

# Fastblot

Semi-Dry  
Electrophoretic Transfer Apparatus

## Instruction Manual



### Model

B33  
B34  
B43  
B44  
B64

### Order No

014-100  
014-200  
015-100  
015-200  
015-600



**!! Warning !!**

**Please read these instructions carefully  
before using this apparatus!**



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Subject to change!

## Contents:

<b>1</b>	<b>Introduction .....</b>	<b>3</b>
1.1	Field of Application .....	3
1.2	Specifications .....	4
1.3	Legal Notes .....	5
1.4	Meaning of the Instructions .....	5
<b>2</b>	<b>Safety and Warning Notices .....</b>	<b>6</b>
2.1	Definition of Symbols .....	6
2.2	General Safety Instructions .....	6
<b>3</b>	<b>Setting-Up Operation .....</b>	<b>9</b>
3.1	Scope of Delivery .....	9
3.2	Unpack and Check .....	9
3.3	Installation Conditions .....	9
3.4	Connecting Conditions .....	9
<b>4</b>	<b>Operating Elements / Controls .....</b>	<b>10</b>
<b>5</b>	<b>Operating .....</b>	<b>11</b>
5.1	Protein Blotting .....	11
5.1.1	Preparing a Blotting Sandwich .....	11
5.1.2	Using a Discontinuous Buffer System .....	14
5.2	DNA Blotting (Agarose Gels) .....	16
5.2.1	Sample Preparation: .....	16
5.3	Stacked-Gel transfer .....	16
<b>6</b>	<b>General Blotting Information .....</b>	<b>17</b>
6.1	Efficiency of the Transfer .....	17
6.2	Nitrocellulose Blotting Membranes .....	17
6.3	Blotting Conditions .....	17
6.4	Cooling .....	18
<b>7</b>	<b>Buffers and Staining/Destaining Solutions .....</b>	<b>19</b>
7.1	Continuous Buffer Systems: .....	19
7.2	Discontinuous Buffer Systems: .....	20
7.3	Notes for blotting using Methanol / SDS: .....	20
7.4	Buffers for DNA transfer: .....	21
7.5	Staining and Destaining solutions: .....	21
<b>8</b>	<b>Trouble Shooting .....</b>	<b>22</b>

<b>9</b>	<b>Product Information .....</b>	<b>23</b>
<b>10</b>	<b>References .....</b>	<b>24</b>
<b>11</b>	<b>Maintenance and Repair .....</b>	<b>25</b>
11.1	Cleaning and Maintenance .....	25
11.2	Servicing .....	25
11.3	Replacement of Spare Parts .....	25
11.4	Other Accessories.....	25
<b>12</b>	<b>Service.....</b>	<b>26</b>
12.1	Instructions for return shipment .....	26
<b>13</b>	<b>Equipment Decontamination Certificate .....</b>	<b>27</b>
<b>14</b>	<b>Note for Disposal of Electric/Electronic Waste .....</b>	<b>29</b>
<b>15</b>	<b>EC – Declaration of Conformity / EU - Konformitätserklärung.....</b>	<b>30</b>
<b>16</b>	<b>Warranty .....</b>	<b>31</b>

# 1 Introduction

## 1.1 Field of Application

The Biometra **Fastblot** is intended to be used for electroblotting in laboratories. Electroblotting has become an important method transferring proteins from polyacrylamide gels onto nitrocellulose, nylon or other membranes.<sup>1,2,3</sup>

Conventional blotting (tank blotting) is performed in a big buffer chamber and the procedure is very buffer and time consuming. The more recent method of semi-dry blotting between carbon plate electrodes allows a more rapid and homogeneous transfer.<sup>4</sup>

Pure (unmodified) carbon plates originally used for semi-dry blotting show extensive corrosion and decomposition. The electrodes used for the Fastblots B33, B34 and B64 are made of special modified carbon based material. The electrodes used for Fastblot B43 and B44 are made of special modified metal. All this materials are extremely resistant and allow transfer at higher currents. Transfers are usually completed within 10 to 30 minutes and are uniform in all areas of the polyacrylamide gel. With the semi-dry blotting procedure even high molecular weight proteins (> 100 kDa) are transferred from (SDS-)polyacrylamide gels to a membrane at high currents.

The Fastblot is available in two different sizes: 16 cm x 20 cm and 23.5 cm x 28.5 cm electrode surface. The size 16 cm x 20 cm is available with or without internal cooling. The large size includes a passive cooling option.

Warming up of the apparatus and blot-sandwich during the transfer at high current conditions or during blotting of native proteins can be compensated by the internal cooling system of the Fastblot B33 or B43.



## 1.2 Specifications

### Construction

Fastblot body	PMMA
Anode	B33, B34; B64: Plasticised carbon B43, B44: Platinum-coated titanium
Cathode	B33, B34, B64: Plasticised carbon B43, B44: Stainless steel

### Cooling option

B33, B43: flow through

### Overall size (L x W xH)

B33, B43:	26 cm x 22 cm x 11 cm
B34, B44:	24 cm x 22 cm x 11 cm
B64:	34 cm x 44 cm x 14 cm

### Weight

B33, B34:	~ 2 kg
B43, B44:	~ 2.5 kg
B 64:	~ 6 kg

### Maximum gel size

B33, B34, B43, B44:	15.5 cm x 19.5 cm
B64:	23 cm x 38 cm

### Chemical compatibility

The semi-dry blotter components are not compatible with alcohol >10% (e.g. methanol, ethanol) or organic solvents (e.g. acetone, chloroform, toluene, benzene).  
Use of organic solvents voids all warranties.

The instrument is designed for operation in closed laboratory rooms at ambient temperature from +5 °C to +40 °C and maximum relative humidity 80% for temperatures up to +31 °C decreasing linearly to 50% relative humidity at +40 °C.

