

# Quick & Quality Western Blotting

WB

## ATTO Western Blotting Semi-Dry Blotting System

WSE-4115 Built-in Power Supply Unit (small size)  
**PoweredBlot Ace**

WSE-4125 Built-in Power Supply Unit  
**PoweredBLOT 2M**

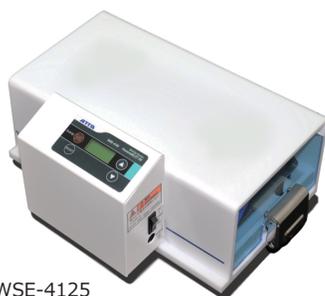
**NEW**

WSE-4025 Semi Dry Blotting System for 2 mini gels  
**HorizeBLOT 2M**

WSE-4045 Semi Dry Blotting System for 4 mini gels  
**HorizeBLOT 4M**



WSE-4115



WSE-4125



WSE-4025



WSE-4045

55years with Electrophoresis



## What's semi-dry blotting?

## And more - Fast Blotting

Western blotting is the basic experimental method to detect target component from a protein sample specifically and with high-sensitivity. There are 2 types of methods; "Semi-dry type" and "Wet type (Tank type)". ATTO recommend and provide Semi-dry type blotting system due to advantages below. And in 2019 ATTO accelerates to the new western blotting system **as fast as 10min at minimum** without preparation.



### Merit ① Save Amount of Blotting Solution

Wet type needs a large amount of blotting solution for immersing whole of filter papers, gels, membranes and electrodes, however Semi-dry type requires smaller amount of blotting solution just for immersing filter papers.



### Merit ② Simple Operation

Wet type needs setting a stack of filter papers, gels and membranes vertically after stacking them, causing misalignment, while Semi-dry type requires simply stacking them horizontally between electrodes.



### Merit ③ Lower Heat Generation

Heat generation of Semi-dry type is lower than Wet type due to smaller current required for blotting. Wet type generates higher heat generation because of larger current required.



### Merit ④ Short Operating Time

Wet type needs a long time to prepare materials, equilibrate membranes, stack gels and membranes, and operate blotting devices, though Semi-dry type is completed in a short time



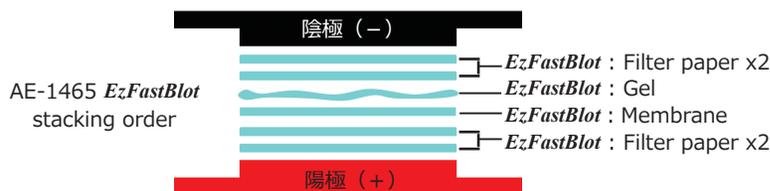
### Merit ⑤ High Efficiency with Optimized Solution

ATTO recommends AE-1460 *EzBlot* for Semi-dry blotting with 3 component solutions, and AE-1465 *EzFastBlot* for high speed blotting with single component solution.

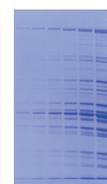
Transfer efficiency is improved by optimized blotting solution\* when using semi-dry blotting system.

\* Kyhse-Andersen J et al., (1984) Electroblothing of multiple gels: a simple apparatus without buffer tank for rapid transfer of proteins from polyacrylamide to nitrocellulose. *J Biochem Biophys Methods*.10:203-9.

※ Blotting solution such as 25mM Tris, 192mM Glycine, 20% Methanol is not recommended in Semi-dry blotting. Transfer efficiency is considerably deteriorated because this type solution is not optimized for Semi-dry blotting.



Difference of transfer efficiency by blotting buffer in Semi-dry blotting



Tris-Glycine-MeOH solution

AE-1460 *EzBlot*

The gel images above show AE-1460 *EzBlot* is more effective in Semi-dry blotting.



### Merit All features above are in your hands

Q Blot kit and PoweredBLOT, a blotter with built-in power supply offers quick preparation and high speed transfer as long as 10 min.



