
Instruction Manual

Mini Size Gel Casting Kit
WSE-1190
Multi Mini Slab Gel Cast

2nd Edition
December 15th, 2015



Introduction

Thank you for purchasing ATTO Corporation's "WSE-1190 Multi-Mini Slab Gel Cast". This instruction manual is delivered to you together with the system so that you can make full use of it. Not only those of you using this product for the first time, but also those of you having used before should read this document carefully to understand contents. If you use this product for the first time, please read this document from beginning in serial order. In addition, this document contains information related to maintenance as well as how to use. Please keep it handy all the time to make its full use. If you have any questions on your purchased product or the instruction manual, please feel free to contact us. (Please refer to the back cover).

About this manual

Before using the product, please read this document carefully. After reading it, please be sure to keep it for your future reference. When you replace the system, be sure to attach this document to it. If there is any defect in this document such as misplaced or missing pages, or if this document is lost or stained, we will replace it with a new one. Please take a moment to contact the distributor you purchased the product from or our company (please refer to the back cover). At that time, please inform us of your product name and type. This document was created with our most careful attention; however, should you find any queries, errors or omissions, please inform our company (please refer to the back cover).

Safety precautions

To use this system safely, it must operate it properly. Do not use this product until you read this document carefully and understand the content sufficiently. Precautions on usage and safety described in this document are applied to the use of this product only for the specified purpose of use. Do not use this system for any purpose or by any method other than described here. If you use this system for any purpose or by any method other than described in this manual, you will be held responsible for any necessary safety measures as operator. If you operate the system for the first time, you need to be given instructions from an experienced operator with proper knowledge, and to understand its principle and method. Not only people operating this system for the first time but also people having ever used it after receiving professional education should keep this instruction manual handy to make its effective use. In order to prevent any damage to the system, please understand and follow the correct operation method shown in this manual. If you have questions or concerns related to the principle, maintenance or inspection, feel free to contact our company (please refer to the back cover).

Notices

Application	This system is physical and chemical equipment for research. It is not medical equipment. Therefore, it cannot be used for medical practices, such as care-related judgement or treatment effect checking.
Export	Export of certain services or cargos is controlled by the foreign exchange law and the government decree or ministerial ordinance of foreign trade control law of Japan. The product is subject to such regulations. Even if the product is not pertinent to the government decree, it is necessary to submit the document to the customs office to that effect. If the product is pertinent, it is necessary to obtain the export license from the Ministry of Economy, Trade and Industry, and submit the license to the customs office. When you export our company's product, please contact the distributor or our company's customer department in advance (please refer to the back cover).
Trademarks/ Copyright	Reprint or copy of a part or whole of the instruction manual would require the permission of the copyright. The specification of the product and the contents of the instruction manual may be changed without prior notice.

1 Overview

1.1 Purpose

WSE-1190 is a gel cast for making flat polyacrylamide gel of mini size (90 x 83 x 1 mm)

2 Inspection when unpacking

2.1 Inspection at unpacking

When you receive the product, check if the main unit and the accessories are properly packed and there is no damage. If you find any defect or damage, please contact the distributor you purchased the product from or our company immediately (please refer to the back cover). Carry out the inspection at the time of unpacking within one week after you receive the product. After one week elapses, damage or parts shortage may not be recovered.

2.2 Equipment configuration

The product consists of main unit and attachments.

Main unit

Product Name	Multi-Mini Slab Gel Cast
Model	WSE-1190
Product No.	2393031
Main unit	Main unit of gel cast Plate with packing

Attachments

Model	WSE-1190
Plate set (MAB-075, MB-02)	4
Smiling-less mini comb	4
Divider plate	6
Dummy plate	1
Silicon plate (22 x 103 mm)	2
Silicon plate (22 x 124 mm)	1
Instruction manual	1

