

User Manual

Gel Casting System

T-20

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

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01 Precautions

Safety precautions

Please observe the following safety measures during all stages of operation, maintenance and repair of this instrument. Violations of safety measures will affect the normal use and service life of the instrument. The company shall not be held responsible for any consequences arising from the user's violation of safety measures.

⚠ Attention

- This product is for indoor use only

1. Keep away from live circuits

It is strictly forbidden for operators to disassemble the instrument or replace components without authorization. If the equipment needs to be repaired, it should be done by professional maintenance personnel with a certificate while the equipment is powered off.

2. Pay attention to the power supply

Before connecting the power supply, ensure that the voltage of the power supply is consistent with the voltage required by the instrument (allowing a deviation of $\pm 10\%$), and ensure that the rated load of the power socket is not less than the requirements of the instrument.

3. Pay attention to the placement of the instrument

The instrument should be placed in a place with low humidity, little dust, and away from water sources, ensuring good indoor ventilation and avoiding interference from corrosive gases or strong magnetic fields.

Do not block the ventilation holes of the instrument. Keep the area within 25cm to the left and right of the instrument clear, avoid direct sunlight, and stay away from heat sources. If the instrument has not been used for a long time, cut off the power supply and cover it with a soft cloth or plastic paper to prevent dust.

⚠ Attention

In the following situations, immediately cut off the power supply of the instrument and contact the supplier or request a maintenance personnel for handling

- Liquid spills into the instrument
- The instrument falls or its casing is damaged
- The instrument is exposed to rain or water
- There are noticeable changes in the functions of the instrument
- The instrument operates abnormally, such as making strange noises or emitting strange odors

Instrument Maintenance

The access for instrument inspection and maintenance is located on the back. When inspecting and maintaining the fluid system, use an M3 knurled screwdriver to remove the screws of the access panel in order, and then take off the access panel.

If there are stains on the surface of the instrument, they can be wiped off with a soft cloth that has been soaked in water and wrung dry.

Warning

- When cleaning the surface of the instrument, the power must be cut off
- It is strictly prohibited to use corrosive cleaning agents on the surface of the instrument

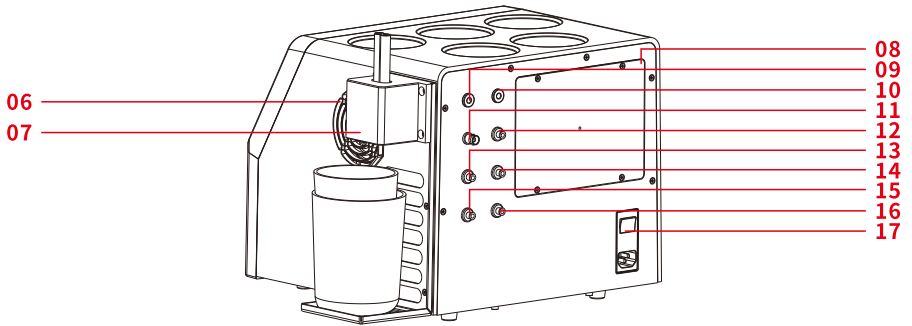
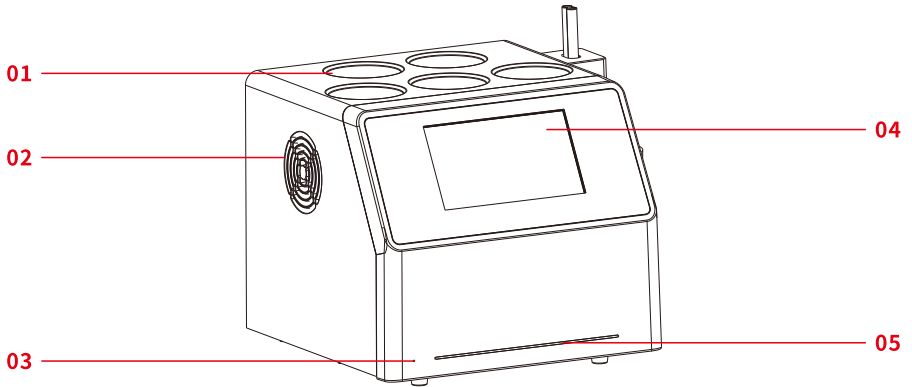
02 Product Description

The T-20 Gel Casting System is characterized by its compact size, convenient storage and access, quick installation, and portability. It is compatible with various glass gel plates such as 0.75mm, 1.0mm, and 1.5mm. This product can be used for rapid gel making and batch gel making in laboratories.