Easy and quick operation

**Best in 2019**



And high transfer efficiency

# Specifications

Compact Semi-dry Blotter with Built-in Power Supply



Compact Size Semi-dry Blotting System with Built-in Power Supply



Semi-dry Blotter for 2 mini gels



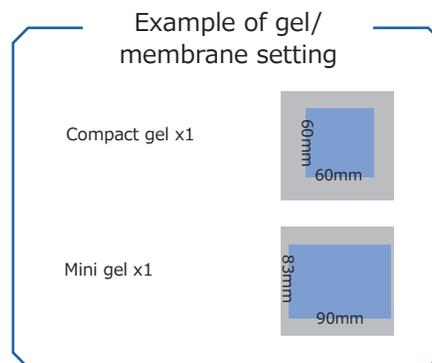
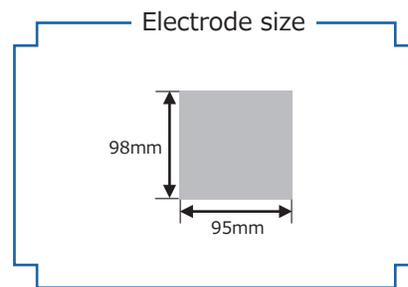
Semi-dry Blotter for 4 mini gels



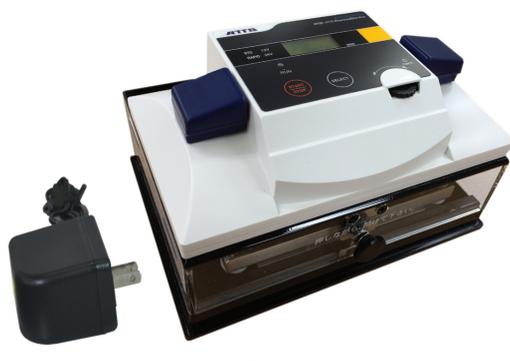
Product Name	PoweredBlot Ace	PoweredBlot 2 M	HorizeBLOT 2M	HorizeBLOT 4M
Code No.	2322490	2322496	2322466	2322476
Model	WSE-4115	WSE-4125	WSE-4025	WSE-4045
Power supply unit	Built-in STD (Standard mode): CV12V RAPID (Fast mode): CV24V Timer: 1-250min / Power consumption: 26W		—	
Electrode size	95mm(W) × 98mm(D)	205mm(W) × 100mm(D)	205mm(W) × 100mm(D)	205mm(W) × 200mm(D)
Distance between electrodes	Min : 3mm Max : 10mm	Min : 3mm Max : 15mm	Min : 3mm Max : 15mm	
Polarity	Upper : Cathode ( - ) Lower : Anode ( + )			
Blotting solution volume	- 100mL	100 - 200mL * Depending on the size and number of gels	100 - 200mL * Depending on the size and number of gels	100 - 400mL * Depending on the size and number of gels
Gel Capacity	1 Compact Gel 1 Mini Gel	3 Compact Gels 2 Mini Gels	3 Compact Gels 2 Mini Gels	9 Compact Gels 4 Mini Gels 1 Slab Gel
Blotter Type	Semi-dry blotting			
Materials	Main unit: Acrylic Upper: Corrosion-resistant stainless steel Lower: Platinized titanium Power supply case: ABS resin	Main unit: Acrylic Upper: Corrosion-resistant stainless steel Lower: Platinized titanium Power supply case: Metal	Main unit: Acrylic Upper: Corrosion-resistant stainless steel Lower: Platinized titanium	
Dimensions (mm, except projection)	Main unit: 170 (W) × 120 (D) × 107 (H) AC adaptor: 36(W) × 95 (D) × 31 (H)	Main unit: 216 (W) × 186 (D) × 114 (H) AC adaptor: 36(W) × 95 (D) × 31 (H)	246(W) × 145 (D) × 92 (H)	246 (W) × 235 (D) × 92 (H)
Weight	0.77kg (except AC adaptor)	2.1kg (except AC adaptor)	1.8kg (except lead wires)	3.0kg (except lead wires)
Component	<ul style="list-style-type: none"> <li>• WSE-4115 Main unit : 1</li> <li>• AC adaptor : 1</li> <li>• Extension code : 1</li> <li>• Blotting roller : 1</li> <li>• Instruction manual : 1</li> </ul>	<ul style="list-style-type: none"> <li>• WSE-4125 Main unit : 1</li> <li>• AC adaptor : 1</li> <li>• Extension code : 1</li> <li>• Blotting roller : 1</li> <li>• Instruction manual : 1</li> </ul>	<ul style="list-style-type: none"> <li>• WSE-4025 Main unit : 1</li> <li>• Power lead wire with safety terminal</li> <li>* With reverse polarity prevention</li> <li>• Blotting roller : 1</li> <li>• Instruction manual : 1</li> </ul>	<ul style="list-style-type: none"> <li>• WSE-4045 Main unit : 1</li> <li>• Power lead wire with safety terminal</li> <li>* With reverse polarity prevention</li> <li>• Blotting roller : 1</li> <li>• Instruction manual : 1</li> </ul>

