Product Specification

Product Name:	VE580PRO Mini Vertical Protein System
Product Code:	VE580PRO

PRODUCT DESCRIPTION:

The VE580PRO Mini Vertical Protein System is a versatile electrophoresis system designed for high-resolution vertical separation of proteins and nucleic acids. The system accommodates 1-4 hand cast or precast gels (10 × 10 cm or 8.6 × 8 cm) and features an innovative butterfly-shaped bottom tank with partitioned protrusions for independent dual-electrode control. V-shaped micro-apertures ensure uniform electric field distribution across gels, while multiple comb options (10/15/17-well, up to 60µL sample volume) provide loading flexibility. Compatible with high-voltage operation (200-250V constant voltage) for optimal band resolution and separation efficiency.

Item	Specification
Number of Gels:	1 - 4
Compatible Gel Types:	Precast / Handcast
Gel Size (W x L):	8.6 x 8 cm
Glass Plate Size (W x L):	10 x 10 cm
External Dimensions (W x L x H):	245 x 185 x 170 mm
Transfer Module Support:	Yes
Recommended Power Supply:	EPS-1500

FEATURES

- **Capacity:** Supports 1 to 4 hand-casted or pre-cast gels (10 x 10 cm; gel area 8.6 x 8 cm) or transfer experiments for four 9 x 9 cm gels.
- **Durability:** Features innovative, wear-resistant, and scratch-resistant glass plates.
- **High Performance:** Supports high-voltage electrophoresis (constant voltage of 200 to 250V) without band distortion.
- **Design:** Newly designed "butterfly" tank base with visual partition ridges.
- **Control:** Dual independent power circuit control.
- **Uniformity:** Micro "V" side-opening design ensures uniform electrophoresis.

APPLICATIONS

- Separation and analysis of small nucleic acid and protein samples via vertical electrophoresis.
- Protein transfer (Western Blotting) experiments.

OPERATION GUIDE

1.1 Non-Denaturing Electrophoresis

1) The protein mobility of native electrophoresis is affected by various factors such as protein molecular weight and protein spatial structure.
2) **Prepare sample:** Mix 5× protein sample loading buffer for native PAGE, without DTT (5×) (Cat. #: BPSB00301) or with DTT (Cat. #: BPSB00302) with sample in 1:4 ratio (volume).
3) **Prepare running buffer for native gel electrophoresis:** MOPS or MES Running Buffer for Native-PAGE (Cat. #: SGA0041 or SGA0051). Running buffer must be diluted to 1X final concentration before use.
4) Assemble the gels (hand-cast/precast) into the electrophoresis tank, add the running buffer, and then gently pull the comb out of the cassette.

5) Rinse the wells several times with 1X running buffer to remove storage buffer (if any) before the loading of samples. Load the appropriate volume of your samples and ladder into the respective wells.

   Note: Avoid inserting the pipette tip too deep into the sample wells to prevent sample leakage caused by deformation of the plastic plates.

6) **Start the gel electrophoresis:** The electrophoresis conditions are usually 150V, 40~50 min.

   Note: At fixed 150V, the initial current will be approximately 70mA per gel but will gradually decrease over time. Run gel at 100 - 120V if better resolution bands are preferred. (Please adjust voltage and duration according to your experiment setup).

7) Upon completion of the electrophoresis, retrieve the gel from the gel cassette. Open the gel plates using the gel opener from top to middle then bottom on one side. Repeat the process on the other side of the plates to separate the plates.

8) Gently remove the gel from the plate to prevent gel cracking.

   Note: If the isoelectric point of the protein samples is greater than 7, you will need to reverse the electrodes for native electrophoresis.

1.2 Denaturing Electrophoresis

1) **Prepare sample:** Mix 5× protein sample loading buffer for SDS-PAGE, without DTT (5×) (Cat. #: BPSB00201) or with DTT (Cat. #: BPSB00202) with sample in 1:4 ratio (volume) and then heat the samples at 95°C for 5-10mins.

2) **Prepare running buffer for SDS-PAGE:** MOPS or MES Running Buffer for SDS-PAGE (Cat. #: SGA0040 or SGA0050). Running buffer must be diluted to 1X final concentration before use.