## **1.3 Legal Notes**

### **Copyright**

All rights reserved. It is not allowed to copy and publish the manual or parts of it in any form as copies, micro film or other methods without a written authorisation from Biometra.

Biometra is pointing out that applied company and brand names are usually protected trade marks.

### **Liability**

Biometra is not liable for damages and injuries caused by use not considering these operation instructions in parts or completely.





## **1.4 Meaning of the Instructions**

Biometra recommends that you first read these instructions carefully. Then assemble and disassemble the apparatus to become familiar with the system. After these preliminary steps, you should be ready to transfer a sample.

This operation instruction is part of the product and should be kept over the full life-time of the instrument. It should also be forwarded to subsequent owners and users. Make sure that additions and updates are inserted into the operation instructions.


## 2 Safety and Warning Notices


### 2.1 Definition of Symbols


<u>Symbol</u>	<u>Definition</u>
	Caution! Refer to instruction manual!
	Danger! High voltage!
	Fragile!
	Using with direct current (DC).

### 2.2 General Safety Instructions

  **Delicate instruments! Handle with care!**

 Do not operate this equipment if buffer or water leaks from the instrument, if cracks are present in the body or the safety cover or if the electrical connection cables are worn or frayed.

 Make sure that the on/off switch of the used external Power Supply is always free accessible.

 **Danger! High voltage!**  
The current to the cell, provided from the external Power Supply, enters the unit through the lid assembly, providing a safety interlock to the user. Current to the cell is broken when the lid is removed.

 **Do not attempt to circumvent this safety interlock, and always turn the Power Supply off before removing the lid, or when working with the cell in any way.**





Power to the instrument is supplied by an external DC voltage Power Supply. The output of this Power Supply must be isolated from external ground to issue that the DC voltage output floats with respect to ground. (All Biometra Power Supplies meet this safety requirement!)



Never place the instrument on top of a Power Supply.



Do not reverse polarity of the electrodes: The anode (+) is on the body of the Fastblot and the cathode (-) is fixed in the lid ! Change of polarity will result in corrosion and rusting of the stainless steel cathode or damage (e.g. bubbling) of the plasticised carbon electrodes.



Using the cooling option do not mix up the "in" and "out" plugs for the cooling water. The connection for the water cooling with the smaller diameter is the inlet the connection with the bigger diameter is the outlet.



Best cooling is obtained using a refrigerated circulator (chiller) with a temperature of 5°C.  
**(Attention: Reduce flow rate to max. 1 l/min and use no organic solvents or alcohol !)**

### Operating Conditions:



Parameter	B33	B34	B43	B44	B64
Max. Voltage	50 V				
Max. Current / cm <sup>2</sup> gel	5 mA				3.5 mA
Max. Power	8 W				10 W
Max. Temperature	50 °C				
pH Range (Electrodes)	pH 3 - 10				pH 3 - 9
Max. Flow Rate of Cooling Water (l / min), Unpressurised	0.5 - 1	n. A.	0.5 - 1	n. A.	n. A.



Lengthy transfer times are not recommended. Do not leave the instrument unattended. Joule heat can be generated rapidly during semi-dry blotting. Transferring longer than 2 hours can damage the unit.



Do not adjust the pH of transfer buffers unless specifically indicated. Follow the instructions carefully. Adjustment of pH of transfer buffers, when not indicated, will result in increased buffer conductivity. This is manifested by a higher than expected initial current output as shown by the power supply's current meter.



Do not use alcohol (e.g. methanol, ethanol) or organic solvents for cooling or cleaning the apparatus.



This products are designed and certified to meet EN 61010-1 safety standards.



Certified products are safe to use when operated in accordance with the instruction manual.



This instruments should not be modified or altered in any way. Alteration of this instruments will void the warranty, void the EN61010-1 certification, and create a potential safety hazard.

## 3 Setting-Up Operation

### 3.1 Scope of Delivery

The **Fastblot** comes complete with:

- Body with electrode (anode) - B33, B43: including cooling device
- Lid with electrode (cathode)
- Wires (permanently attached to the lid) with safety connectors
- Warranty Registration card
- Manual

### 3.2 Unpack and Check

Unpack and carefully examine the Fastblot. Report any damage to BIOMETRA. Do not attempt to operate this device if physical damage is present.

Please keep the original packing material for return shipment in case of service issues



**!! Attention !!**



**Please fill out and send back the warranty registration card. This is important for you to claim full warranty.**

### 3.3 Installation Conditions

Place the chamber in proximity to the Power Pack with which it is to be connected. Be sure to place the chamber in a safe, dry location away from the edge of the working surface.

