

Wash-buffer Filling and Suction Instrument For Blot
and Westernblot Techniques

Dynawash - B



Operation and Maintenance Guide

CE

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The information provided in this Guide is required for an optimal device operation. Therefore, please acquaint yourself with the content of this Guide. Pay particular attention to information that is relevant to a safe instrument operation.

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Table of Contents:

1	General Instructions and Security	1
1.1	About the Guide.....	1
1.2	Symbols and Marks	1
1.3	Instrument´s Application Field.....	2
2	Technical Specifications	2
3	Instrument Description.....	3
4	Instrument Transportation, Installation and Assembling	4
4.1	Transporting and Unpacking the Device	4
4.2	Environmental Requirements	4
4.3	Instrument Assembling.....	5
5	Instrument Operation Description.....	5
5.1	Turning on the Device	5
5.2	Control Element Functions Description	5
5.3	Control Lamp Functions	5
6	Practical Operation Procedures	6
6.1	Preparing the Washing.....	6
6.2	Washing	6
6.3	Flushing	6
7	Filling Volumes Adjustment	7
8	Maintenance	7
8.1	Cleaning the Device.....	7
8.2	Tube Replacement	7
9	Errors and Troubleshooting.....	7

1 General Instructions and Security

1.1 About the Guide

This Operation and Maintenance Guide is intended for users (e.g. laboratory assistants, lab technicians) and provides information about Dynawash – B Instrument. The Guide includes installation, operation and routine instrument maintenance instructions.

Please read the whole Guide carefully before using the instrument. Keep the Guide close to the instrument to allow the users an easy access to it whenever they operate the instrument.

1.2 Symbols and Marks

These symbols are to provide you with basic information and warn you of potential dangers.

I ON

0 OFF



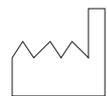
Warning: Biological substance hazard.



Warning: Danger of harming your health or your immediate environment.



Producer.



Production Date.

1.3 Instrument's Application Field

Dynawash - B is an instrument for well suction and buffer filling during the treatment of blot and Westernblot strips in compliance with the specifications described in this Guide.

Use for In Vitro Diagnostics only!

Before using Dynawash - B instrument for IVD, all testing methods must be first validated by the user in combination with the system to comply with appropriate laboratory practices and local legislature.

Only lab staff trained to use this instrument is allowed to operate it.

The instrument must not be used outside its specified application field.

Warning: Using the device outside the intended use range as specified by the manufacturer may invalidate the warranty for this product.

Design of this instrument is in accordance with EU regulations.

The instrument is not approved for use in the USA or Canada.

2 Technical Specifications

Status Indication	2 x LED
Amount Setting	Switch knob
Filling Start-up	Key

Number of Channels	8
Strip Plates	Plastic, disposable

Reagent Pump Number	Membrane (double – filling as well as suction)
Filling Control	Pinch-valve
Filling Volume	1.0 1.5 2.0 ml
Filling Accuracy	< 10 %

Wash Buffer Bottle	In accordance with customer use
Waste Bottle	1000 ml

Power Supply	12 V DC (e.g. Switch adaptor 100-240V, 50-60 Hz)
Input Power	24 W max.
Fuse	F2A/250V

Main Body Dimensions	450 mm(W) x 170 mm(L) x 125 mm(H)
Plate Holder Dimensions	140 mm(W) x 170 mm(L) x 100 mm(H)
Weight	2.0 kg

3 Instrument Description

Dynawash – B is an uncomplicated 8-channel washing device designed to be used with standard blot strip plates.

The device comprises two parts. The main body consists of a pump, control electronics and control elements. In front of the main body a strip plate holder with a sliding wash comb is placed. The wash comb has eight filling and eight suction needles as well as a filling activation switch fixed to it. For suction, the wash comb can be manually pushed down along the guide rails. When the comb is pushed down the plate holder is automatically tilted to make fluid to course near the suction needles.



4 Instrument Transportation, Installation and Assembling

4.1 Transporting and Unpacking the Device

The instrument and its components are transported in special shipping packaging which protects its contents from damage.

Unpack the instrument and its accessories and check all the individual items for completeness and condition according to the following list:

1. Dynawash – B (the main body)
2. Plate holder with a wash comb
3. Power supply
4. Waste container (1l)
5. Screwdriver
6. Cleaning set
7. Operation and Maintenance Guide

In the instance of items missing or damaged in the delivery, please contact directly Dynex Technologies company or their local representatives.

4.2 Environmental Requirements

The device is intended for indoor use only. Locate the instrument in the room so that it is protected from excessive dust, vibrations, strong magnetic fields, direct sunlight, draught, high humidity or great temperature variations.

Operation Temperature:	+15 °C– + 40 °C NOTE: In case the device has been exposed to temperatures outside this range, it must be first allowed to temperate before starting to ensure its smooth operation within the given temperature range. Neglecting this procedure might lead to damaging the device.
Storage Temperature:	1 °C – 50 °C
Operation Altitude:	up to 2000 m
Maximum Relative Humidity:	80 %, non-condensing

4.3 Instrument Assembling

Place both parts of the device on the desktop so that there remains enough space to install and handle the waste and wash solution bottles at the sides of the device.