# Blotter with Built-in Power Supply

## WSE-4115 PoweredBlot Ace



PoweredBlot Ace



Space saving with built-in power supply



Simple operation: select mode and run



High-speed blotting with dedicated power supply

- "Standard mode" and "High speed mode" can be selected.
  - STD (Standard) mode (Constant voltage 12V [equivalent to constant current 2mA/cm<sup>2</sup>])
    - Blotting time : 30-60 min
    - Timer : Selectable range is 1-250 min
  - RAPID mode (Constant voltage 24V [equivalent to constant current 7-8mA/cm<sup>2</sup>])
    - Blotting time : 10-30 min
    - Timer : Selectable range is 1-250 min
- Required space for setting the main unit: A5 size (148mm × 210mm)
- Spring structure in the upper electrode unit offers stable contact of the stack without unevenness of transfer.

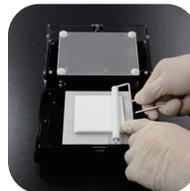
### How to use



① Remove the lid with a power supply unit from a device.



② Remove the upper electrode, and stack filter papers, gels, and membrane on the lower electrode plate.



③ Press the stack using an attached blotting roller to remove air bubbles.



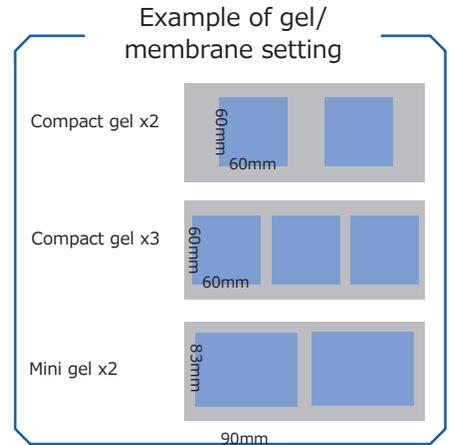
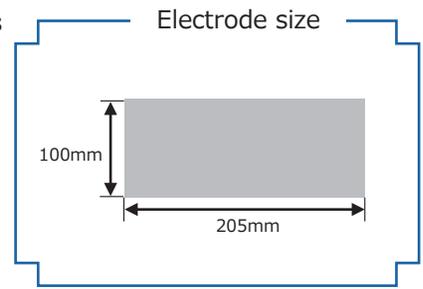
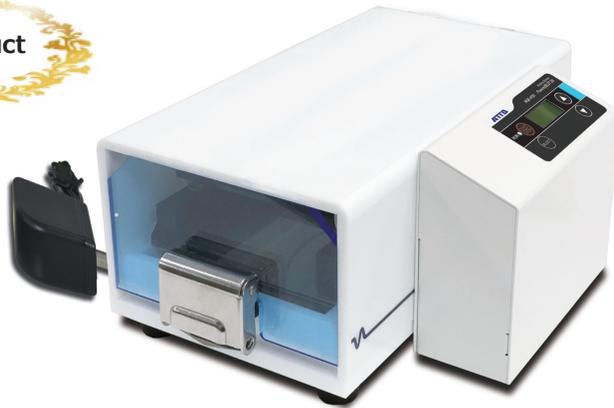
④ Select a blotting mode and press "RUN" button to start blotting.

### Component

Code No.	Model	Product Name
2322490	WSE-4115	PoweredBlot Ace
2322491	WSE-4115 · C	PoweredBlot Ace (With Compact size P+ membrane & Filter Paper)
2322492	WSE-4115 · M	PoweredBlot Ace (With Mini size P+ membrane & Filter Paper)

# Blotter with Built-in Power Supply for 2 mini gels

## WSE-4125 PoweredBlot 2M



PoweredBlot 2M



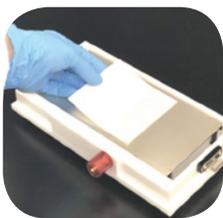
Space saving with built-in power supply

Simple operation: select mode and run

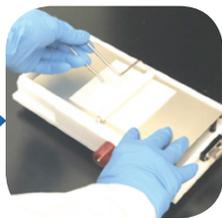
High-speed blotting with dedicated power supply

- "Standard mode" and "High speed mode" can be selected.
  - STD (Standard) mode (Constant voltage 12V [equivalent to constant current 2mA/cm<sup>2</sup>])
    - Blotting time : 30-60 min
    - Timer : Selectable range is 1-250 min
  - RAPID mode (Constant voltage 24V [equivalent to constant current 7-8mA/cm<sup>2</sup>])
    - Blotting time : 10-30 min
    - Timer : Selectable range is 1-250 min
- Spring structure in the upper electrode unit offers stable contact of the stack without unevenness of transfer.