03 Product Parameters

Product Name	Gel Casting System
Cat.No.	T-20 v1.1
Applications	Production of polyacrylamide gradient gels for Western Blot process
Gel Concentration Range	4% ~ 20%
Gel Specifications	Mini-sized gel, thickness of 0.75mm / 1.0mm / 1.5mm
Gel Electrophoresis time	≤30s per gel
Reagent Bottle Rack	5 × 500mL wide-mouth round-shouldered reagent bottles (4 for reagents, 1 for cleaning) / 1 × waste liquid cup (500mL beaker)
Automatic Cleaning	Supports automatic flushing of mixing lines during gel filling intervals to prevent gelation, and one-button cleaning of lines
Automatic Pre-filling	Supports automatic filling of gel filling lines
Fault Indication	Equipped with fault indication function
Operation Mode	7-inch English color LCD touch screen
Operating Environment Temperature	10°C~40°C
Input Voltage	100~240V AC, 50/60Hz
Rated Power	270W
Dimensions	305×305×270mm
Weight	12.5Kg

04 Product Structure



- | | | |
|---------------------------------------|------------------------|------------------------|
| 01 Bottled Liquid Placement Area | 02 Air Inlet | 03 Buzzer Port |
| 04 Color LCD Touch Screen | 05 Indicator Lights | 06 Air Outlet |
| 07 Gel Filling and Drainage Component | 08 Access Panel | 09 Outlet for Liquid A |
| 10 Outlet for Liquid B | 11 Liquid level sensor | 12 Washing Solution |
| 13 Inlet for Liquid A | 14 Inlet for Liquid B | 15 Inlet for Liquid D |
| 16 Inlet for Liquid D | 17 Power Switch | |

05 Operation Guide

5.1 Instrument adaptation

Before operating the instrument, please install the liquid tubes A, B, C, D, and the cleaning solution onto the back panel of the instrument and tighten the connectors. Place the other ends of the liquid tubes A, B, C, D into their corresponding reagent bottles and refill the cleaning solution. Position the waste liquid bottle on the waste liquid tray on the right side and place the gel casting pen in the pen holder.

5.2 Instrument startup and shutdown

Press the startup/shutdown button located at the bottom left-rear of the instrument's screen. Upon hearing a “beep”, the screen will light up, displaying the startup interface as shown in Figure 1. Press the power button again. When the fan stops spinning and the screen turns off, the instrument shuts down.



Figure 1 Startup Interface

5.3 Operating Procedure

After turning on the instrument, a popup window will appear as shown in Figure 2.

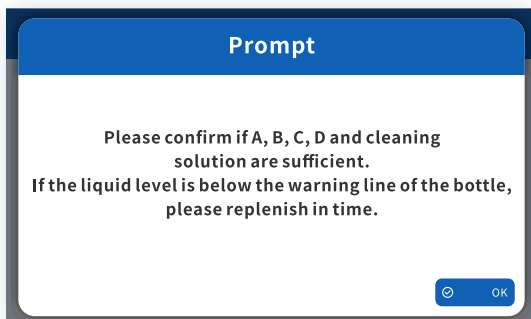


Figure 2 Solution Volume Prompt Interface

Click "OK" to enter the main interface as shown in Figure 3. Please confirm if the machine status in the top left corner is "Connected" and verify the version number is correct.

