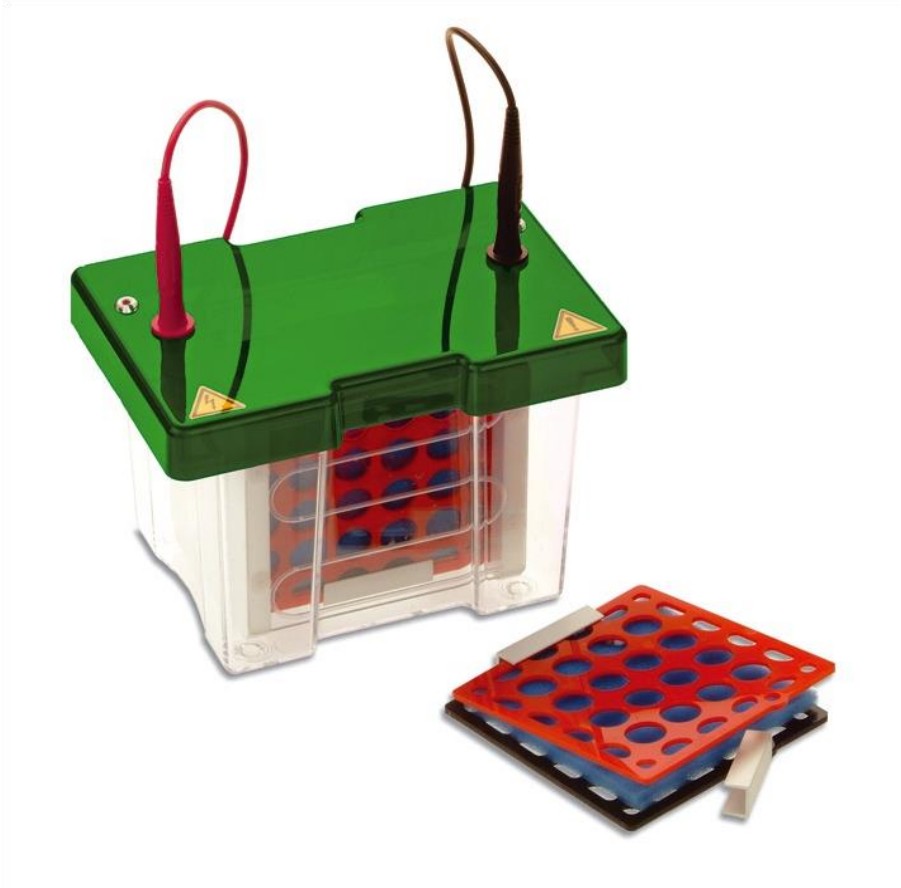
EVS1000 BLOT series

MANUAL

Rev. 44/2019



Consort

Contents

Safety Information

Precaution

- When used correctly, these units pose no health risk.
- However, these units can deliver dangerous levels of electricity and are to be operated only by qualified personnel following the guidelines laid out in this instruction manual.
- Anyone intending to use this equipment should read the complete manual thoroughly.
- The unit must never be used without the safety lid correctly in position.
- The unit should not be used if there is any sign of damage to the external tank or lid.
- Always isolate electrophoresis units from their power supply before removing the safety cover. Isolate the power supply from the mains first then disconnect the leads.
- Do not exceed the maximum operating voltage or current.
- Do not operate the electrophoresis units in metal trays.
- Acrylamide is a volatile, cumulative neurotoxin and suspected carcinogen. Wear effective protective clothing and follow recommended handling and disposal procedures.
- Polymerised gels contain some unpolymerised monomer. Handle with gloves only. Following the replacement of a platinum electrode have the unit inspected and approved by your safety officer prior to use.
- Do not fill the unit with running buffer above the maximum fill lines.
- Do not move the unit when it is running.
- **Caution**: during electrophoresis very low quantities of various gases are produced at the electrodes. The type of gas produced depends on the composition of the buffer employed. To disperse these gases make sure that the apparatus is run in a well ventilated area.

General care and maintenance

- Units are best cleaned using warm water and a mild detergent. **Water at temperatures above 60°C can cause damage to the unit and components.**
  The inner module should be thoroughly rinsed with warm water or distilled water to prevent buildup of salts but care should be taken not to damage the enclosed electrode and vigorous cleaning is not necessary or advised. Air drying is preferably before use.
- The units should only be cleaned with the following: warm water with a mild concentration of soap or other mild detergent (compatible detergents include dish washing liquid, hexane and aliphatic hydrocarbons). The units should not be left to in detergents for more than 30 minutes.
- **The units should never come into contact with the following cleaning agents, these will cause irreversible and accumulative damage:** acetone, phenol, chloroform, carbon tetrachloride, methanol, ethanol, isopropyl alcohol alkalis.
- **In case of Rnase Decontamination**
  Clean the units with a mild detergent as described above.
  Wash with 3 % hydrogen peroxide (H202) for 10 minutes.
  Rinsed with 0.1 % DEPC- (diethyl pyrocarbonate) treated distilled water

  Caution: DEPC is a suspected carcinogen. Always take the necessary precautions when using. RNaseZAP™ (Ambion) can also be used. Please consult the instructions for use with acrylic gel tanks.