Materials

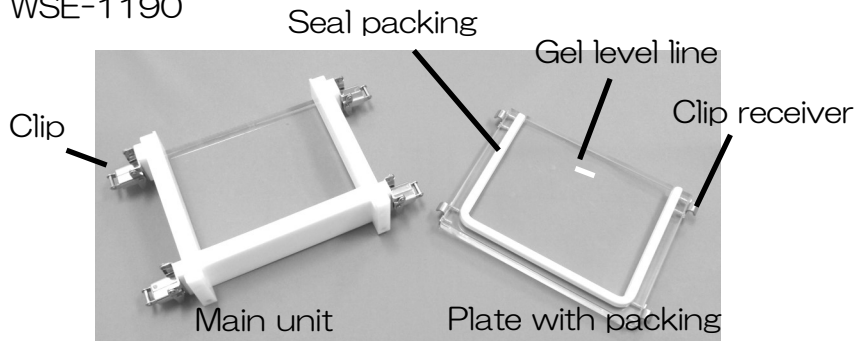
WSE-1190
Main unit : Acrylic, Stainless steel Plate with packing : Acrylic, stainless steel, Silicon sponge Silicon plate : Silicon Divider plate : Polycarbonate Dummy plate : Acrylic Smiling-less mini comb : Polypropylene

3 Name and function of each parts

①Main unit of Compact Gel Cast

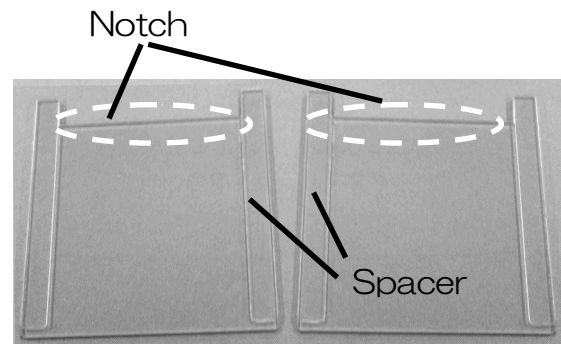
This is for making compact size gel. With standard attachment, WSE-1190 is intended to make 4 gels. With optional 2D comb, it is possible to make a 2D gel for agarose 2D electrophoresis.

WSE-1190



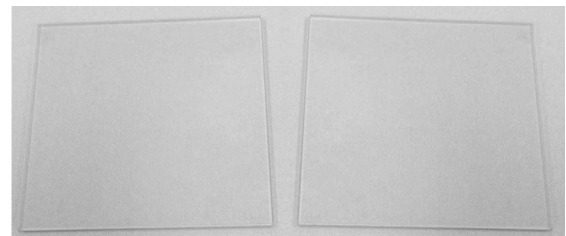
②Notch plate (4 plates)

Place the spacer side up and put plain plate on it. Gel is made in the space between 2 plates.



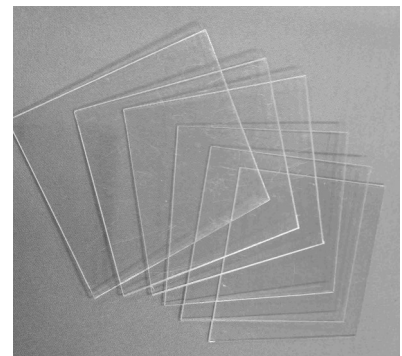
③Plain plate (6 plates)

Place the spacer side of notch plate up and put plain plate on it. Gel is made in the space between 2 plates.



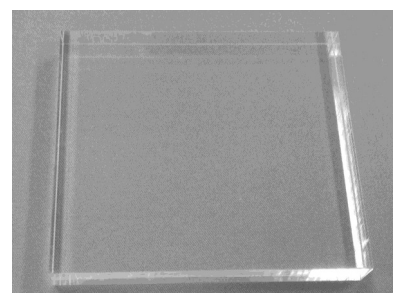
④Divider plate (6 plates)

This plate is inserted between pair of glass plates and another pair for preventing from making surplus gel and for removing gel from plates easily.



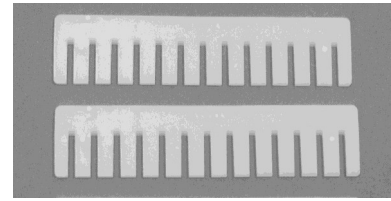
⑤Dummy plate (1 plate)

When 2 gels are made, this plate is inserted to the space of main unit. In the case of making 4 gels, this plate is not used.



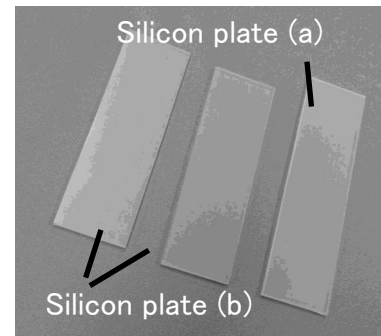
⑥Smiling-less mini comb (4 combs)

This is 12-well comb for making wells on gel.