Caution:

At the bottom of the instrument, there is an inner space emergency drain outlet. In the instance of a serious device failure, there can occur a solution leakage on the desktop through this opening.

Place the plate holder in front of the main body of the washer.

Place the waste bottle at the left side of the main body. Attach the waste tube to the bottle outlet, inside is a tube-extension to prevent the spraying of the suctioned solution around the float. Connect the waste bottle overflow sensor cable with to connector located in the back side of the main body.

Make sure that the switch position is 0. Connect the power supply (adaptor) to the mains outlet and its output cable to the power supply connector which is located in the rear panel of the device.

5 Instrument Operation Description

5.1 Turning on the Device

Turn the device on using the switch located in the upper part of the instrument. A green LED will light up to indicate the on status, and the pump engine will start working.

5.2 Control Element Functions Description

Switch Knob

It is located on the front panel of the device and serves for setting one of the preset filling volumes for one strip well. Available positions are 1.0 – 1.5 – 2.0 ml.

Filling Key

The key is positioned on the front part of the wash comb. Pushing this key will activate one dosing of the preset solution volume into the strip plate wells.

5.3 Control Lamp Functions

Green

Lighting indicates the device is in the ON status.

Red

Flashing indicates waste bottle overflow.

6 Practical Operation Procedures

6.1 Preparing the Washing

Before starting your work, make sure that the waste bottle is empty, properly closed and connected to the unit.

Place the wash solution bottle at the right side of the main body. Put the suction tube with weight ending into the wash solution bottle.

Place an empty plate into the strip plate holder.

Switch on the unit.

Push the wash comb so that the suction needles are at the well-bottoms. Push the filling key several times. The tubes and the wash comb must be perfectly filled with the wash solution.

Wait for a complete drain of the well contents and release the wash comb.

6.2 Washing

Place the plate with processed strips to the plate holder.

Set the desired volume with the switch knob.

Push the wash comb so that the suction needles get at the well-bottoms and suction the previous wells content.

Release the wash comb and push the filling button. The plate filled with wash solution can be moved to another device for mixing.

Repeat the procedure in line with the prescribed procedure to go with the blot set.

6.3 Flushing

The goal of flushing is to remove the wash solution from the system so that crystallization in the solution and consequent needle clogging and pump damage cannot occur.

Replace the wash solution container with the distilled water container.

Place an empty plate into the strip plate holder.

Push the wash comb so that the suction needles get at the well-bottoms. Push the filling button several times. The tubes and the head must be perfectly flushed with the distilled water.

Wait for a complete drain of the well contents and release the wash comb.

If a scheduled shut-down lasting several days is expected, it is appropriate to empty both the tubes and the comb. Take the suction tube out of the bottle and proceed the same way as in the case of flushing – continue till no liquid is coming out of the filling needles when the filling key is activated.

After finishing all operation, switch off the unit.

7 Filling Volumes Adjustment

The preset volumes selected by the switch knob can be adjusted through setting elements accessible from the back of the unit.

Volumes corresponding to the individual switch positions are set successively:

Immerse the suction tube into the distilled water container.

Fill the system up in compliance with the procedure described in article 6.1 Preparing the Washing.

Set the switch knob to the position of the respective volume you wish to adjust.

Place an empty strip plate into the plate holder and push the filling button.

Ascertain the distributed liquid volume (e.g. by weighing or pouring into a graduated cylinder). If necessary, use the provided screwdriver to turn slightly (through the back panel opening) the setting element which corresponds to the set switch knob position.

Refill the empty strip plate. Repeat this procedure till the desired volume setting is attained.

8 Maintenance

The device is relatively maintenance-free. However, the tubes should be kept clean so that a good pump function is ensured and strip contamination prevented.

8.1 Cleaning the Device

Clean the surface of the device with a wet piece of paper or cloth. In case of substantial soiling use a detergent for cleaning.

To clean the filling comb and its surroundings use isopropanol.

8.2 Tube Replacement

We recommend to replace the tubes once in 2–3 years according to the wear rate.

The tube replacement shall be carried out on request by a specialized service department.

9 Errors and Troubleshooting

Error	Suggested Solution
After switch-on, the green LED fails to light and the pump is not working.	Adaptor defect – replace the adaptor. Device electronics defect – hand over to specialized service department for repair.
Red LED is flashing, the pump is not working.	Waste bottle overflow – empty the bottle Overflow sensor connector is disconnected – connect the connector.
One of the wells has failed to be filled with solution or the wells are filled unevenly.	Clogged filling needles – clear the needles with the thin wire from the cleaning set.
The contents of one well is not being suctioned.	Clogged suction needles – clear the needles with the thick wire from the cleaning set.