Environmental conditions

- This apparatus is intended for indoor use only.
- This apparatus can be operated safely at an altitude up to 2000 m.
- The normal operating temperature range is between 4°C and 65°C.
- Maximum relative humidity 80 % for temperatures up to 31°C decreasing linearly to 50 % relative humidity at 40°C.
- The apparatus is rated **Pollution Degree 2** in accordance with IEC 664.
  Pollution Degree 2 states that: "Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected".

Fitting electrode cables

Note: Before setting up the tank please ensure that it has been properly cleaned and dried.

1. Note the position of the lid on the unit. This shows the correct polarity and the correct orientation of the cables, black is negative and red positive.
2. Remove the lid from the unit.

Note: If the lid is not removed, fitting the cables may result in un-tightening of the gold plug and damage the electrode.

3. Screw the cables into the tapped holes as fully as possible so that there is no gap between the lid and the leading edge of the cable fitting.
4. Refit the lid.

Electroblotting

Setting up the blot sandwich

1. Each blot sandwich should be set up as follows:
    - Cassette clamp [-ve] (black) side placed in a tray or other suitable surface.
    - Pre-soaked fibre pad (note two can be used with thin gels).
    - Two pieces of thick filter paper, about 2...3 mm thick, pre-soaked in buffer.
    - Gel.
    - Transfer membrane. Usually this requires pre-soaking but consult the manufacturer's instructions for the type of membrane you are using. This should be smoothed so that no air bubbles have been trapped.
    - Two pieces of thick filter paper, about 2...3 mm thick, pre-soaked in buffer.
    - Pre-soaked fibre pad (note two can be used with thin gels).
    - Cassette clamp [+ve] (red) side slotted into the groove in the bottom of the black cassette.
2. Close the hinge carefully so as to not disturb the sandwich.
3. Fill the tank with buffer solution up to the maximum fill line indicated on the side of each unit. Improved transfer can usually be obtained by using chilled buffer.

Buffer Volume	**EVS1100**	**EVS1200**	**EV1300**
One cassette	1380 ml	2800 ml	5600 ml
Two cassettes	1290 ml	2620 ml	5240 ml
Three cassettes	1200 ml	2440 ml	4880 ml
Four cassettes	1110 ml	2260 ml	4520 ml

Each cooling pack will take the place of 100 ml of buffer for EVS1100 and 500 ml of buffer for EVS1200 and EVS1300.

Blot run conditions

1. Insert the cassettes into the slots in the module with the black side of each adjacent to the negative electrode. It is a good idea to note the orientation and order the blot sandwiches were loaded in. This can be done by noting which samples were loaded adjacent to each electrode.
2. Use of a magnetic stirring bar and plate is recommended to mix the buffer to give consistency of transfer. A 4 mm diameter stirring bar should be placed underneath the module, in the centre of the tank. The cooling pack provided, pre-frozen, can be inserted at the side or front of the tank for extended blots. Additional cooling packs can be purchased as accessories to further aid cooling.
3. Insert the module, fit the lid and connect to a power supply.
4. Consult below table for details on recommended power supply voltage settings and blot times. Please note voltage and current will vary according to the amount of cassettes, type and temperature of

buffer and thickness and percentage of gel. This will also affect quality of transfer so time course of transfer should be performed for your particular samples and conditions.

5. When the blot time is completed, turn the power supply off.
6. Remove the cassettes from the main tank. Buffer can be reused but this may affect run quality if continued.
7. Lift the hinge of each cassette and gently pry apart the blot sandwich and remove the membrane from the gel.
8. The membrane is now ready to be probed.

Duration of blotting	**EVS1100**	**EVS1200**	**EV1300**
One hour	100 V 400 mA	100 V 400 mA	100 V 400 mA
Three hours	50 V 200 mA	50 V 200 mA	50 V 200 mA

Buffer solutions for blotting

Do not adjust the pH when making these buffers as this will cause blot over-heating. The pH will vary according to the freshness of the reagents used.

Towbin Buffer

- 25 mM Tris,
- 192 mM glycine,
- 20 % methanol pH 8.3

Towbin Buffer SDS

- 25 mM Tris
- 192 mM glycine
- 20 % methanol pH 8.3
- 0.05-0.1 % (w/v) SDS

Bjerrum and Schafer-Nielsen Buffer

- 48 mM Tris
- 39 mM glycine
- 20 % methanol pH 9.2

Dunn Buffer

- 10 mM $NaHCO_3$
- 3 mM $NaCO_3$
- 20 % methanol pH 9.9

Protein (Western) blotting buffers

Transfer buffers must be made accurately using high grade reagents. Do not adjust the pH with acid or base as this will affect the properties of the buffer. pH will vary according to the purity of the reagents used.