⑦Silicon plate

This silicon plate is set on the bottom and side of main unit. The length of silicon plate (a) is different from that of (b) even though the width is the same. This product includes a 22 x 124mm plate (a) and two 22 x 103mm plates (b). Plate (a) is set on the bottom of the system and then plate (b) is set on the each side of it.



4 Gel preparation

Assemble gel casting system and prepare gel solution for making gel.

It needs about 30-35 mL separation gel solution and 5-10mL stacking gel solution for making 4 gels.

4.1Assembling a gel cast

It explains how to assemble WSE-1190 system in the below.

Please put clean gloves on for experiment when you operate.

Warning

Monomer of acrylamide has neurotoxicity.
Protect your body with gloves etc.



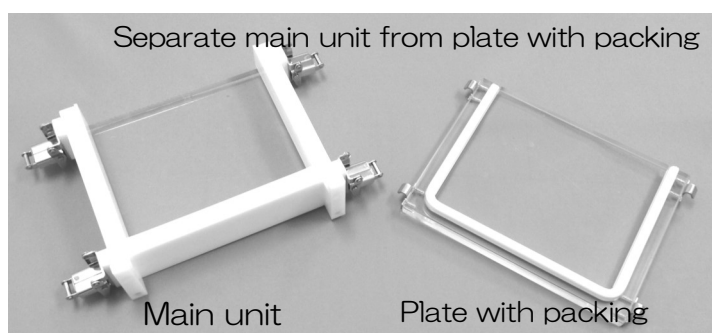
If you operate with bare hands, experimental tools, solution and anything related to the operation may be contaminated, and it is difficult to get the best experimental result.

Also, if the plates are contaminated, air bubbles may occur easily when gel solution is being put into the system. Be sure to clean it sufficiently.

Do not fix the system by clips except when making gels. If you do, elasticity of seal packing is lost and it may cause liquid spill when making gels.

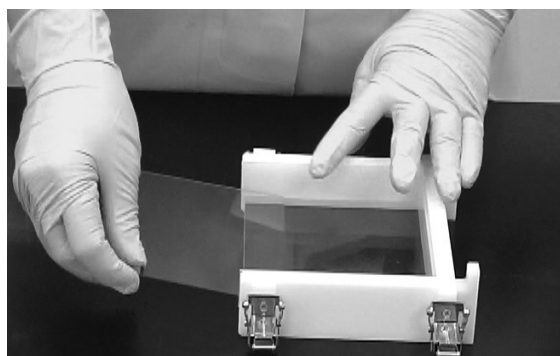
WSE-1190 Multi-Mini Gel Cast

Separate main unit from plate with packing. Set a 22 x 124 mm silicon plate on the bottom and two 22 x 103 mm plates on the each side of main unit.



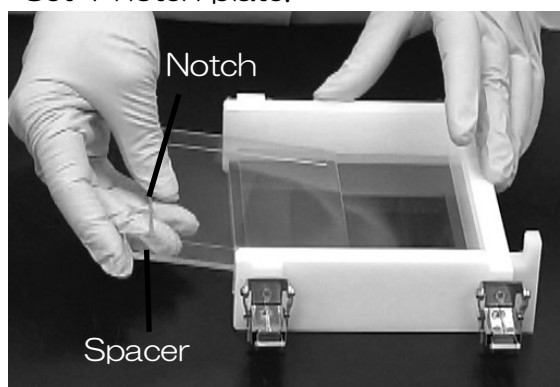
Set 1 divider plate.

Set 1 divider plate to main unit.



Set 1 notch plate.

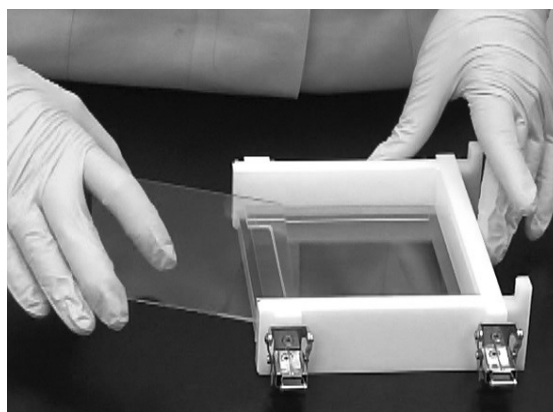
Set 1 notch plate to the main unit so that spacer faces to upward and notch faces to opposite from bottom 22x124mm silicon plate.