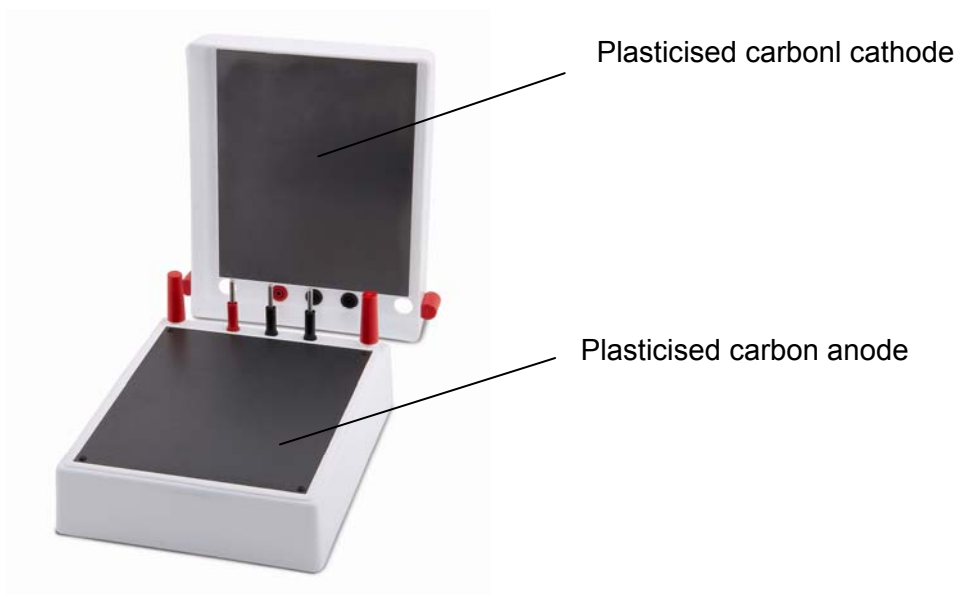
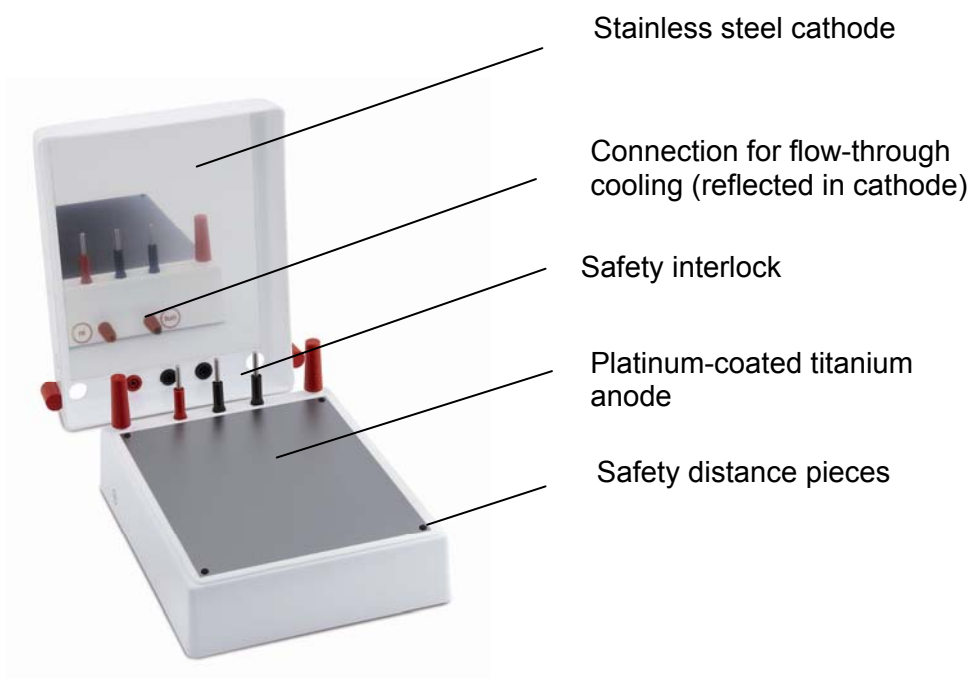
### 3.4 Connecting Conditions

The Fastblot has been designed to operate with D.C. current.



**Warning: The Fastblot must not be earthed.**

## 4 Operating Elements / Controls



## 5 Operating

### 5.1 Protein Blotting

To determine the optimum conditions for a particular sample, a time course of transfer should be performed. Since many factors affect transfer e.g. molecular weight, pI, and porosity of the gel, transferring for the full suggested time may not be necessary.

#### 5.1.1 Preparing a Blotting Sandwich

##### Step 1:

After finishing the electrophoresis immediately remove the gel from the glass plates and cut out from the gel the part you want to blot.



**Attention: Wear gloves !**

##### Step 2:

Cut the blotting paper to the gel size and soak five (5) layers of 0.34 mm thick Blotting paper (Whatman 3MM Chr) or three (3) layers of 0.92 mm thick Blotting paper (Whatman 17Chr) or two (2) layers of 1.2 mm thick Blotting paper (Whatman GB005) with transfer buffer. Place the soaked filter paper on the anode (+). The anode is the plate electrode on the body of the Fastblot.

##### Step 3:

Cut the membrane (usually nitrocellulose) carefully to gel size, prewet it with buffer for 5 min. and place it on the filter paper prepared in step 2. A PVDF membrane has to be successively incubated in methanol (1 – 2 seconds), in H<sub>2</sub>O (5 minutes) and in transfer buffer prior to use. (Using a discontinuous buffer system the gel has to be prewetted in anode buffer II.)



**Attention: Avoid the inclusion of air bubbles (“white spots“ on the membrane) and wear gloves when handling the membrane !**

##### Step 4:

Equilibrate the gel in transfer buffer for 5 min. (Using as discontinuous buffer system the gel has to be equilibrated in the cathode transfer buffer.)



**Attention: Gel equilibration time has to be consistent. Shortened or extended times may affect transfer efficiencies.**

##### Step 5:

Place the SDS-polyacrylamide gel on top of the membrane.



**Attention: Avoid air bubbles !**

Step 6:

Add five (5) layers of 0.34 mm thick Blotting paper (Whatman 3MM Chr) or three (3) layers of 0.92 mm thick Blotting paper (Whatman 17Chr) or two (2) layers of 1.2 mm thick Blotting paper (Whatman GB005) previously soaked with transfer buffer on top of the polyacrylamide gel.