### How to use



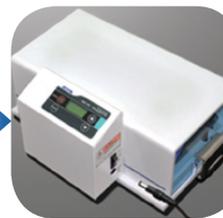
① Remove the power unit and the upper electrode, and stack filter papers, gels, and membrane on the lower electrode plate.



② Press the stack using an attached blotting roller to remove air bubbles.



③ Place the upper electrode cover on the stack.



④ Set the power unit and connect the AC adaptor.



⑤ Select a blotting mode and press "RUN" button to start blotting.

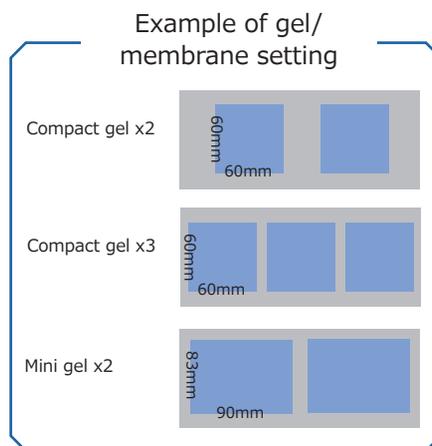
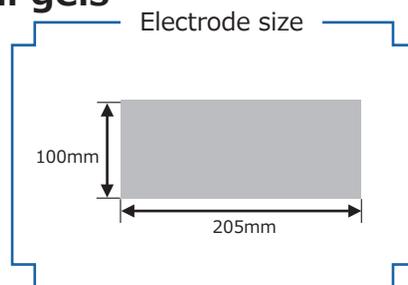
### Component

Code No.	Model	Product Name
2322496	WSE-4125	PoweredBlot 2M
2322497	WSE-4125 · M	PoweredBlot 2M (With Mini size P+ membrane & Filter Paper)

# Semi Dry Blotting System for 2 mini gels

**WSE-4025 HorizeBLOT 2M**

**Renewal**



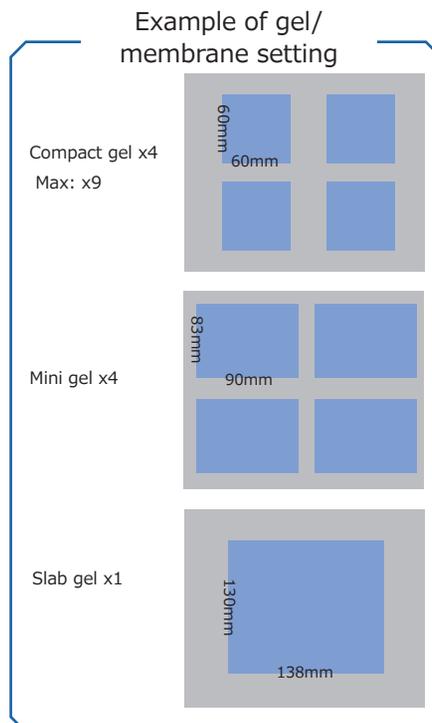
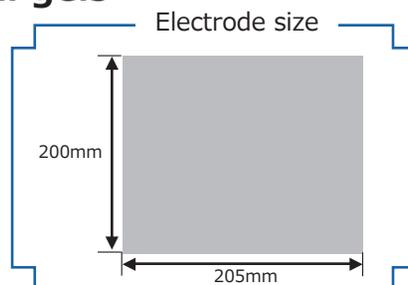
- Reduce blotting unevenness
- High-speed blotting enabled
- Improved operation and reproducibility

HorizeBLOT 2M · 4M

# Semi Dry Blotting System for 4 mini gels

**WSE-4045 HorizeBLOT 4M**

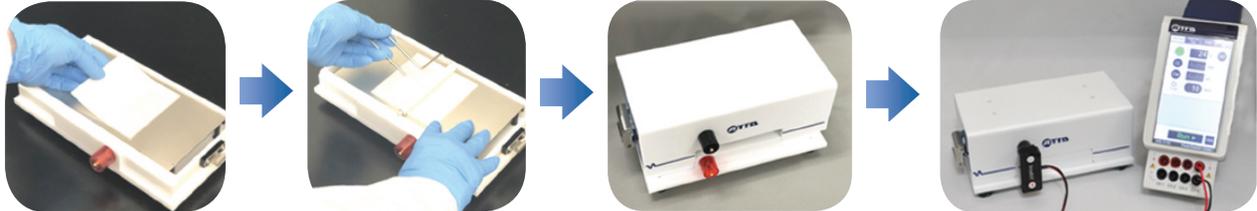
**Renewal**



- Reduce blotting unevenness
- High-speed blotting enabled
- Also supports large membranes and gels

- Spring structure in the upper electrode unit offers stable contact of the stack without unevenness of transfer.
- Just by setting it along the "alignment guide" of the main body, setting can be done easily
- Firm fixing the upper and lower electrode plates with a latch prevents deviation of the filter papers / membranes / gels
- By adopting lead wire of reverse connection prevention structure, no accidental insertion of cathode and anode can occur

## How to use



① Remove the power unit and the upper electrode, and stack filter papers, gels, and membrane on the lower electrode plate.

