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**GenBox Mini Electrophoresis Tank**

Cat No: L00780

Version 12122018

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## I General Information

### 1.1 Introduction

The GenBox Mini Electrophoresis Tank runs both GenScript's 10\*8 and 10\*10 precast gels interchangeably. It can run one or two mini gels. The mini tank is compatible with GenBox mini blot modules for tank blotting.

**Note: 10\*8 Gel Buffer Dam (L00699) is optional for purchase, please contact GenScript for details.**

### 1.2 Components

To get the best performance from your GenBox Mini Electrophoresis Tank, familiarize yourself with the components by assembling and disassembling the cell before using it (refer to Figure 1).

Name	Catalog Number	Description	Quantity
GenBox Mini Lid	L00788	Lid with cables attached	1
GenBox Mini Tank	L00787	2 gel vertical electrophoresis system	1
GenBox Gaskets	L00786	Red gaskets for GenBox electrophoresis tank	2
GenBox Wedge	L00784	Holds precast gel in place	2
GenBox Running Core	L00783	Electrodes to use with GenBox	1
GenBox Buffer Dam 10*10	L00775	One-piece buffer dam is used when running only one gels.	1

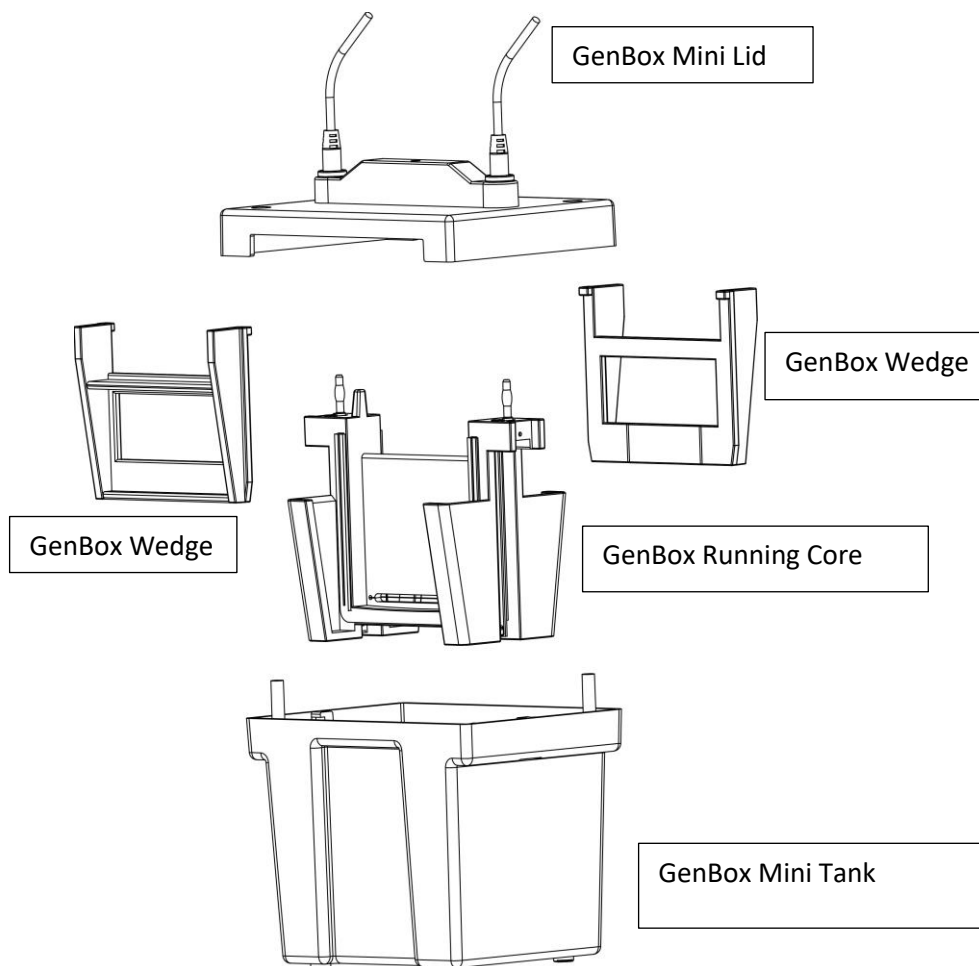


Fig. 1. Assembling the GenBox Mini Electrophoresis Tank

### 1.3 Specifications

Pin, retaining ring, and spring	Stainless steel
Lid, mini tank, wedges	Polysulfone
Electrode Assembly	Polybutylene terephthalate
Electrodes	Platinum wire, 0.010 inches diameter
Gasket, electrode inner core	Silicone rubber (Red)
Mini Tank and Lid	Polycarbonate
Overall Size	(W x L x H, cm) 12 x 16 x 18
Precast Gel Compatibility	10*8 SurePAGE / ExpressPlus 10*10 SurePAGE / ExpressPlus
Voltage Limit	400 V DC and 500 W
Shipping Weight	2.0 kg