**DO NOT use acidic transfer buffers pH < 3 or alkaline transfer buffers pH > 9 (B64) resp. pH > 10!**

Step 7:

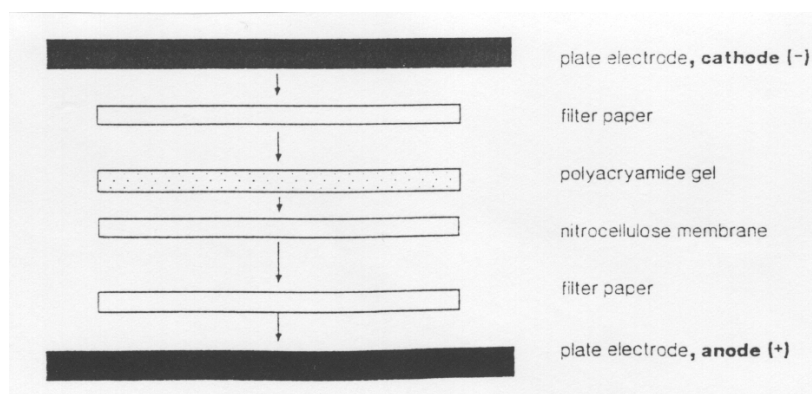
Remove air bubbles which might be included by carefully rolling out the blot-sandwich with a tube or a pipette.

Step 8:

Connect the lid with the body of the Fastblot. Take care that lid and body are attached completely horizontally. When handling thicker gels put a weight of 1 - 2 kg on top of the lid (e.g. a beaker glass with cold water).

Step 9:

If you have assembled the "sandwich" for blotting, the set up should look as shown in Fig. 2.



**Fig. 2:**

Set up of filter paper (blotting paper), gel and blotting membrane between the plate electrodes. Blotting paper and blotting membrane are used in the same size as the gel.

Step 10:

Switch on your Power Supply, e.g. Biometra Standard Power Pack P25 (Code-No. 040-800 or 048-850) or one of the Biometra High Voltage Power Packs at a constant current of 0.8 – 1.0 mA per cm<sup>2</sup> of gel (**max. 3.5 mA per cm<sup>2</sup> of gel (B64) resp. max. 5 mA per cm<sup>2</sup> of gel**). Typical blotting times are approx. 30 min. Smaller molecules might be transferred within 5 min. (depending on the charge).



**Attention: The maximum power for the B33, B34, B43 and B44 is 8 Watts (W) resp. 10 W (B64).**



**The electrodes consist of different materials. DO NOT change polarity of the electrodes: The anode (+) is on the body of the Fastblot and the cathode (-) is fixed on the lid !**

Step 11:

If the lid is getting warm during the blot procedure reduce the current.



**The maximum temperature must not exceed 50°C!**

Step 12:

If you are using the water cooling, please note the following:



**The connection for the water cooling with the smaller diameter is the inlet, the connection with the bigger diameter is the outlet.**

**Attention: Never mix up inlet and outlet !**



**The cooling water flow should be max. 0.5 - 1.0 l / min (unpressurised).**



**Use no organic solvents or alcohol !**



**Best cooling is obtained using a refrigerated circulator (chiller) (e.g. Code-No. 043-300 or 043-390) with a temperature of 5°C. (Attention: Reduce flow rate to max. 1 l/min)**

Step 13:

After finishing the blot transfer switch off the current first, disconnect Power Supply and Fastblot and turn off the cooling water. **After this** take off the lid!



**Danger! High voltage! Never try to detach the cables from the lid and never open the system during blotting!**

Step 14:

Remove the blot-sandwich carefully and take the membrane out of the “sandwich”. Then proceed with staining or immunoassay.



**Never touch the membrane with fingers (without gloves)!**

Step 15:

After every blotting procedure **clean the plate electrodes with distilled water**. A paper towel can be used for drying. Never use any organic solvent for cleaning carbon electrodes or housing!

### 5.1.2 Using a Discontinuous Buffer System

The use of discontinuous buffer systems allows a higher resolution of the proteins and the transfer kinetics can be improved. The method essentially resembles the blotting with continuous buffer system. The main difference is that 3 different buffers are used. (For detail refer to chapter 7.)

Step 1:

After the electrophoresis incubate the gel in cathode buffer for five minutes.

Step 2:

Moisten the anode with anode buffer I.

Step 3:

Cut blotting paper to the size of the gel.

Step 4:

Soak blotting paper in anode buffer I and place them on the anode.

Step 5:

A further layer of the adapted blotting paper is soaked with the anode buffer II and added to the sandwich.

Step 6:

Pre-wet the membrane (Nitrocellulose) cut to the size of the gel with anode buffer II. PVDF membranes have to be successively incubated in methanol (1 – 2 seconds), in H<sub>2</sub>O (5 minutes) and in anode buffer II. Subsequently, the membrane is placed on the transfer sandwich.

Step 7:

The SDS-Polyacrylamide gel is put on top of the membrane.

Step 8:

Three layers of blotting paper are soaked in cathode buffer and placed on top of the gel.



**Note: Avoid the inclusion of air bubbles in the blotting sandwich and wear gloves!**

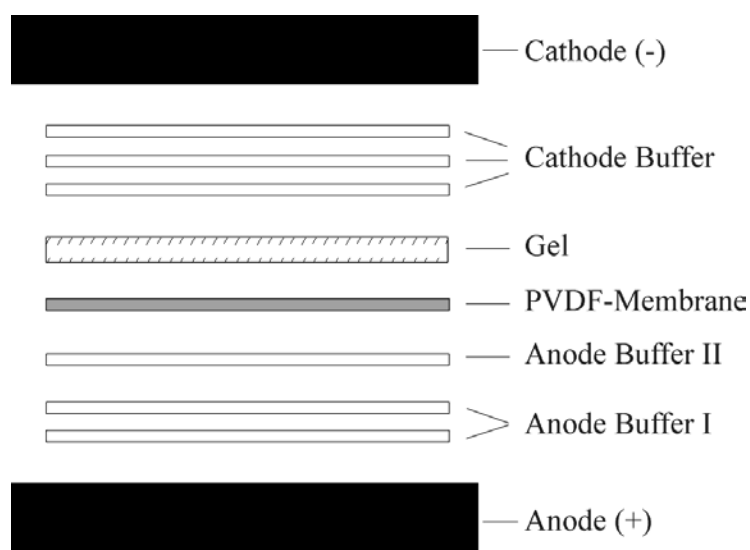
Step 9:

Connect the lid with the body of the Fastblot. Take care that lid and body are attached completely horizontally.