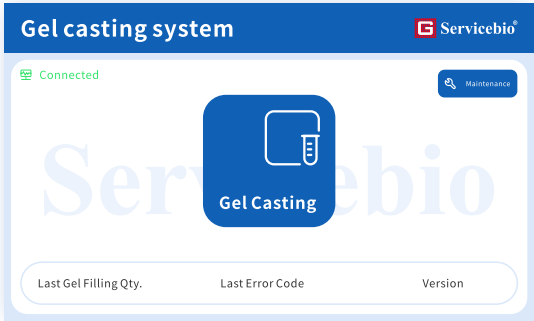


Figure 3 Main Interface

Click "Maintenance" in the top right corner to access the maintenance interface as shown in Figure 4.

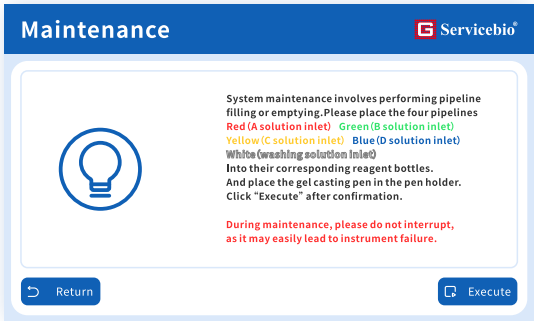


Figure 4 Maintenance Interface

After maintenance is complete, the system will return to the main interface. Click "Gel Casting" to enter the concentration selection interface as shown in Figure 5 (the selected concentration will be highlighted in dark green).

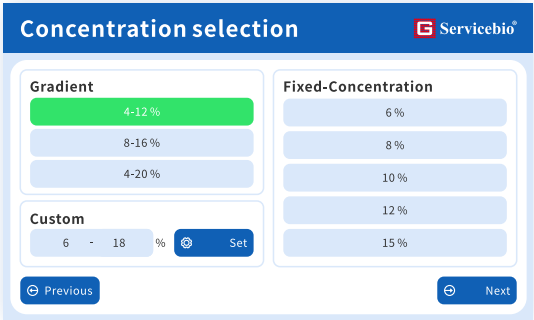


Figure 5 Concentration Selection Interface

Click "Next" to enter the Volume Selection Interface as shown in Figure 6 (the selected concentration is highlighted in dark green).

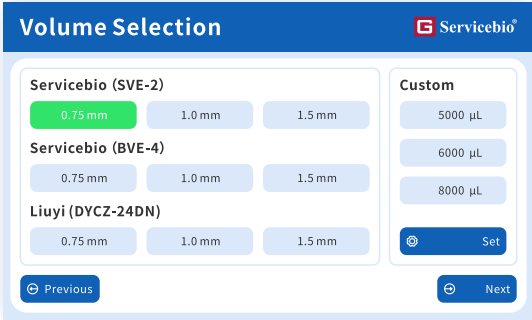


Figure 6 Volume Selection Interface

Click "Next" to enter the Parameter Confirmation Interface as shown in Figure 7.

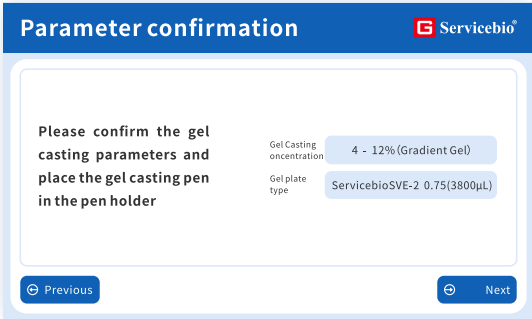


Figure 7 Parameter Confirmation Interface

Click "Next" to enter the Gel Casting Preparation Interface as shown in Figure 8.

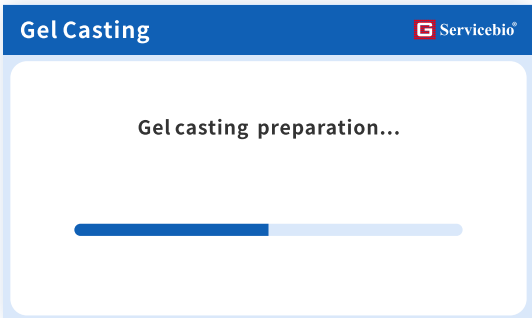


Figure 8 Gel Casting Preparation Interface

After the gel casting preparation is complete, it will proceed to the Gel casting Interface as shown in Figure 9.