② Press the stack using an attached blotting roller to remove air bubbles.

③ Set the upper electrode plate along the alignment guide and fix the notch.

④ Set the lead wire, connect it to the power supply and start blotting

## Component

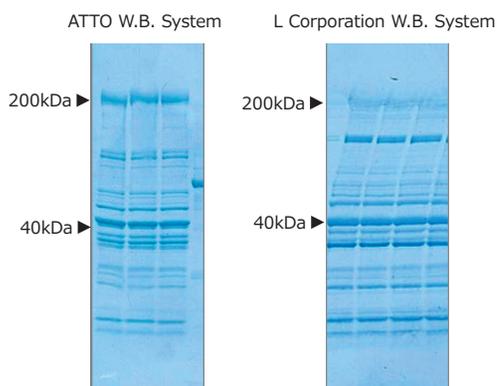
Code No.	Model	Product Name
2322466	WSE-4025	HorizeBLOT 2M
2322467	WSE-4025 · M	HorizeBLOT 2M (With Mini size P+ membrane & Filter Paper)
2322476	WSE-4045	HorizeBLOT 4M
2322477	WSE-4045 · M	HorizeBLOT 4M (With Mini size P+ membrane & Filter Paper)

## Options/Consumables

2322479	–	Blotting Roller
2322462	–	Power lead wire for HorizeBLOT-R

HorizeBLOT 2M · 4M

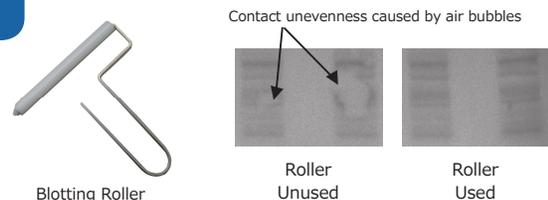
## Data



Blotting Solution	AE-1465 <i>EzFastBlot</i>	High speed blotting kit
Blotting device	HorizeBLOT 2M-R	Dedicated semi-dry blotter for high speed blotting
Transfer time	High speed blotting C.V. 25V, 7min.	High speed blotting 7min.

ATTO Western Blotting System showed higher efficiency in the high molecular weight region.

## TIPS



- Air bubbles between filter papers, membranes and gels may cause nonuniformity of transfer.
- Blotting roller can easily remove air bubbles.
- ATTO blotting devices include a blotting roller as standard.



- Since *Q Blot kit* is a pack of pad (substitute of filter papers) and membrane containing blotting solution, it can be used immediately after taking out from the bag. No more preparation needed.

# ATTO Western Blotting System

## Related Products (Membrane, Filter Paper, Kit)



**Stack kit for quick blotting**  
**Pack of already equilibrated membrane stack**



*Q Blot kit*

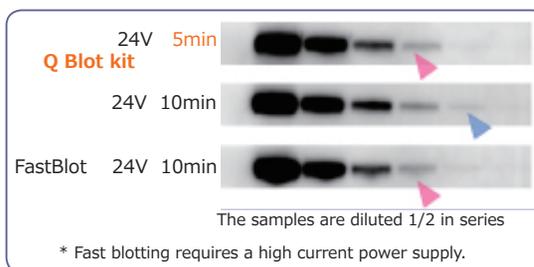
- Ready-to-use. You can start with it right out of the pack.**
- High speed blotting within 5min at Min**
- High transfer efficiency**

- *Q Blot kit* is a pack of pad (substitute of filter papers) and PVDF membrane containing blotting solution. No more preparation needed.
- You can use immediately after taking out from the bag.
- High transfer efficiency and uniformity
- You can perform high speed blotting with *Q Blot kit*.

Code No.	Model	Product Name	Quantity
2322445	WSE-4055	<i>Q Blot kit</i>	Top Stack : 10 packs Bottom Stack : 10 packs Gel washing solution : 1 bottle



You can start blotting immediately after taking the kit out of the pack.



**PVDF membrane for high efficiency blotting**



- Extremely low background**
- Already cut to the precast gel size**

- PVDF membrane with excellent protein binding capacity and retention.
- Less prone to unevenness and can reduce the background compared with conventional products.