Step 10:

If you have assembled the “sandwich” for blotting, the set up should look as shown in Fig. 3.





**Fig. 3:** Set up of filter paper (blotting paper), gel and blotting membrane between the plate electrodes. Blotting paper and blotting membrane are used in the same size as the gel.

For the further proceedings please refer to chapter "5.1.1 Preparing a Blotting Sandwich".

## 5.2 DNA Blotting (Agarose Gels)

Using the Fastblot also nucleic acids can be transferred to membranes.  
(Nevertheless the use of a Vac-Blot System (Code No. 053-000 and 053-300) is recommended.)

### 5.2.1 Sample Preparation:

Prior to the transfer, the DNA should be pre-treated in order to increase the efficiency of the blotting.

<b>Depurination</b>	0.25 M HCl	7 min
<b>Denaturation</b>	0.5 M NaOH 1.5 M NaCl	15 min
<b>Neutralisation</b>	3.0 M NaCl 0.5 M Tris, pH 7.4	15 min

Build up the blotting sandwich as described in chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**, but use 1 x TAE or 1 x TBE as transfer buffer and 10 layers of 0.34 mm thick blotting paper (Whatman 3MM Chr paper, Code No. 3030700, 3030704, 3030861, 3030917 and 3030931) or 4 layers of 1.2 mm thick blotting paper (Whatman GB005, Code No. 10426981, 10426994) on either side of the membrane/gel-sandwich. For the transfer of DNA, the membrane (e.g. nylon) has to be on the anode side of the gel. Using 3 – 5 mA per cm<sup>2</sup> of gel the transfer takes about 30 minutes.



**Do not use nitrocellulose membranes, because they are not stable in basic solutions!**

For the further proceedings please refer to chapter "5.1.1 Preparing a Blotting Sandwich".

## 5.3 Stacked-Gel transfer

Two-layer transfer can be performed in the Fastblot B64 and up to four-layer transfer can be performed in the Fastblot B33, B34, B43 and B44. The use of dialysis membranes between the layers is recommended may not be necessary.

Prepare gels, membranes and blotting paper as described above (using continuous buffer systems!).

When setting up the transfer stack, place pre-wetted blotting paper on top of the first gel, followed by the second membrane, second gel, paper ..... and then the cathode lid.

Measure the surface area of the top of the stack to determine proper current.

## **6 General Blotting Information**

### **6.1 Efficiency of the Transfer**

The efficiency of the transfer can be checked by applying Coomassie blue pre-stained standard proteins on the gel.

After the blotting it is possible to stain the gel with Coomassie blue to check the completeness of transfer.

### **6.2 Nitrocellulose Blotting Membranes**

High Quality Nitrocellulose membranes are standard for protein- and nucleic acid blotting. They can easily be stained for total protein by a dye stain (e.g. Amido Black, Coomassieblue, Ponceau S, Fast Green, etc.).

Nitrocellulose has a high binding capacity of approx. 80–90 µg/cm<sup>2</sup>. Unspecific protein binding sites are easily and rapidly blocked, avoiding subsequent background problems.

Small proteins (esp. < 20,000 daltons) may be lost during washing steps after the transfer. Use of a smaller pore size nitrocellulose membrane (0.2 µm) will eliminate this loss.

Large proteins (>100,000 daltons) denatured by SDS may transfer poorly with the addition of alcohol to the transfer buffer. Alcohol increases binding of SDS-proteins to nitrocellulose, but decreases pore sizes in the gel. Elimination of alcohol from SDS-protein transfers also results in considerably diminished binding to nitrocellulose.

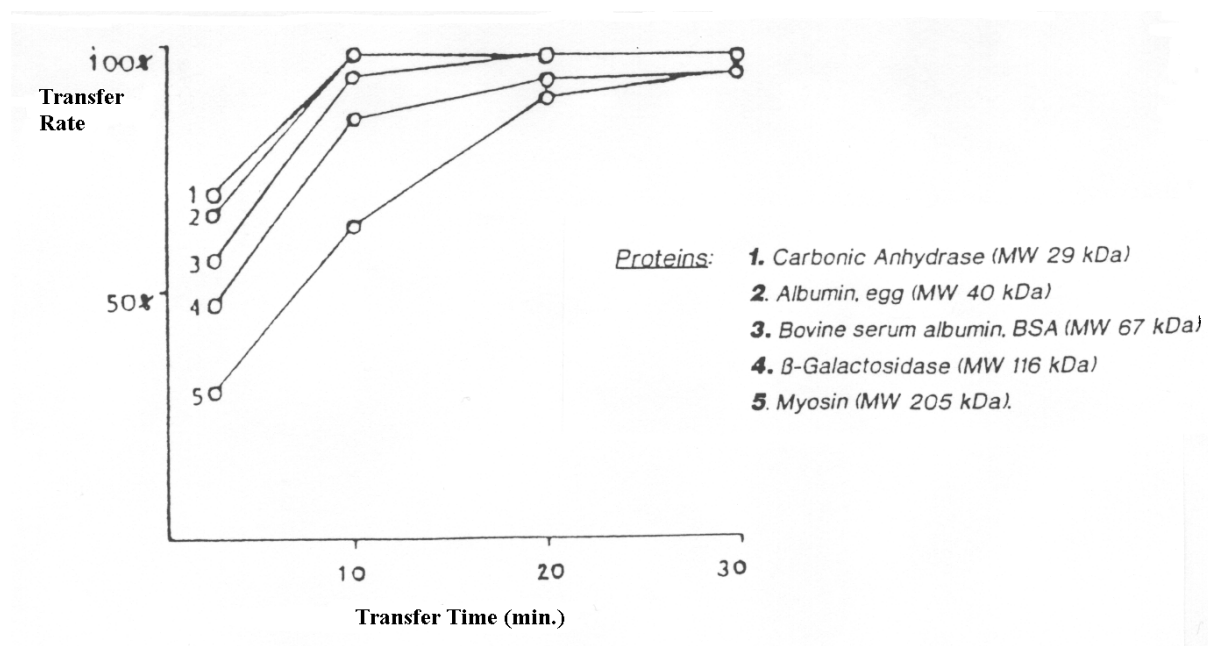
Because of the high field strength during the blotting process, proteins may be transferred through the nitrocellulose membrane without binding. The efficiency of binding can be increased by employing a smaller pore size nitrocellulose.