### Chemical Compatibility

GenBox Mini Electrophoresis Tank components are not compatible with acetone or ethanol. Use of organic solvents voids all warranties. Call GenScript (US) or your local GenScript representative for technical information regarding chemical compatibility of the GenBox Mini Electrophoresis Tank with various laboratory reagents.

### 1.4 Safety

Power to the GenBox Mini Electrophoresis Tank is supplied by an external DC voltage power supply (not included). The output of this power supply must be isolated from external ground to ensure that the DC voltage output floats with respect to ground. Regardless of the power supply used, the maximum specified operating parameters for the GenBox Mini Electrophoresis Tank are as follows

- 400 V DC maximum voltage limit
- 500 W maximum power limit
- 45°C maximum ambient temperature limit

The current to the cell enters the unit through the lid assembly, which provides a safety interlock to the user. The current to the cell is broken when the lid is removed. Always turn off the power supply before removing the lid. Do not attempt to use the cell without the safety lid.

Important: GenBox is designed and certified to meet IEC61010-1 safety standards. This instrument should not be modified or altered in any way. Alteration of this instrument will

- Void the warranty
- Create a potential safety hazard

GenScript is not responsible for any injury or damage caused by use of this instrument for purposes other than those for which it is intended or by modifications of the instrument not performed by GenScript or an authorized agent

## II Setup and Basic Operation

### 2.1 ExpressPlus / SurePAGE Precast gels, 10\*8 / 10\*10

#### 1. Precast Gel Cassette Preparation

- Remove the precast gel from the storage pouch.
- Gently remove the comb and rinse the wells thoroughly with distilled water or running buffer.
- Pull the green tape at the bottom of the precast gel cassette to expose the bottom edge of the gel.
- Repeat for the second gel.

Note: If only one gel is to be run, use the mini cell buffer dam.

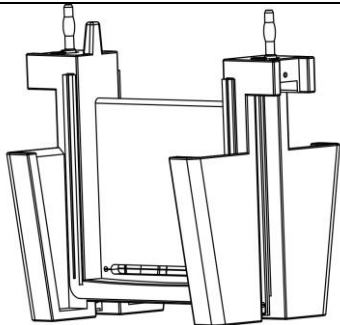
Note: 10\*8 Gel Buffer Dam (L00699) is optional for purchase, please contact GenScript for details.

### 2.2 Electrophoresis Module Assembly and Sample Loading

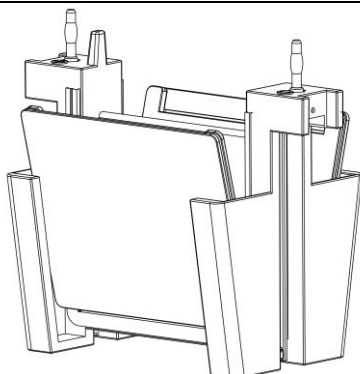
Required materials:

- Clean and dry GenBox Mini Electrophoresis Tank
- Electrophoresis module (electrode assembly module only for 1 or 2 gels)
- Running buffer (~550 mL for each run)
- ExpressPlus / SurePAGE precast gels, 10\*8 or 10\*10
- Power supply

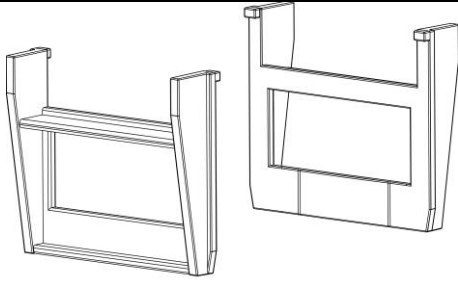
#### 2.3 Assembly



- a. Set the white running core to the open position on a clean flat surface. Make sure the red gaskets are placed well on both sides