Code No.	Model	Product Name	Quantity
2322450	WSE-4050	P plus Membrane	65mm × 65mm 20 sheets/box
2322451	WSE-4051		85mm × 90mm 20 sheets/box
2322452	WSE-4052		130mm × 140mm 10 sheets/box
2322453	WSE-4053		260mm × 3m 1 roll/box



**Filter paper for blotting**



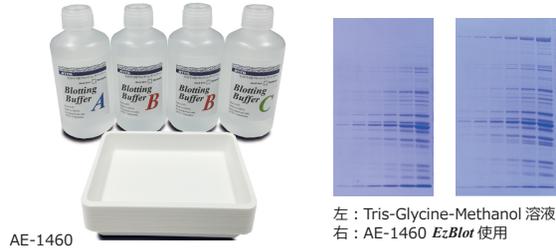
- Uniform, smooth, and clean sheets**
- Already cut to precast gel size**

- About 0.9 mm thickness to keep enough volume of blotting buffer
- Ready to use: already cut to ATTO precast gel size

Code No.	Model	Product Name	Quantity
2322437	CB-06A	Filter paper	65mm × 65mm 0.9mm thick, 400 sheets/box
2392393	CB-09A		85mm × 90mm 0.9mm thick, 400 sheets/box
2322436	CB-13A		130mm × 140mm 0.9mm thick, 200 sheets/ 2 boxes
2392493	CB-20A		200mm × 200mm 0.9mm thick, 100 sheets/box

# ATTO Western Blotting System Related Products (Reagents)

## WB Blotting Kit for LMW to HMW Protein Semi-dry Blotting



AE-1460

左 : Tris-Glycine-Methanol 溶液  
右 : AE-1460 EzBlot 使用

- Blotting solution optimized for Semi-dry blotting
- High transfer efficiency

- 3 component blotting solution for semi-dry blotting.
- Just add small amount of methanol to prepare.
- Low cost and versatile: you can use it with any blotting devices by other companies.

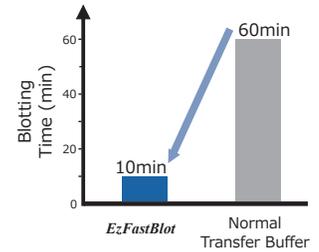
Code No.	Model	Product Name	Quantity
2332600	AE-1460	<i>EzBlot</i>	A, C Solution : 500mL × 1 B Solution : 500mL × 2

## WB High Speed Blotting Solution for Semi-dry Blotting



AE-1465

WSE-7210



- High speed blotting within 10min at Min
- Transfer LMW to HMW widely
- HMW type for larger molecule than 100kDa

- Single component transfer buffer for fast blotting.
- No methanol required. just dilute with distilled water prior to use
- Low cost and versatile: you can use it with any blotting devices by other companies.

Code No.	Model	Product Name	Quantity
2332590	AE-1465	<i>EzFastBlot</i>	500mL (10 ×)
2332595	WSE-7210	<i>EzFastBlot HMW</i>	500mL (5 ×)

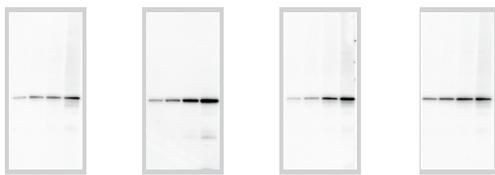
## WB Blocking Reagents



AE-1475

AE-1476

AE-1477



3% skimmed milk

AE-1475  
*EzBlock Chemi*

AE-1476  
*EzBlock BSA*

AE-1477  
*EzBlock CAS*

- High blocking efficiency
- Adjustable to your use case

- High S/N can be achieved with these blocking reagents.
- You can also apply them to southern/northern blot, ELISA.
- Simply dilute the solution 5 times with distilled water to use.
- Tween-20 is included in AE-1476 and AE-1477 (except AE-1475). It can be used as you prefer on your purpose.