3) Assemble the gels (hand-cast/precast) into the electrophoresis tank, add the running buffer, and then gently pull the comb out of the cassette.

4) Rinse the wells several times with 1X running buffer to remove storage buffer (if any) before the loading of samples. Load the appropriate volume of your samples and ladder into the respective wells.

   Note: Avoid inserting the pipette tip too deep into the sample wells to prevent sample leakage caused by deformation of the plastic plates.

5) **Start the gel electrophoresis:** The electrophoresis conditions are usually 150V, 40~50 min.

   Note: At fixed 150V, the initial current will be approximately 70mA per gel but will gradually decrease over time. Run gel at 100 - 120V if better resolution bands are preferred. (Please optimize the voltage and duration according to your experiment setup).

6) Upon completion of the electrophoresis, retrieve the gel from the gel cassette. Open the gel plates using the gel opener from top to middle then bottom on one side. Repeat the process on the other side of the plates to separate the plates.

7) Gently remove the gel from the plate to prevent gel cracking.

   Note: If the isoelectric point of the protein samples is greater than 7, you will need to reverse the electrodes for native electrophoresis.

2. Protein Transfer

1) Prepare the 2x filter paper, NC or PVDF Membrane and your SDS-PAGE gel as shown below.

Image 1: *Filter Paper (1 & 2), NC or PVDF Membrane (3), Gel (4)*

2) Pull the top white latch toward the direction of the red arrow below to unlock the Cassette.

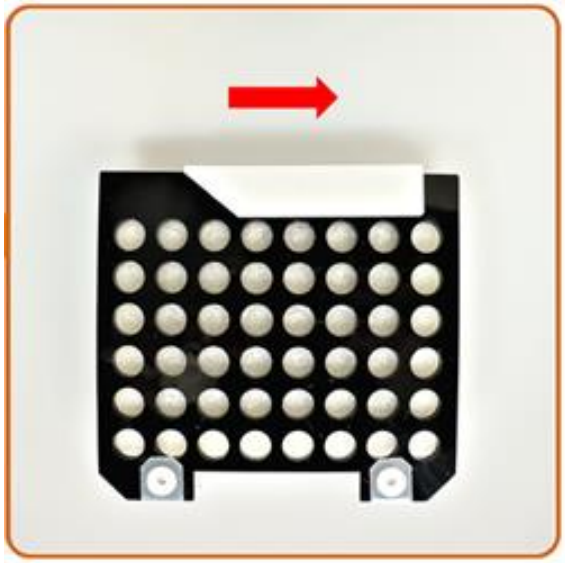

Image 2: *Gel holder cassette*

3) Arrange your transfer sandwich as per the image below.

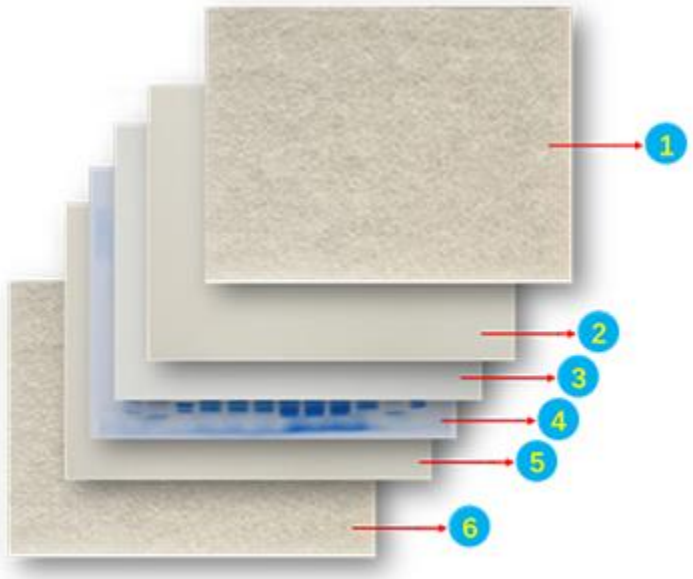

Image 3: *Foam Pads (1 & 6), Filter Paper (2 &5), NC or PVDF Membrane (3), Gel (4)*

4) Place the transfer sandwich in the unlocked cassette as shown below.