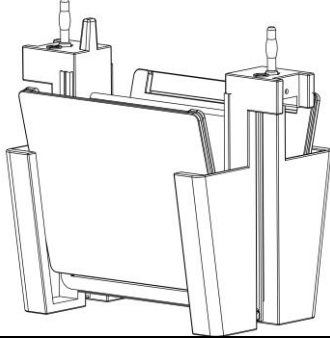


- b. Place the gel cassettes (with the short plate facing inward) into the GenBox mini running core, make sure the cassettes rest well on the cassette support at the bottom. If only using 1 gel then place a buffer dam on the opposite side.
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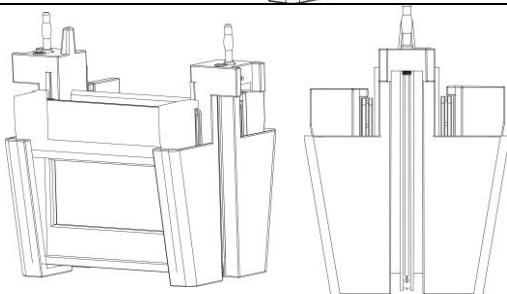


- c. Insert the GenBox wedges into GenBox mini running core. The hook structure on the top of the wedges should face inward.

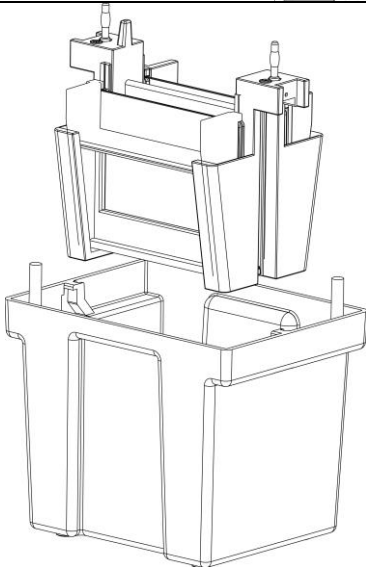
NOTE: The hook structure on the top of the wedge is designed for Genscript SurePAGE / ExpressPlus 10\*8 and 10\*10 PAGE gels. *If other gels are used, please reverse the wedges to ensure the tight contact of the cassettes to the gaskets.*



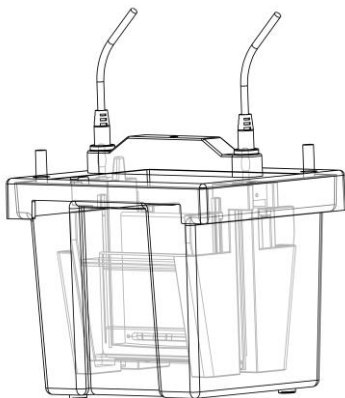
- d. Press down firmly on the wedges.



NOTE: The hook structure on the top of the wedge is designed for Genscript SurePAGE / ExpressPlus 10\*8 and 10\*10 PAGE gels. *If other gels are used, please reverse the wedges to ensure the tight contact of the cassettes to the gaskets.*



- e. Insert the running core with gel cassettes into the buffer chamber. Add electrophoresis running buffer to the level line on the tank, which is approximately 550mL.



- f. Load the samples, cover the GenBox mini lid in the right direction and place it tight onto the buffer chamber. There is a fool-proofing design on the lid near the anode side (black cable), which will prevent the lid placing in the wrong direction.

## 2.4 Sample Loading

- a. **We recommend the buffer to be poured into the inner chamber first and overflow to the outer chamber to ensure that the inner chamber is filled to the top with buffer.** The total volume of buffer should be around 550mL.
- b. Load the samples into the wells with a pipet using gel loading tips.

Note: Load samples slowly to allow them to settle evenly on the bottom of the well. Be careful not to puncture the bottom of the well with the tip.

- c. Place the lid on the GenBox Mini Electrophoresis Tank. Make sure to align the color-coded plugs and jacks. The correct orientation is made by matching the jacks on the lid with the banana plugs on the electrode assembly. A stop on the lid prevents incorrect orientation. Note that the raised tabs on each side of the tank will now slide through the slots in the lid, guiding the lid to a proper close. At this point, firmly, yet gently, press down on the lid with your thumbs using even pressure, till the lid is securely and tightly positioned on the tank.

## 2.5 Power Conditions

- a. Insert the electrical leads into a suitable power supply with the proper polarity.
- b. Apply power to the GenBox Mini Electrophoresis Tank and begin electrophoresis; 200 V constant voltage is recommended for SurePAGE Gels and 140 V is used for ExpressPlus gels. The optimal voltage for your application may differ.

