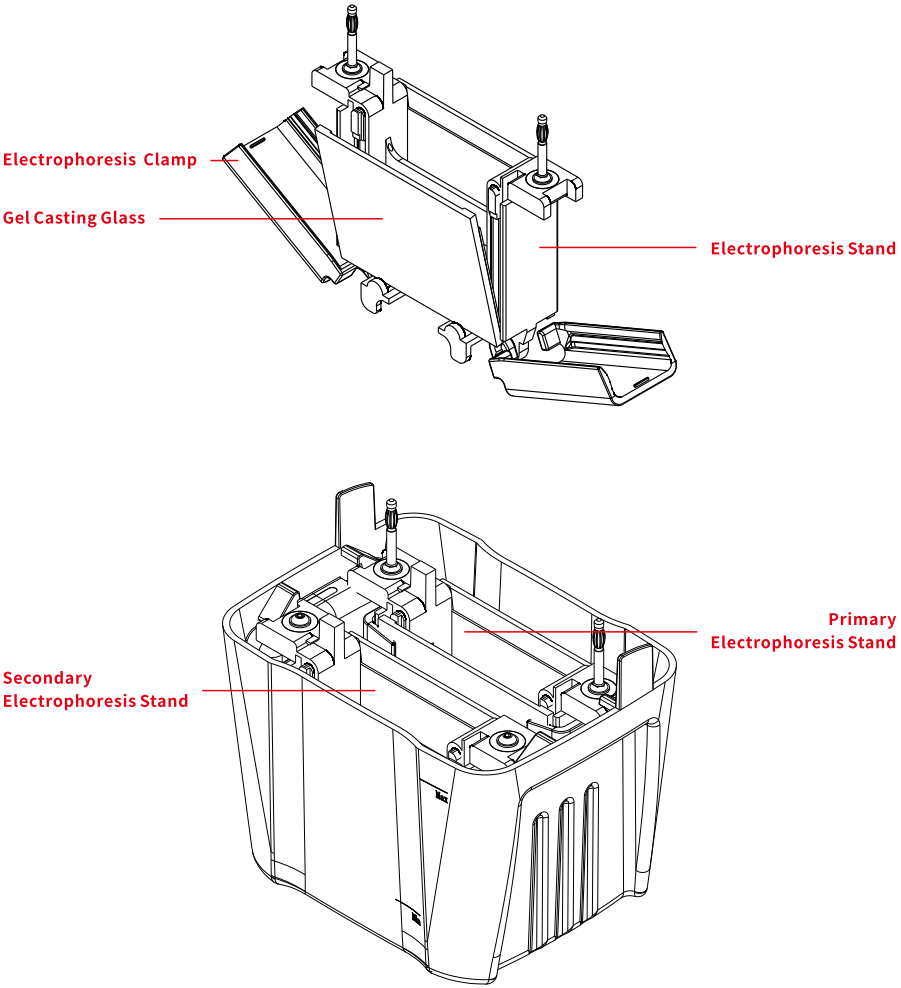
Fill the gel chamber with the prepared stacking gel (to the upper edge of the flat glass plate), and then insert the sample comb. Let it stand for 30 to 45 minutes to wait for the gel to completely polymerize.

The gel-casting glass can be combined into a whole or used separately as needed.



4.3 Sample Loading

Loosen the glass clamp and the gel casting clip, and take out the glass with gel for standby. Open the clip on both sides of the electrophoresis support, and insert the glass with gel into the glass for gel casting on both sides in the direction of the flat glass facing inward (if there is only one glass with gel, a single rubber stopper should be used on the other side instead), and hold the glass for gel casting on both sides tightly. Fasten the clip on both sides, and put the whole electrophoresis support into the electrophoresis tank according to the black and red marks (black for negative pole and red for positive pole). One main electrophoresis support and one auxiliary electrophoresis support can be put into the electrophoresis tank at the same time.



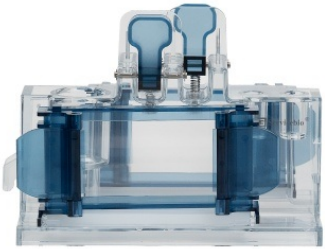
Inject the electrophoresis buffer into the main cavity of the electrophoresis support (between the two sets of glasses), with the liquid level height consistent with the upper edge of the concave glass, and the liquid level of the buffer outside the cavity should exceed the minimum liquid level line marked on the box body. Carefully pull out the sample comb in the gel-casting glass, and check the sample holes to ensure that there is no residual glue 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).

05 Packing List

BVE-4	
Name	**Qty.**
Primary Electrophoresis System Body	1
Secondary Electrophoresis System Body	1
Gel Casting Stand	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



BVT-4 Transfer Electrophoresis System
User Manual

01 Product Overview

This product is designed to be used in conjunction with BVE-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 BVE-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 clip 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	BVT-4
Number of Gels	1-4
Blotting Membrane Size	75×100mm
External Dimensions	140×180×185mm
Maximum Buffer Capacity	1.3L

04 Operating Procedures

4.1 Preparation

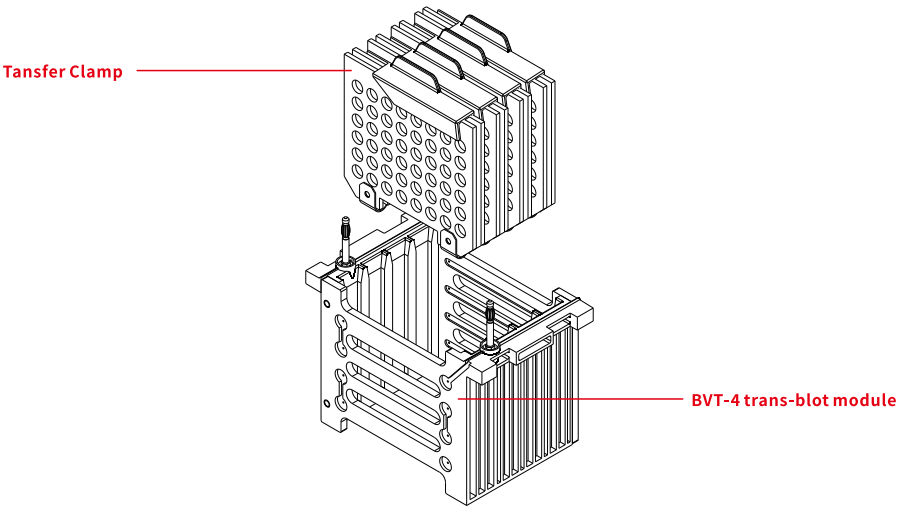
Prepare 2 transfer sponges and 1 PVDF membrane in advance (select a membrane with a pore size of 0.45um for target proteins larger than 20kda, and a membrane with a pore size of 0.2um for target proteins smaller than 20kda).

4.2 Activation

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

4.3 Installation

Place the transfer materials in the transfer clip in the order of positive electrode (+), sponge, filter paper, transfer film, gel, filter paper, sponge, and negative electrode (-), and remove bubbles. The red side faces the positive electrode and the black side faces the negative electrode. Place the transfer clamp into the transfer core according to the direction of red to red and black to black. A BVT-4 transfer core can place four transfer clamp at the same time



4.4 Electrophoresis Transfer

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

05 Packing List

BVT-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

FMB
FISHER MOLECULAR BIOLOGY

Distributed by:

SIC SOCIETÀ ITALIANA CHIMICI
Life Sciences

Via Rio nell'Elba, 140 / 00138 Rome – ITALY
Phone: +39 06-8818936/8800211 - Fax: +39 06-8815319
Email: info@sichim.com Web-Site : www.sichim.com