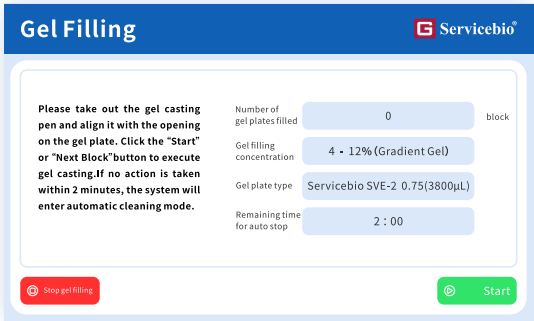


Figure 9 Gel Filling Interface

Click "Start" or "Next Block" to enter the Gel Preparation in Progress Interface as shown in Figure 10. Upon completion of gel casting, it will automatically return to the Gel Casting Interface, and the number of casted gels will increase by 1. Click "Stop" to enter the Prompt Interface as shown in Figure 11. Click "Yes" to enter the Clean Interface as shown in Figure 12. After cleaning is completed, it will proceed to the Completion Interface as shown in Figure 13. Click "OK" to return to the Main Interface. Click "No" to enter the Prompt Interface as shown in Figure 14. After placement is complete, click "OK" to enter the Maintenance Interface as shown in Figure 15. Upon completion, it will return to the Main Interface.