Image 4: *Transfer Sandwich placed within the cassette*

5) Fold the perforated lid of the cassette downwards as shown below, then secure the assembly by sliding the white latch across the top tabs towards the center.

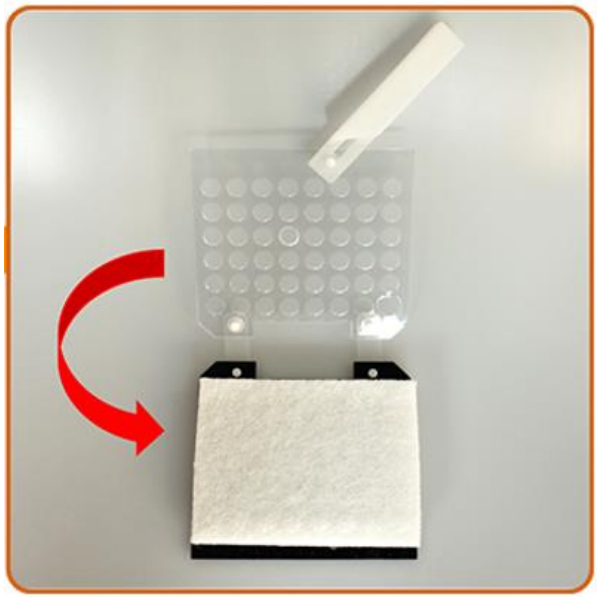

Image 5: *Transfer Sandwich placed within the cassette*

6) Place the cassette into the Electrophoresis Blotting Module as per the image on the left below. Then, insert the module into the Buffer Tank as per the Image on the right below.

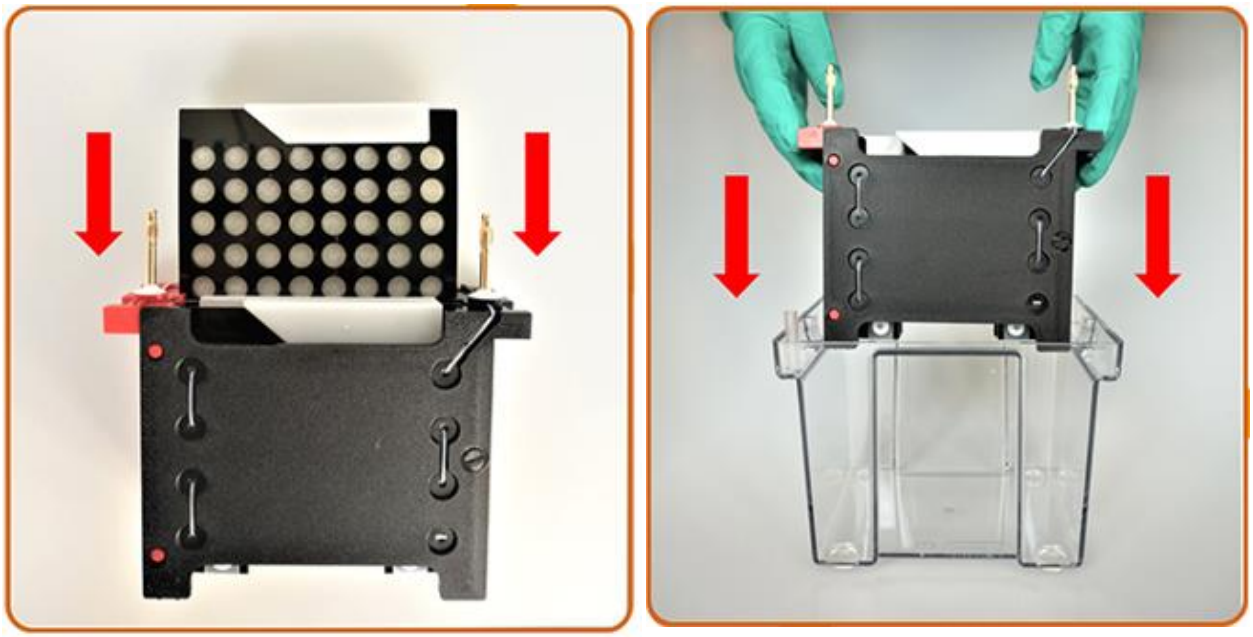

Image 6: *Place cassette into the module (left). Place the module into the buffer tank (Right)*

7) Place a cooling unit into the buffer tank as per the image on the left below. Afterwards, fill the tank with Transfer Buffer as per the image on the right below.