Set 1 plain plate.

Set 1 plain plate on the notch plate.

The set of notch and plain plate is called "plate set".



Set 2nd divider plate on the plain plate.

Set 2nd plate set as same as 1st time.

After then, set 3rd divider plate.

Set a dummy plate.

At this time, confirm all plates (notch x2, plain x2, divider x3 and dummy x1) touch to the bottom of main unit.

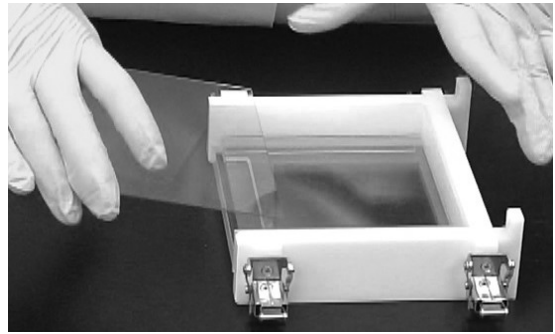
Confirm all plates are set properly; right and left side of plate don't get out of position. If it gets out of position, reset plates or use a tool whose tip is flat like spatula for setting.

Finally, set 1 divider plate and then plate with packing.

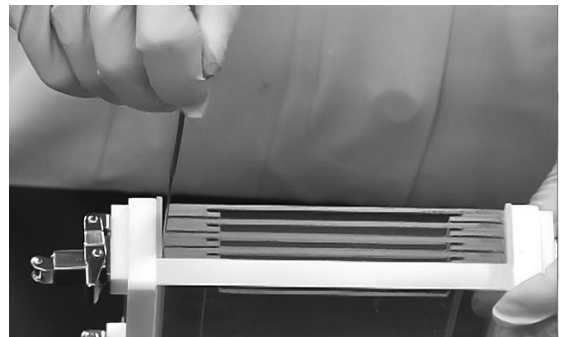
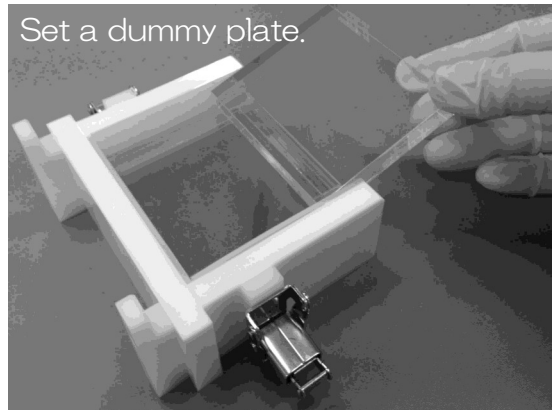
Fix plates by right and left clips uniformly.

In the case of making 4 gels, set 3rd plate set instead of dummy plate on 3rd divider plate, and then put in order of 4th divider plate and 4th plate set.

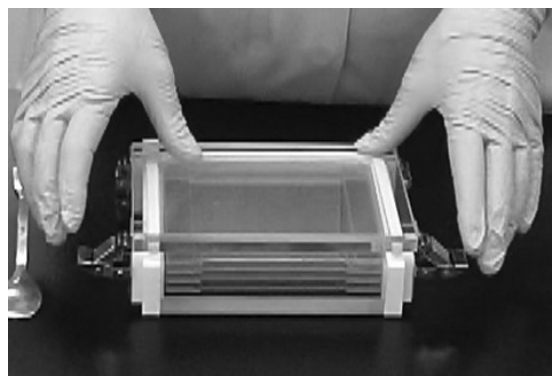
Set 2nd divider plate.



Set a dummy plate.

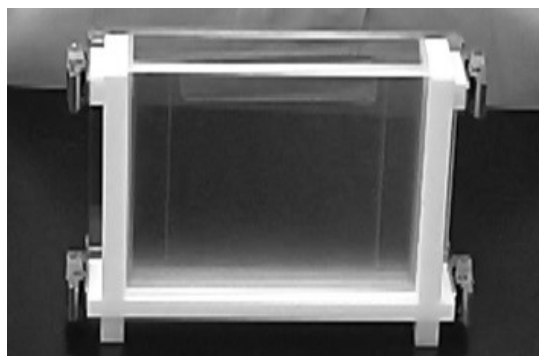


Fix plates with clips.