### **6.3 Blotting Conditions**

The blotting conditions (time, current) should be optimised for every protein. Time and transfer rates of different proteins are summarised in Figure 1.

Using the plot shown in Fig. 1 it is possible to carry out a rough estimation of the transfer times.

- The transfer time is also influenced by the thickness and the acrylamide concentration of the gel.
- If the transfer time is too long the protein may pass through the blotting membrane and is lost. You can check this by adding another layer of membrane and check the second membrane also for protein after blotting.



**Fig.1: Electrophoretic transfer of proteins.**

SDS-PAGE, Acrylamide concentration: 10%; Nitrocellulose blotting membrane, pore size 0.45  $\mu\text{m}$ ; current: 5 mA per  $\text{cm}^2$  gel; thickness of gel: 1.0 mm; transfer buffer: Tris/Glycine/SDS

Using B43/B44 may reduce the transfer time in the range of 10 - 20%.

## 6.4 Cooling

When blotting high molecular weight proteins (> 100 kDa) blotting will take up to 30 min. In this case or when blotting native proteins/enzymes, we suggest using the cooling system of the Fastblot B33 or B43.

## **7 Buffers and Staining/Destaining Solutions**

### **7.1 Continuous Buffer Systems:**

#### **Transfer buffer, pH 8.3**

25	mM	Tris-base
150	mM	Glycine
10	%	Methanol

#### **Optional:**

Dilute the electrophoresis running buffer with one or two volumes of distilled water and add 10-20% Methanol.

#### **Running buffer (Laemmli System):**

25	mM	Tris-base
192	mM	Glycine
0.1	%	SDS (Sodiumdodecylsulphate)

For blotting dilute with one or two volumes distilled water!

#### **Towbin buffer:**

50	mM	Tris
96	mM	Glycine
pH		7.8 - 8.4



**Max. Amperage for use with Fastblot B64 = 3.5 mA/cm<sup>2</sup> gel**

## 7.2 Discontinuous Buffer Systems:

### Anode buffer I:

300	mM		Tris/HCl, pH 10,4
20	%	(v/v)	Methanol

### Anode buffer II:

25	mM		Tris/HCl, pH 10,4
20	%	(v/v)	Methanol

### Cathode buffer:

25	mM		Tris/HCl, pH 9,4
40	mM		Capronic acid
20	%	(v/v)	Methanol
0.01	%		SDS

### alternative Cathode buffer:

40	mM	D, L-norleucine
25	mM	Tris/HCl, pH 9.4

(Dissolve norleucine with warming. Stock solutions of norleucine cannot be prepared due to the limited solubility!)

20	%	Methanol
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**Max. Amperage for use with Fastblot B64 = 2.5 mA/cm<sup>2</sup> gel**

## 7.3 Notes for blotting using Methanol / SDS:

**Methanol:** max. 20% (v/v)  
enhances binding of proteins to nitrocellulose  
reduces gel swelling  
may reduce solubility of proteins (in this case proteins are transferred less efficiently)

**SDS:** max 1% (w/v)  
ensures homogeneous negative charge of proteins  
may change antigenic properties of proteins  
may reduce binding of protein to the emembrane

## 7.4 Buffers for DNA transfer:

### 50 x TAE-Buffer-Stock (1 Liter):

242	g	Tris base, pH 8,0
57,1	ml	Glacial acetic acid
100	ml	EDTA (0,5 M)

### 5 x TBE-Buffer-Stock (1 Liter):

54	g	Tris base, pH 8,0
27,5	g	Boric acid
20	ml	EDTA (0,5 M)

## 7.5 Staining and Destaining solutions:

### Staining Solution (1 litre)

2.0	g	Coomassie Brilliant Blue R 250
0.5	g	Coomassie Brilliant Blue G 250
425	ml	Ethanol
50	ml	Methanol
100	ml	Acetic acid
425	ml	bidest. water

Stir overnight; filtrate before use; store in dark bottle!