Code No.	Model	Product Name	Quantity
2332615	AE-1475	<i>EzBlock Chemi</i>	500mL (5 ×)
2332616	AE-1476	<i>EzBlock BSA</i>	200mL (5 ×)
2332617	AE-1477	<i>EzBlock CAS</i>	200mL (5 ×)

## WB Wash buffer for western blotting



WSE-7430

WSE-7230

WSE-7235

- Low cost and high performance
- Sterilized and DNase free
- Low viscosity Tween surfactant

- WSE-7430 EzPBS (-) Phosphate buffered saline  
Magnesium and potassium free  
Sterilized, DNase free
- WSE-7230 EzTBS Tris hydrochloric acid buffered saline  
Sterilized, DNase free
- WSE-7235 EzTween 10%Tween - 20  
Low viscosity, easy to handle (weigh)

Code No.	Model	Product Name	Quantity
2332380	WSE-7430	<i>EzPBS</i>	1000mL(10 ×)
2332625	WSE-7230	<i>EzTBS</i>	1000mL(10 ×)
2332623	WSE-7230L		5000mL(10 ×)
2332626	WSE-7235	<i>EzTween</i>	100mL(10%)

# ATTO Western Blotting System

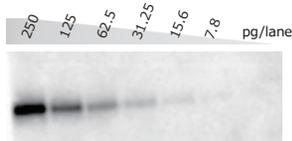
## Related Products (Reagents)



### Luminol Substrate for HRP Detection & Clear Pocket for Membrane Seal



WSE-7110



**Sample :** Human Transferrin (2 fold dilution)  
**1st antibody:** Transferrin antibody  
**2nd antibody:** HRP standard antibody  
**Capture:** Ez-Capture ST

- Low cost and good performance
- One component solution without preparation

- Low price among competitors' equivalent substrates.
- Ready-to-use: Single component, no need to further operation
- Long time exposure (about 1 hour at maximum)
- Wide dynamic range

Code No.	Model	Product Name	Quantity
2332632	WSE-7110	<i>EzWestLumi One</i>	250mL

### Wrinkle-free transparent sheet

- Protect the stained membrane and enables capture through it

Code No.	Model	Product Name	Quantity
2322438		<i>Pitatt clear</i>	100 sheets



### Luminol Substrate for HRP Detection

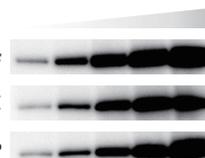


WSE-7120S

*EzWestLumi plus*

Competitor's equivalent product I

Competitor's equivalent product P



**Detected antibody :** HRP marked antihuman  $\beta$ -actin antibody (mouse), diluted in 1/10,000 times

**Detection :** Ez-Capture MG (Highly Sensitive Chemiluminescent Imager by ATTO)

- Excellent cost performance
- Highly sensitive and rapid detection

- Excellent performance at low price
- High sensitivity achieved in a short time/
- Higher dilution ratio can be applied to antibody than conventional one.
- Uniform light emission with a little amount of working solution
- Luminol reaction hardly saturated enables quantitative analysis of concentrated samples.

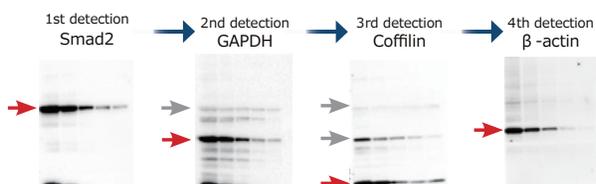
Code No.	Model	Product Name	Quantity
2332637	WSE-7120S	<i>EzWestLumi plus</i>	50mL $\times$ 2
2332638	WSE-7120L		250mL $\times$ 2



### Stripping and Reprobing Reagent



WSE-7120S



- Just incubate for 15min at minimum
- Can be used repeatedly with high S/N ratio

- Shake and incubate for 15 min at room temp to strip antibodies
- Less damage to antibody offers high S/N detection repeatedly
- Even rabbitmonochronal antibody with high titer can be removed

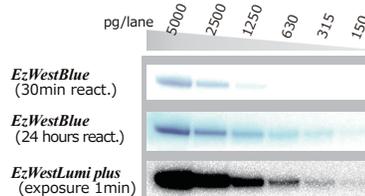
Code No.	Model	Product Name	Quantity
2332530	WSE-7240	<i>EzReprobe</i>	500mL (1 $\times$ ) Enhancer 3g
2332531	WSE-7240L		2L (1 $\times$ ) Enhancer 12g



### Highly Sensitive Colorimetric Substrate for HRP



AE-1490



**Sample :** Hum Transferrin (2 fold dilution)  
**1st antibody:** Transferrin antibody (rabbit)  $\times$  1/10,000 dilut.  
**2nd antibody:** HRP marked anti-rabbit IgG antibody  $\times$  1/10,000 dilut.  
**Colorimetric detection :** PC Scanner  
**Luminesce :** Ez-Capture ST exposure 1min

- 8 times higher sensitivity than DAB
- Single component, no need to prepare

- TMB substrate for horseradish peroxidase (HRP) used for colorimetric detection of immunoblotting (not applicable to ELISA)
- Highly sensitive, reducing the usage of valuable antibodies.
- Safer than DAB(diaminobenzidine). No organic solvent contained.