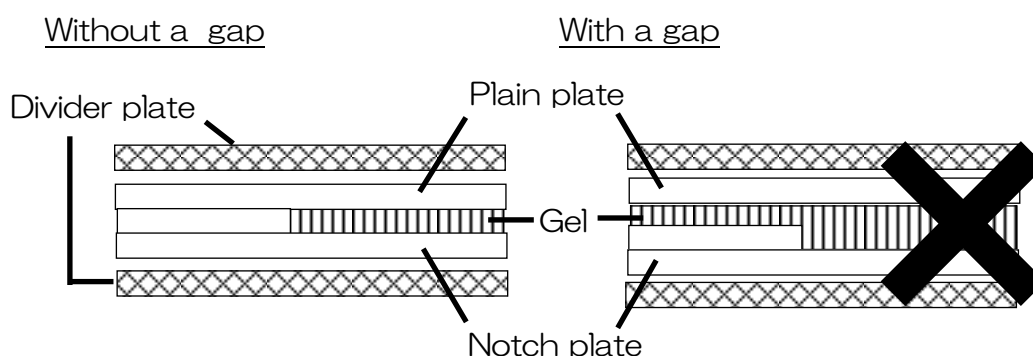
Stand the system upright and confirm notch and plain plate cohere well.

If there is a gap, confirm all plates are set correctly.



Gel may be made between spacer of notch plate and plain plate and it may affect migration.

If there is a gap between plates set correctly, add one more divider plate for attaching spacer to plain plate.



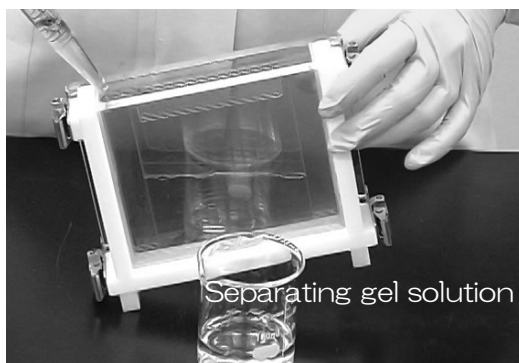
4.2 Gel casting

Please select gel concentration depending on molecular weight of sample. In the case of native PAGE, charge state of sample affects mobility greatly. So, concentration cannot be selected on the basis of only molecular weight of sample. It needs preliminary experiment for selecting.

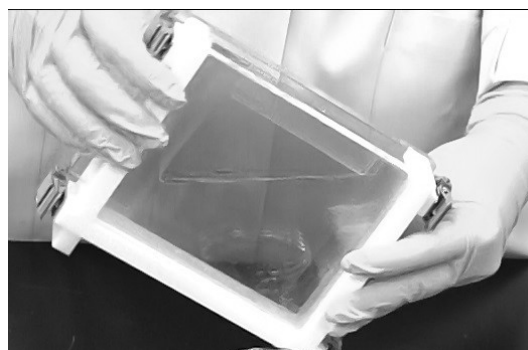
Pour separating gel solution gently into the assembled system from notch part. If the solution is poured vigorously, uneven polymerization may occur.

Do not put air bubbles in.

Pour separating gel solution



Tilt main unit and spread the solution.

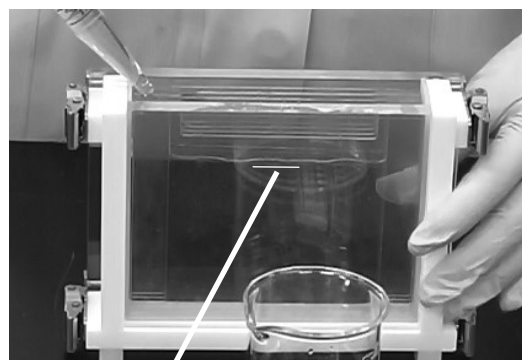


When about 1/3 of separating gel solution is poured, tilt the system to back and forth or right and left for spreading it on the whole.

If there are air bubbles between plates, tilt main unit and so on to remove them.

Pour separating gel solution up to separating gel level line marked on plate with packing. Tilt main unit and so on for adjusting each height of solution between plates to be same level.

In the case of making gel for DNA, pour the solution up to the upper end of glass plate.



Separating gel level line

Slowly put distilled water on each separating gel solution until the height which is 2-3mm higher than the surface of gel solution and keep it still for more than 30min to let polymerization happen.