Triple buffer system

For high efficiency transfer of Protein from acrylamide gels

- Anode 1 Buffer:
  0.3 M Tris base, 20% MeOH, pH 10.4:
  soak 4 standard grade filter paper sheets
- Anode 2 Buffer:
  0.025 M Tris base, 20% MeOH pH 10.4:
  soak 2 standard grade filter paper sheets
- Cathode Buffer:
  0.025 M Tris base, 0.04 M Caproic Acid, 20% MeOH pH 9.4:
  soak 6 standard grade filter paper sheets

DNA (Southern) Blotting Buffer

For high efficiency transfer of DNA from agarose gels.

- Soak 12 pieces of standard grade filter paper, 6 for the cathode, 6 for the anode in:
  - 50 x 1 M ethanolamine-glycine buffer, pH 11

RNA (Northern) Blotting Buffer

For high efficiency transfer of RNA from agarose gels.

- Soak 12 pieces of standard grade filter paper, 6 for the cathode, 6 for the anode in:
  - 50 x 0.2 M morpholinopropanesulfonic acid (MOPS)
  - 50 mM sodium acetate
  - 5 mM EDTA pH 7.0

Nucleic acid transfer buffers

Soak 12 pieces of standard grade filter paper, 6 for the cathode, 6 for the anode in:

- 1 x TAE 40 mM Tris (pH 7.6), 20 mM acetic acid, 1 mM EDTA
- 50 x (1l) dissolve in 750 ml distilled water:
  - 242 g Tris base (FW = 121)
  - 57.1 ml glacial acetic acid
  - 100 ml 0.5 M EDTA (pH 8.0)
- Fill to 1 litre with distilled water.

Soak 12 pieces of standard grade filter paper, 6 for the cathode, 6 for the anode in:

- 1 x TBE 89 mM Tris (pH 7.6), 89 mM boric acid, 2 mM EDTA
- 10 x (1l) dissolve in 750 ml distilled water:
  - 108 g Tris base (FW = 121)
  - 55 g boric acid (FW = 61.8)
  - 40 ml 0.5 M EDTA (pH 8.0)
- Fill to 1 litre with distilled water.

Transfer buffers

Towbin Buffer with 20% methanol

Soak 12 pieces of standard grade filter paper, 6 for the cathode, 6 for the anode in:

- 0.025 M Tris base
- 0.192 M glycine
- 20% methanol
- pH 8.3

Certificate

CE

EU

DECLARATION OF CONFORMITY

We declare under our sole responsibility that the products

Blotting systems

content of the type numbers

EVS1100-BLOT, EVS1200-BLOT, EVS1300-BLOT,

EVS3100-BLOT, EVS3300-BLOT,

ESDB1100, ESDB1200,

ESDB3100, ESDB3300,

to which this declaration relates is in conformity
with the following standards of the European Directives

LOW VOLTAGE DIRECTIVE 2014/35/EU
EN61010-1: 2010

ROHS DIRECTIVE 2011/65/EU
EN50581: 2012

Name Jan De Ceuster
Title Manager
Date 27 May 2016

Signature

Consort bvba
Hertenstraat 56 unit 9, B-2300 Turnhout, Belgium
Tel: (+32) (0)14 41 12 79
Fax: (+32) (0)14 42 91 79
Sales: sales@consort.be

Warranty

The **Consort** Electrophoresis units have a warranty against manufacturing and material faults of twelve months from date of customer receipt.

If any defects occur during this warranty period, **Consort** will repair or replace the defective parts free of charge. This warranty does not cover defects occurring by accident or misuse or defects caused by improper operation.

Units where repair or modification has been performed by anyone other than **Consort** or an appointed distributor or representative are no longer under warranty from the time the unit was modified.

Units which have accessories or repaired parts not supplied by **Consort** or its associated distributors have invalidated warranty.

Consort cannot repair or replace free of charge units where improper solutions or chemicals have been used. For a list of these please see the Care and Maintenance subsection.

Consort products are for research use only. **Consort** is not liable for consequential damages arising out of the use or handling of its products.

A return authorisation must be obtained from **Consort** before returning any product for warranty repair on a freight prepaid basis. If a problem does occur, please contact your supplier or **Consort**:

Consort bvba
Hertenstraat 56/9
2300 Turnhout
Belgium

Tel: +32 (0)14 41 12 79
Email: info@consort.be

Record the following for your records:

Model _____

Date of Delivery _____

Warranty Period _____

Serial No. _____

Invoice No. _____

Purchase Order No. _____

A return authorisation must be obtained from **CONSORT** before returning any product for warranty repair on a freight prepaid basis!

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