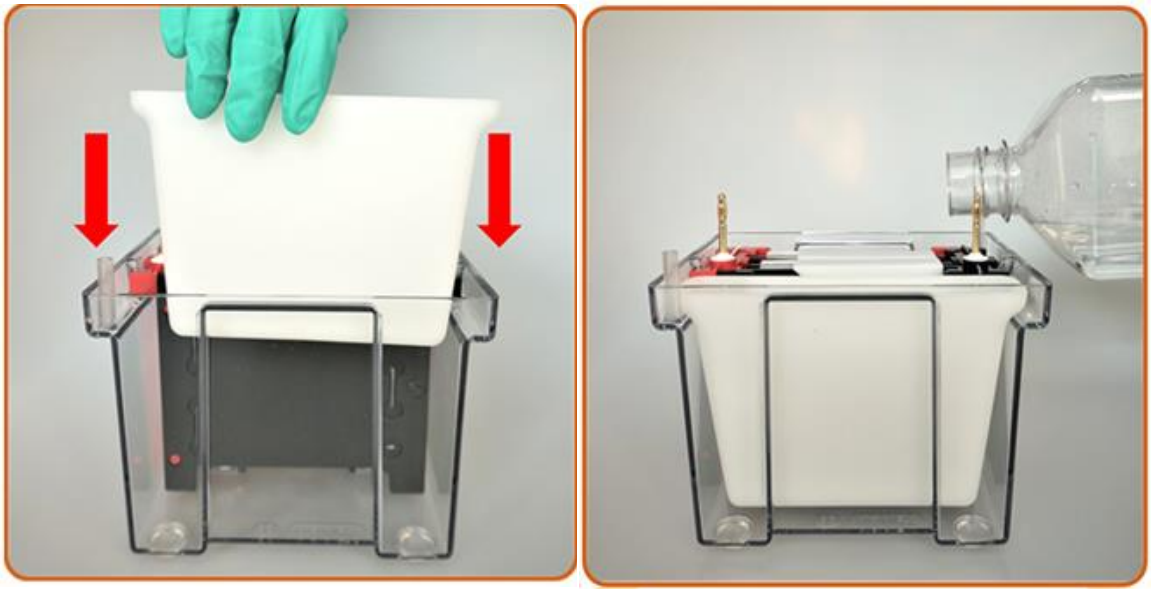

Image 7: *Place cooling unit into the buffer tank (left). Fill the buffer tank with Transfer Buffer (Right)*

8) Close the Buffer Tank with the Lid as shown below and start the transfer.

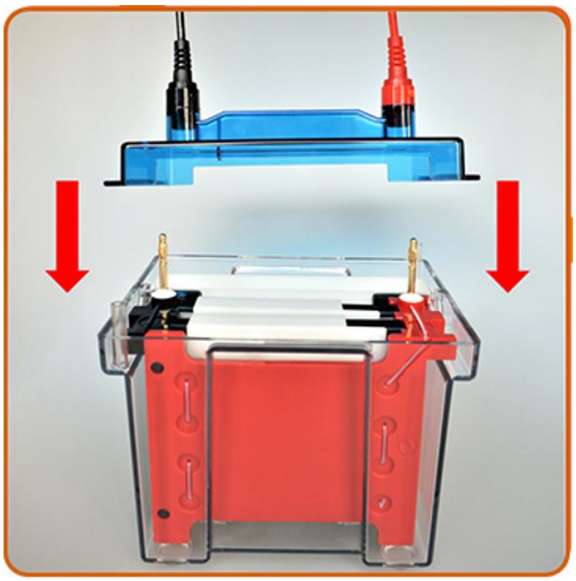

Image 8: *Place the lid over the buffer tank and start the run.*

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