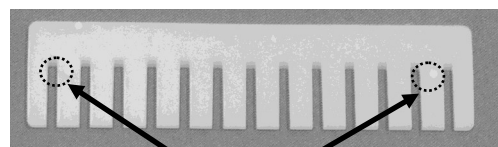
Put distilled water on separating gel solution equally. If the amount is different from each, distance of separating gel is not uniform.



At low temperature (less than 20 °C), polymerization is difficult to occur. The polymerization speed is varied by temperature. Let polymerization occur always at a constant temperature so as to maintain reproducibility of the electrophoretic pattern.

In the case of making gel for DNA, insert sample comb until the stopper touches the notch of plate.

In the case of making gel for 2D electrophoresis, put separating gel solution in up to the height which is 5mm lower than notch of plate.



Stopper

After polymerization is completed, discard the distilled water. At this time, hold main unit gently for preventing plates from slipping out and tilt it to discard distilled water. In the case of making gel for DNA, this process is not necessary.

Tilt main unit and discard the distilled water.



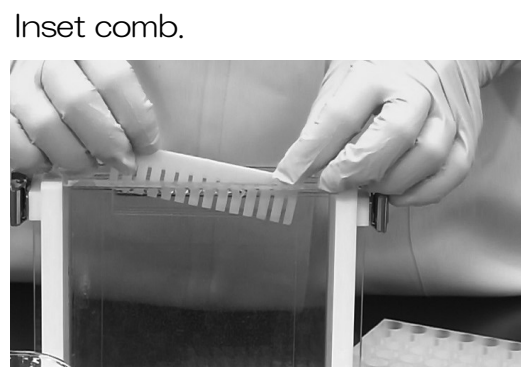
Pour concentrating gel solution up to the upper end of plate.



Pour stacking gel solution.

Insert sample comb until the stopper touches the notch of plate.

Polymerization will be completed in about 30min. As for 2D flat comb, put the comb on the notch part of glass plate.



Inset comb.

2D mini flat comb



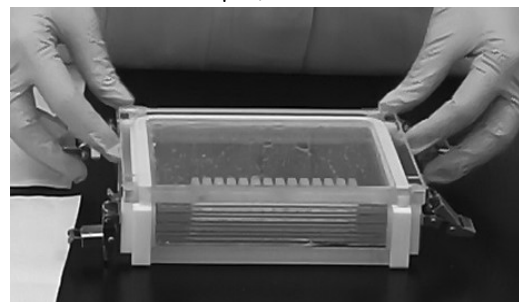
There is a cut on upper side of the comb.



Be careful not to attach air bubbles to the teeth of comb. If you do, the well will not be formed properly.

After confirming gelation is completed, take gels out from the main unit. Place main unit down and unlock the right and left clip.

Unlock the clips.



Remove plate with packing.

Remove plate sets and divider plates, and take gels out from main unit one by one.

Take gels out.



Wash away gel solution attached to plates with distilled water soon. Remove unnecessary gel attached to comb by a tool like spatula.

If the gel is not used for electrophoresis soon, wrap in a shroud for preventing it from drying.

Remove surplus gel and unpolymerized acrylamide gel solution.



5 How to clean and store the system

5.1.Cleaning

Clean glass plates & combs by soft sponge with neutral detergent so as not to leave bits of gel before drying. Then dry them naturally. If they touch organic solvent such as acetone, alcohol and so on or are dried at high temperature, it may cause crack, deformation and discoloration.

Clean and dry naturally gel cast, divider and dummy plates as well as glass plates. Prevent from using a sponge made of metal for cleaning them. If you do, they are damaged so visibility at the time of making gels is reduced.

5.2.Storing the system

Store the system in an area out of direct sunlight, high temperature, or corrosive gas. Do not fix gel cast by clips except when you make gels. The elasticity of seal packing is reduced and it may cause leak when to make gels.

6 Trouble shooting

Symptoms	Cause	Solution
Gel solution leaks.	The system is not assembled correctly.	Confirm glass plates etc. are set in the system and fix them by clips correctly. If glass plates etc. are out of position, refer to “4.1 Assembling a gel cast” and assemble it again. If the lock is incomplete, fix the system by clips again.
	Seal packing is twisted or wrinkled.	Confirm seal packing has no twist and wrinkle. If it has, remove it from the system and reset it without twist and wrinkle.
	Seal packing deteriorates.	Refer to “7.2 Inspection” and check water leakage. If there is leakage, please contact our company.
Well is shallow.	stacking gel solution is not enough.	In the case of WSE-1190, after inserting comb, solution may flow out to the gap between glass plate and cast, and surface of liquid lowers. Fill gel solution up to the upper end of plates.