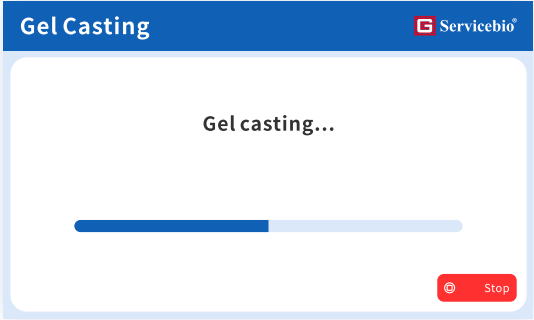


Figure 10 Gel Casting in Progress Interface

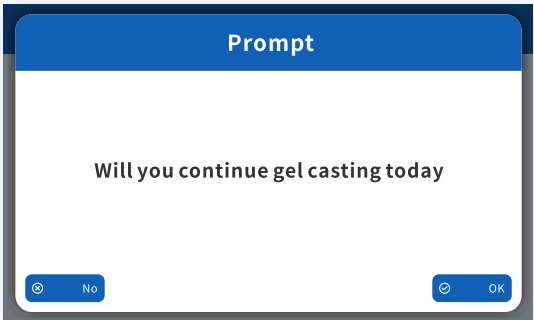


Figure 11 Prompt

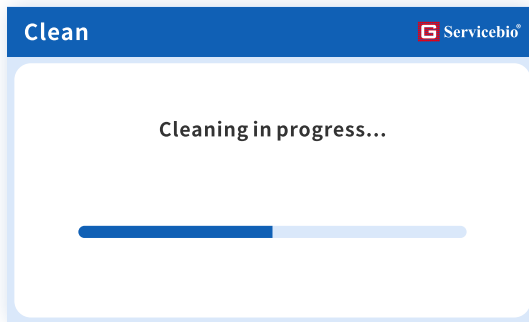


Figure 12 Cleaning in Progress Interface

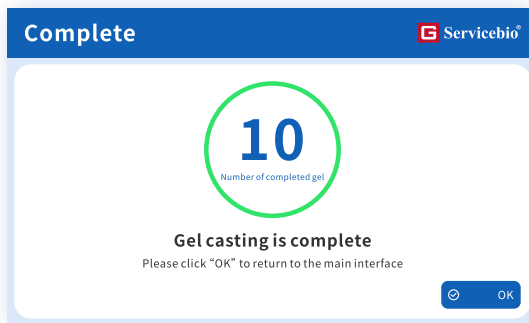


Figure 13 Complete Interface

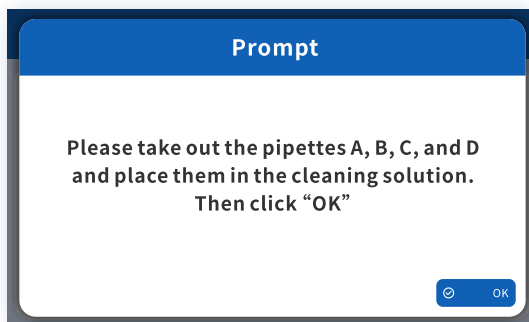


Figure 14 Prompt

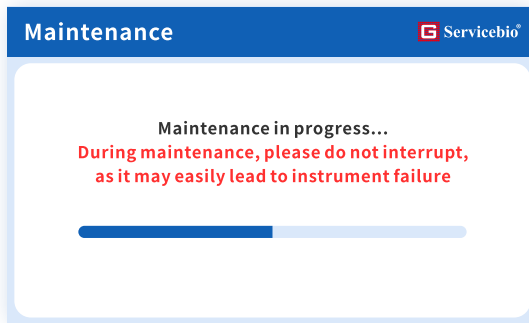


Figure 15 Maintenance in Progress Interface

5.4 Prompt

A pop-up prompt will appear as shown in Figure 16 when the gel casting pen is not in the pen holder.

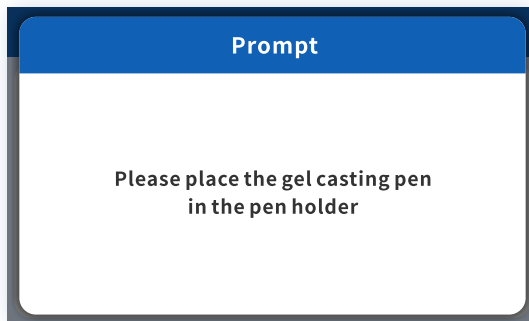


Figure 16 Prompt

A pop-up prompt will appear as shown in Figure 17 when the cleaning solution is insufficient.

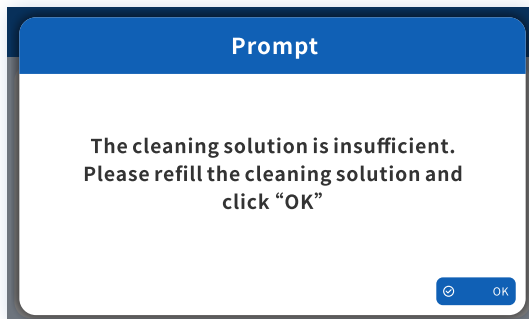


Figure 17 Prompt

A pop-up prompt will appear as shown in Figure 18 if an error occurs during the gel casting process.

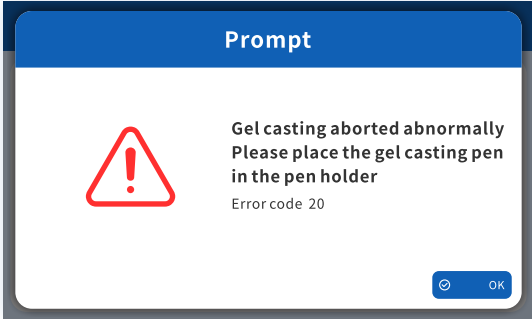


Figure 18 Prompt

A pop-up prompt will appear as shown in Figure 19 if an error occurs during the maintenance process.

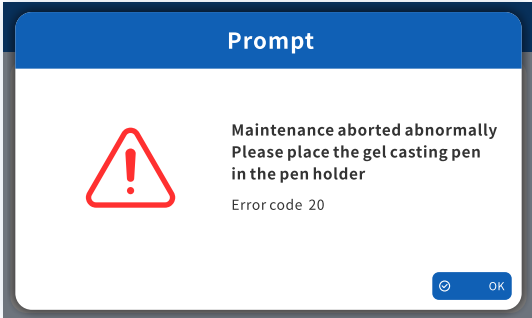


Figure 19 Prompt

A pop-up prompt will appear as shown in Figure 20 when the gel casting pen needs to be removed.