## 2.6 Gel Removal

- a. After electrophoresis is complete, turn off the power supply and disconnect the electrical leads.
- b. Remove the tank lid and carefully lift out the electrode assemblies. Pour off and discard the running buffer.

Note: Always pour out the buffer before opening the arms of the assembly, to avoid spilling any buffer.

## 2.7 Pull off the wedges and remove the gel cassettes.

- a. Remove the gels from the gel cassette by gently separating the two plates of the gel cassette.

Note: To remove the gel from a precast gel cassette, use a gel opener.

- b. Remove the gel from the cassette by inverting it under a tray of water and agitating gently until the gel separates from the plate.
- c. Rinse the GenBox Mini Electrophoresis Tank electrode assembly, clamping frame, and mini tank with distilled, deionized water after use.

## III Maintenance

GenBox mini gel tank and lid,	Rinse electrode, buffer chamber, running core, wedges thoroughly with distilled water every time after use
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## IV Troubleshooting Guide

Problem	Cause	Solution
Smile effect – band pattern curves upward at both sides of the gel	Center of the gel running is hotter than either end	Buffer is not mixed well or buffer in upper chamber is too concentrated. Remake buffer, ensuring thorough mixing, especially when diluting 5x or 10x stock
	Power conditions are excessive	Decrease the power setting from 200 V to 150 V or fill lower chamber to within 1 cm of top of short plate.
Vertical streaking of protein	Sample is overloaded	Dilute sample, selectively remove predominant protein in sample, or reduce the voltage about 25% to minimize streaking
	Sample is precipitated	Centrifuge sample before addition of SDS sample buffer  The ratio of SDS to protein should be enough to coat each protein molecule with SDS, generally 1.4:1. It may require more SDS for some membrane protein samples
Lateral band spreading	Diffusion of the wells prior to turning on the current	Minimize the time between sample application and turning on the power startup
	Ionic strength of the sample is lower than that of the gel	Use same buffer in sample as in the gel or the stacking gel
Lanes constricted at the bottom of the gel	Ionic strength of sample is higher than the surrounding gel	Desalt sample and neighboring samples
Running takes unusually long	Running buffer is too concentrated	Check buffer protocol, dilute if necessary
	Excessive salt is in sample	Desalt sample
Running is too fast	Running or reservoir buffer is too dilute	Check buffer protocol, dilute if necessary
	Voltage is too high	Decrease voltage by 25–58%
Doublets observed where single protein species is expected (SDS-PAGE)	A portion of the protein may have been deoxidized during the run or may not have been fully reduced prior to the run	Prepare fresh sample buffer solution if it's over 30 days; Increase concentration in the sample buffer; Substitute DTT for BME

## V Product Information and Accessories

### GenBox Mini Electrophoresis Tank Systems

Name	Catalog Number	Description	Quantity
GenBox Mini Lid	L00788	Lid with cables attached	1
GenBox Mini Tank	L00787	2 gels vertical electrophoresis system	1
GenBox Gaskets	L00786	Red gaskets for GenBox electrophoresis	2
GenBox Wedge	L00784	Holds precast gel in place	2
GenBox Mini Running Core	L00783	Electrodes to use with GenBox electrophoresis	1
GenBox Buffer Dam 10*10	L00775	One-piece buffer dam is used when running only one gel.	1

### Replacements Parts

**NOTE: If ordering replacement parts, please allow up to 4 weeks for shipping.**

	Catalog Number	Descriptions
GenBox Mini Lid	L00788	Lid with cables attached
GenBox Mini tank	L00787	2 gels vertical electrophoresis system
GenBox Mini Running Core	L00783	Electrodes to use with GenBox

## VI Warranty Information

The GenBox Mini Electrophoresis Tank is warranted for one year from purchase against defects in materials and workmanship. If any defects should occur during this warranty period, GenScript will replace the defective parts without charge. However, the following defects are specifically excluded.

1. Defects caused by improper operation
2. Repairs or modifications done by anyone other than GenScript or their authorized agent
3. Damage caused by accidental misuse
4. Damage caused by disaster
5. Common replacement parts including platinum wire, the rubber gaskets
6. Damage caused by the use of organic solvents

For inquiries or requests for repair service, contact your local GenScript office.

### Warranty Information

Model \_\_\_\_\_

Catalog number \_\_\_\_\_

Date of delivery \_\_\_\_\_

Serial number \_\_\_\_\_

Invoice number \_\_\_\_\_

Purchase order number \_\_\_\_\_