### Destaining solutions (acrylamide gels)

#### Fast destaining in:

45	%	Ethanol
10	%	Acetic acid
45	%	bidest. water

#### Slow destaining in:

25	%	Isopropanol
10	%	Glacial acid
65	%	bidest. water

#### Final destaining in:

7	%	Acetic acid in bidest. water
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## 8 Trouble Shooting

Problem	Cause	Corrective Actions
<b>No transfer</b>	Wrong order of membrane and gel	Reverse order of membrane and gel: gel on top of membrane
	Wrong connection to the Power Supply	Cexchange connection: Red = anode (+) Black = cathode (-)
	Acidic buufer system: transfer towards cathode!	Place transfer membranes on cathode side (lid) and gel on anode side (base)
<b>Incomplete transfer</b>	Transfer time too short (check by gel staining)	Increase trander time
	Tranfer time too long: "blow through" (i.e. proteins are stained on both sides of the mebrane)	Reduce transfer time. Use nitrocellulose with smaller pore size or PVDF membrane
<b>Irregular transfer</b>	Air bubbles in the blot sandwich	Remove air bubbles by gently rolling e.g. a pasteur pipette over the emembrane
	Generation of air bubbles with long transfer times by electrolysis and heating up	Reduce transfer time, chill buffer before use.
	Irregular current flow as size of blotting papers and transfer emembrane are large than gel size	Transfer membranes and blotting papers must be cut exactly to gel size
	Blotting paper partially dried	Reduce transfer time
	Insufficiently soaked transfer membrane	Check procedure for prewetting membrane
	Spoiled electrodes	Clean electrodes
<b>Proteins are stained on both sides of the membrane</b>	Transfer time to long: "blow through"	Reduce transfer time. Use nitrocellulose with smaller pore size or PVDF membrane
<b>Power Supply turns off</b>	Power Supply does not work at low voltages (inner resistance too high)	Use proper Power Supply which can operate at low voltages (e.g. Standard Power Pack P25)
<b>Strong increase of voltage during transfer</b>	Blot sandwich dries out	Reduce amperage (soak blotting paper cuts with more transfer buffer)
	Generation of air bubbles ont the elctrodes by electrolysis	Chill buffers before use / Reduce transfer time
	Insufficiently soaked transfer membrane	Check procedure for prewetting membrane
<b>Intensive heating up</b>	Amperage too high	Reduce amperage / Reduce transfer time
	Transfer time too long	Chill buffers before use / Reduce transfer time
	Conductivity of buffer too high	Check transfer buffers / Use buuffers described in this manual



## 9 Product Information

014-100	<b>Fastblot B33</b> , complete system, electrode surface 16 cm x 20 cm, with flow-through cooling, incl. manual
014-200	<b>Fastblot B34</b> , complete system, electrode surface 16 cm x 20 cm, without cooling, incl. manual
015-100	<b>Fastblot B43</b> , complete system with <u>special metal electrodes</u> (platinum coated titan anode and stainless steel cathode), electrode surface 16 cm x 20 cm, with flow-through cooling, incl. manual
015-200	<b>Fastblot B44</b> , complete system with <u>special metal electrodes</u> (platinum coated titan anode and stainless steel cathode), electrode surface 16 cm x 20 cm, without cooling, incl. manual
015-600	<b>Fastblot B64</b> , complete system, electrode surface 23.5 cm x 38.5 cm, passive cooling, incl. manual

### Blotting Paper:

10 426 981	Whatman GB005, 200 mm x 200 mm, 1.2 mm thick, 25 sheets
10 426 994	Whatman GB005, 580 mm x 580 mm, 1.2 mm thick, 25 sheets
3017915	Whatman 17Chr, 460 mm x 570 mm, 0.92 mm thick, 100 sheets
3030 931	Whatman 3MM, 580 mm x 680 mm cm, 0.34 mm thick, 100 sheets

### Nitrocellulose Blotting Membranes:

10 401 396	Whatman Protran-BA83, Pore size 0.20 µm, 30 cm x 3 m roll
10 401 196	Whatman Protran-BA85, Pore size 0.45 µm, 30 cm x 3 m roll
10 401 180	Whatman Protran-BA85, Pore size 0.45 µm, 30 cm x 60 cm, 5 sheets/pack
10 402 580	Whatman Protran-BA85, Pore size 0.45 µm, 33 cm x 56 cm, 5 sheets/pack
10 439 196	Whatman Protran-BA-S 85, Pore size 0.45 µm, 30 cm x 3 m roll

## 10      **References**

1. Towbin, H., Staehlin, T. and Gordon, J. (1979); Proc. Nat. Acad. Sci. 76, 4350 - 4356
2. Bittner, M., Kupferer, P. and Morris, C.F. (1980); Anal. Biochem. 102, 459 - 571
3. Burnette, W.N. (1981); Anal. Biochem. 112, 195 - 203
4. Kyse-Andersen, J. (1984); J. Biochem. Biophys. Meth. 10, 203 – 209

## **11 Maintenance and Repair**

### **11.1 Cleaning and Maintenance**

Do not immerse the unit in liquid.

Use special care when cleaning the anode plate of B43, B44 to avoid scratching or marring the platinum. Do not use abrasives or strong detergents.

The cathode plate (stainless steel) of B43, B44 can be cleaned with a mild abrasive to remove salt that may deposit during normal operation.

The entire unit can also be periodically disassembled and cleaned with (warm) water to remove salt deposits.

Do not use alcohol >10% (e.g. methanol, ethanol) or organic solvents (e.g. acetone) for cleaning of electrodes or housing.

The system should never be autoclaved or placed in a microwave.

### **11.2 Servicing**

Regular servicing is not necessary. Nevertheless cleaning of the electrodes should be done using a damp cloth wetted with dest. water after each transfer.

In case that the electrodes are clogged after longer time of use and the blotting transfer is inhomogeneous or reduced, please contact the Biometra Service Department.

### **11.3 Replacement of Spare Parts**

Only original spare parts mentioned in these operating instructions are allowed.

### **11.4 Other Accessories**

There are no accessory parts for this instruments.

## 12 Service

Should you have any problems with this unit, please contact our service department or your local Biometra dealer:

### **Biometra GmbH**

Service Department

Rudolf-Wissell-Straße 14 - 16

D-37079 Goettingen

Phone: +49 (0)5 51 50 68 6 - 10 or 12

Fax: +49 (0)5 51 50 68 6 -11

e-mail: [Service@biometra.com](mailto:Service@biometra.com)



If you would like to send the unit back to us, please read the following return instructions.