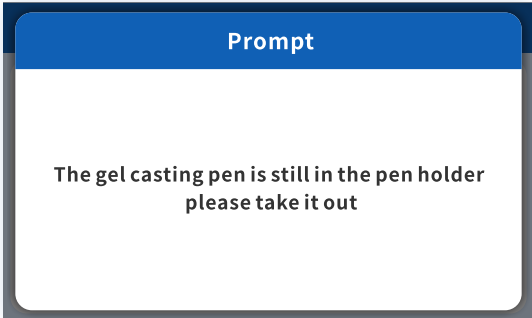


Figure 20 Prompt

5.5 Customized Functions

5.5.1 Customized Concentration

Enter the Concentration Selection Interface as shown in Figure 6 and click “Settings”. This will take you to the Custom Concentration Settings Interface as shown in Figure 21, where you can define a custom concentration range. After setting, click “Save”.

Custom concentration Servicebio

Custom concentration
The valid value range for custom concentration settings is 4-20

Minimum concentration: 8 %
Maximum concentration: 20 %

Return Save

Figure 21 Customized Concentration Settings

5.5.2 Customized Volume

Proceed to the Volume Settings Interface as shown in Figure 22 and click “Settings”. This will lead you to the Custom Volume Settings Interface as shown in Figure 20 (note: Figure 20 is mentioned here but might be a reference error, typically it should be another figure number for clarity), where you can customize volumes 1-3. After setting, click “Save”.

Custom volume Servicebio

Custom volume 1
Setting valid value range is 3600-12000
volume: 5000 µL

Custom volume 2
Setting valid value range is 3600-12000
volume: 5000 µL

Custom volume 3
Setting valid value range is 3600-12000
volume: 5000 µL

Return Save

Figure 22 Customized Volume Settings

5.6 Automatic Cleaning Function

When you enter the Gel Casting Interface as shown in Figure 10 and no stop operation is performed for 3 minutes, the buzzer will start to sound an alarm for a duration of 2 minutes. If the cleaning operation has not been performed by the end of this time, a forced cleaning will be initiated.

06 Fault Analysis and Troubleshooting

No.	Fault	Cause Analysis	Troubleshooting
1	The display screen is not bright after turning on the power	The power is not connected The switch is damaged Others	Check the power and connect it Replace the switch Contact the supplier or manufacturer
2	Gel outlet blockage	Gel liquid solidified at the outlet	Contact the supplier or manufacturer
3	Error code 20 / 21 / 22 / 23	Motor self-test abnormality	Restart or contact the supplier or manufacturer

07 Packing List

No.	Name	Qty.
1	Gel Casting System	1 pc
2	Product User Manual	1 pc
3	Warranty Card	1 pc
4	Maintenance Record	1 pc
5	Product Qualification Certificate	1 pc
6	Fluid Circuit Pipe Components	1 set
7	Waste Liquid Cup (500mL)	1 pc
8	Cleaning Solution Bottle (500mL)	1 pc
9	Touch Pen	1 pc

08 After-sales Service

Warranty Content

During the warranty period, any damage to the instrument caused by the user's failure to comply with safety measures or force majeure factors is not covered by the warranty. The company will repair or replace the damaged instrument within the scope of the warranty based on the extent of the damage. For damage to the instrument outside the warranty period, the company will charge repair costs.



Attention

- After opening the box, the contents of the package should be immediately inspected according to the list on the packing list. If any item is damaged or missing, please contact the supplier immediately
- After passing the acceptance inspection, please fill in the relevant information on the product acceptance form and send a copy back (or fax) to the shipping unit for archiving and maintenance purposes
- Please keep the packing box and packaging materials properly after opening the instrument box for future use during maintenance. The company will not be responsible for any damage to the instrument that occurs due to improper packaging during transportation to the maintenance department

Warranty Card

User Name		Tel.	
Cat.No.		Manufacturing No.	

Maintenance Records

Warranty date	Fault and repair log	Date of repair	Maintenance engineer



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