Code No.	Model	Product Name	Quantity
2332630	AE-1490	<i>EzWest Blue</i>	200mL (1 $\times$ )
2332629	AE-1490L		1L (1 $\times$ )

# ATTO Western Blotting System

## Related products (Power Supply/Gel Imaging System)



### Touch Panel Power Supply for Blotting and Electrophoresis



WSE-3100

Output specifications  
 Voltage range (1V Step)  
 0 - 500V  
 Current range (1mA Step)  
 0 - **3000mA**  
 Power range (1W Step)  
 0 - 200W



### High Current Power supply



WSE-3500

Output specifications  
 Voltage range (1V Step)  
 5 - 150V  
 Current range (10mA Step)  
 0 - **3000mA**  
 Power range (1W Step)  
 0 - 200W

- For both blotting and electrophoresis
- High current output; Max3000mA
- Recommended for Semi-dry Fast Blotting

- WSE-3100 is recommended for high-current applications as semi-dry blotting as well as polyacrylamide gel electrophoresis.
- Large LCD touch panel offers quick & comfortable setting/operation
- Output: Constant Current/Constant Voltage/Constant Power
- You can use various preset conditions and also can set and save your original parameters as "Method" file.
- Power failure recovery, Safety and Graph Display functions, etc.

CodeNo.	Model	Product Name
2311130	WSE-3100	<b>PowerStation Ghible I</b>

- High current output; Max3000mA
- Recommended for Semi-dry Fast Blotting

- WSE-3100 is recommended for high-current applications as semi-dry blotting.
- Output: Constant Current/Constant Voltage/Constant Power
- More than 20 patterns of energizing conditions preset provided. You can set and record the conditions of each user.
- It is easy to set parameters using a large dial.

Code No.	Model	Product Name
2311124	WSE-3500	<b>PowerStation HC</b>



### Low Noise and Cost, while High Performance Chemiluminescence Imaging System



WSE-6100

- Chemiluminescence imaging of western blot
- Clear image acquisition with low noise

- 1.4 mega pixel, cooled CCD camera, F0.95 high sensitivity lens
- Cooled CCD (-30°C), Subtraction processing using dark data, etc. offer high S/N, clear image data
- Prestained M/W marker image and chemiluminescent image can be merged
- Imaging software "CS Analyzer" for quantitative analysis
- You can perform fluorescent imaging and white light imaging with provided options.

Model	Product Name
WSE-6100/6200 series	<b>LuminoGraph I、II</b>



### Highly Sensitive 6 Mega Pixel Cooled CCD Chemiluminescence Imaging System



WSE-6300

- Chemiluminescence imaging of western blot
- High resolution CCD and high sensitivity lens

- 6 mega pixel, cooled CCD camera, F0.8 high sensitivity lens
- 10 inch touch panel
- Auto focus (motor controlled) mounted
- Flexible capture modes such as automatic exposure / cumulative capture / manual capture etc.
- Prestained M/W marker image and chemiluminescent image can be merged
- You can perform fluorescent imaging and white light imaging with provided options.

Model	Product Name
WSE-6300 series	<b>LuminoGraph III</b>

Related Products

# Western Blotting Documents

## Tips for Chemiluminescence Detection of Western Blotting

ATTO website provide further information about Western Blotting and Electrophoresis related products, including brochures, documents on experimental tips, movies, etc.

<https://www.atto.co.jp/eng/>

The screenshot shows the ATTO website interface. At the top left is the ATTO logo with the tagline 'Supporting Life Research'. To the right is a search bar and a language selector set to 'Japanese'. Below these are 'Login' and 'Register' buttons. A navigation menu includes 'ATTO Products', 'Download', 'Technical Info', 'Support', 'Corporate Profile', and 'Contact us'. The main content area features a large banner for the 'WSE-6300 LuminoGraph III' with a list of specifications: 6M pixels camera, Cooling CCD, F0.8 Super sensitive motorized lens, Auto 5 filters +1 position, Image size MAX 260 x 200 mm, 4 Capture position, LED White Lamp, and 10" touch LCD panel monitor. Below the banner are smaller product tiles for 'WSL-1565', 'WSE-5300', 'AB-2550 Kronos Dio', and 'WSE-1165'. A 'Pick Up' section titled 'Please check new released or featured ATTO products.' contains five product cards: 'WSE-1165 Mini-slab', 'WSE-4115 PoweredBlot Ace', 'WSC-2400 SeesawShaker atto', 'WSE-7230 EzTBS', and 'WSE-1710 Submerge-Mini'.



## ATTO Corporation

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