### 12.1 Instructions for return shipment

- Return only defective devices. For technical problems which are not definitively recognisable as device faults please contact the Technical Service Department at Biometra (Tel.: +49 (0)5 51-50 88 1-10 or -12, Fax: +49 (0)5 51-50 88 1-11, e-mail: [Service@biometra.com](mailto:Service@biometra.com)).

- Please contact our service department for providing a **return authorization number (RAN)**. This number has to be applied clearly visible to the outer box. **Returns without the RAN will be not be accepted!**

- **Important:** Carefully clean all parts of the instrument from residues, and of biologically dangerous, chemical or radioactive contaminants. If an instrument is contaminated, Biometra will be forced to refuse to accept the device. The sender of the repair order will be held liable for possible damages and losses resulting from insufficient decontamination of the device.



- Please **prepare written confirmation** (use the “**Equipment Decontamination Declaration**” following on the next page) that the device is free of biologically dangerous, chemical or radioactive contaminants. This confirmation must be attached to the outside of the packaging.
- Use the original packing or a similarly robust packing when returning the device. If not available, contact Biometra or your local distributor.
- Label the outside of the box with “CAUTION! SENSITIVE INSTRUMENT!” and the RAN number sticker. Attach the Decontamination Declaration!
- Please enclose a note which contains the following:
  - a) Sender's name and address,
  - b) Name of a contact person for further inquiries with telephone number.
  - c) **Precise description of the fault**, which also reveals during which procedures the fault occurred, if possible.

## 13 Equipment Decontamination Certificate

To enable us to comply with german law (i.e. §71 StrlSchV, §17 GefStoffV and §19 ChemG) and to avoid exposure to hazardous materials during handling or repair, please complete this form, prior to the equipment leaving your laboratory.

COMPANY / INSTITUTE \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE NO \_\_\_\_\_ FAX NO \_\_\_\_\_

E-MAIL \_\_\_\_\_

EQUIPMENT	Model	Serial No
	_____	_____
	_____	_____
	_____	_____
	_____	_____

If on loan / evaluation Start Date: \_\_\_\_\_ Finish Date \_\_\_\_\_

Hazardous materials used with this equipment:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method of cleaning / decontamination:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The equipment has been cleaned and decontaminated:

NAME \_\_\_\_\_ POSITION \_\_\_\_\_  
(HEAD OF DIV./ DEP./ INSTITUTE / COMPANY)

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

PLEASE RETURN THIS FORM TO BIOMETRA GMBH OR YOUR LOCAL BIOMETRA DISTRIBUTOR TOGETHER WITH THE EQUIPMENT.

**PLEASE ATTACH THIS CERTIFICATE OUTSIDE THE PACKAGING. INSTRUMENTS WITHOUT THIS CERTIFICATE ATTACHED WILL BE RETURNED TO SENDER.**

**General Information for Decontamination:**

**Please contact your responsible health & safety officer for details.**

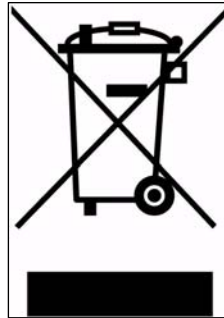
**Use of radioactive substances:**

**Please contact your responsible person for details.**

**Use of genetically change organism or parts of those:**

**Please contact your responsible person for details.**

## 14 Note for Disposal of Electric/Electronic Waste



**This symbol (the crossed-out wheelie bin) means, that this product should be brought to the return systems and/or separate systems available to end-users according to yours country regulations, when this product has reached the end of its lifetime!**

For details, please contact your local distributor!

This symbol applies only to the countries within the EEA\*.

\*EEA = European Economics Area, comprising all EU-members plus Norway, Iceland and Liechtenstein.

## **15 EC – Declaration of Conformity / EU - Konformitätserklärung**

Goettingen, July 2009

im Sinne der EG-Richtlinie für die elektromagnetische Verträglichkeit 2004/108/EG  
*following the EC directive about the electromagnetic compatibility 2004/108/EC*

Hiermit erklären wir, dass folgende **Blotting Systeme**  
*Herewith we declare that the following **Blotting Systems***

Typ / type: Fastblot B33, Fastblot B34,  
Fastblot B43, Fastblot B44,  
Fastblot B64

Best.-Nr. / Order No. 014-100, 014-200, 015-100, 015-200, 015-600

den grundlegenden Anforderungen der  
*corresponds to the basic requirements of*

EG-Niederspannungsrichtlinie 2006/95/EG entsprechen.  
*EC low voltage directive 2006/95/EC.*

Juergen Otte PhD  
Quality Manager



## 16      **Warranty**

This laboratory instrument is produced with the highest practical standards of materials, workmanship, and design. The design and manufacture of parts have been conceived with one purpose - to produce units which will give satisfactory service.

Biometra GmbH guarantees this unit to be free from defects in materials or workmanship under normal use or service for **24 month** from date of shipment.

If, during this time, this unit proves defective in materials or workmanship, Biometra GmbH will repair or replace it free of charge if returned to us prepaid.

This guarantee does not cover damage in transit, damage caused by carelessness, misuse or neglect, or unsatisfactory performance as a result of conditions beyond our control; or consequential losses as a result of failure of our product.

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### **Biometra GmbH**

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e-mail: [Info@biometra.com](mailto:Info@biometra.com)  
internet: <http://www.biometra.de>

**Service Department**  
Rudolf-Wissell-Str. 14-16  
D-37079 Goettingen  
Tel.:    +49 (0)5 51 50 68 6-10 or -12  
Fax.:    +49 (0)5 51 50 68 8-11  
e-mail: [Service@biometra.com](mailto:Service@biometra.com)