Symptoms	Cause	Solution
Unnecessary surplus gel is made at the right and left hand of glass plates, or on the bottom.	Silicon plate is not set in main unit.	Set silicon plate (a) on the bottom and silicon plate (b) in the right and left hand of main unit.
2 pairs of glass plates cannot be separated.	Divider plate is not set.	Set a divider plate between a pair of plates and another pair.
Gel is made at the spacer.	Plain and notch plate don't cohere enough.	Refer to "4.1 Assembling a gel cast" and assemble it. If plates don't cohere each other in the system, add one more divider plate.

7 Maintenance

7.1 Cleaning

Before drying, clean gel cast, divider plates and dummy plates so as not to leave bits of gel by soft sponge with neutral detergent, then dry them naturally. If they touch organic solvent such as acetone, alcohol and so on or dried at high temperature, it may cause crack, deformation and discoloration. Prevent from using a sponge made of metal for cleaning them. If you do, they are damaged so visibility at the time of making gels is reduced.

7.2 Inspection

When the system is used after storing, read this manual at the same time to inspect it. If there is an abnormality, do not use it and contact our company.

If the seal packing is out of position or twisted, reset it correctly. Also if there is a lateral wrinkle at the curve of the bottom, reset it, too.

Refer to "4.1 Assembling a gel cast" and assemble the system. Pour pure water in up to 0.5-1cm from the upper side and keep it quietly for 1 hour. Check there is no leakage.

7.3 Consumables

The following goods are consumables for WSE-1190. Please replace with new one depending on the condition. For the goods not described in the below, contact your distributor or our company.

Product name	Code No.
Notch Glass plates 2/pk, MAB	2393035
Plain Glass Plates 2/pk, MB	2393036
Dummy Plate for mini gel cast	2393037
Divider Plate 3/pk, for mini gel cast	2393038
Silicon plates for WSE-1190 3/pk	2393034
1 mm 12-well Combs 2/pk, RM	2398269
2D Comb 2/pk, MP	2394160

7.4 Warranty

Atto Corporation warrants all its products subject to the terms and conditions set forth below.

1. This warranty covers all new products that are sold by Atto Corporation (hereinafter called Atto).
 2. Expendable items are not covered by this agreement.
 3. Claims under this warranty are limited to defects in material and workmanship of the products.
 4. Malfunction and/or damage due to neglect, abuse, operation or repair contrary to specifications and/or instructions presented by Atto are not warranted.
 5. Atto shall not be liable to consequential damage, labor, loss or expense directly or indirectly arising from us of the products.
 6. Damage due to transit is not covered by this warranty.
 7. The warranty period is one (1) calendar year from a date when the products are shipped from Atto to an original purchaser.
 8. This warranty is not applied to any defect that is reported to Atto later than one (1) calendar month from a date of warranty termination.
 9. Atto Shall supply parts to replace faulty parts of defective products under this warranty, free of charge.
 10. Atto shall repair defective products under this warranty which cannot be repaired at field, free of charge.
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11. Atto shall replace defective products under this warranty which cannot be repaired, free of charge.
12. Freight charges for return and replacement shipments under this warranty are shared by Atto and a purchaser, that is one way by either party and another way by another party.
13. Warranty period of repaired products and replacement products or parts is three (3) calendar months from a date when the said products or parts are shipped from Atto, or a remaining term of an original warranty period of the defective products, whichever lasts longer.
14. Return of the products for credit or refund is not accepted unless otherwise agreed in writing by Atto.

8 Specification

Product name	Compact Gel Cast
Model	WSE-1190
Plate size (W x H x D , mm)	120 x 100 x 5
Gel size (W x H x D , mm)	90 x 83 x 1.0
Number of gel	4 sheets
Location of use	Only use in a room. No dew condensation. Operation ambient temperature: 5~40°C Operation ambient humidity: 5~70%RH
Dimension/Weight	45mm(D) × 157mm(W) × 129mm(H) (Without clip part) 0.6Kg
Standard components	Main unit: 1 set Glass plates: 4 pairs (MAB-12 Notch, MB-02 Plain) Smiling-less compact comb: 4 combs Divider plate: 6 plates Dummy plate: 1 plate Instructional manual



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