

96-Well-Plate Washing Unit for ELISA Methods
Execution

Dynawash - E



Operation and Maintenance Guide

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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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 – E 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 - E is an instrument for well suction and buffer filling during the treatment of 96-well-plates by means of ELISA methods in compliance with the specifications described in this Guide.

Use for In Vitro Diagnostics only!

Before using Dynawash - E 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 complies with EU regulations.

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

2 Technical Specifications

Status Indication	2 x LED
Filling Start-up	Piston valve on the wash comb.

Number of Channels	8
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Reagent Pump Number	Membrane (double – filling as well as suction)
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Wash Buffer Bottle	According to customer use
Waste Bottle	1000 ml

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

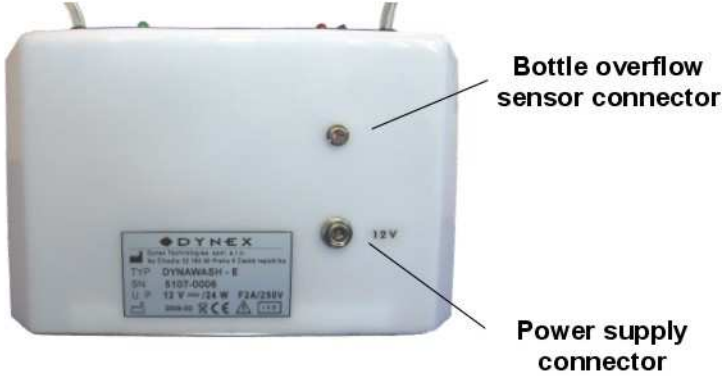
Main Body Dimensions	450 mm(W) x 170 mm(L) x 125 mm(H)
Weight	1,5 kg

3 Instrument Description

Dynawash – E 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. On its sides, there is storage space for a wash buffer bottle and a waste bottle.

To the main body a manual wash comb is attached by means of tubes. The wash comb has eight filling and eight suction needles as well as a filling regulation button fixed to it.



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 – E (the main body)
2. Wash comb
3. Power supply
4. Waste container (1l)
5. Cleaning set
6. 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 the unit 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, solution leakage can occur on the desktop through this opening.

Place the wash comb into the priming bowl on the front panel of the unit.

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 connector with the 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

Filling Button

The button is positioned on the front part of the wash comb. By pushing this button you can control the amount and the intensity of wash solution flow through filling needles.

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.

Switch on the unit.

Place the wash comb into the priming bowl on the frontal panel so that the suction needles are at its bottom. Push the filling button several times. The tubes and the head must be perfectly filled with the wash solution.

Wait for a complete drain of the bowl contents and take out the wash comb.

6.2 Washing

Place the washed plate in front of the instrument.

Immerse the suction needles and drain the previous wells content.

Lift the wash comb so that the suction needles are positioned slightly above the upper well ridge level and push the filling button.

Repeat the procedure, line by line, according to the number of processed wells and the prescribed procedure to go with the 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 the wash comb into the priming bowl on the frontal panel so that the suction needles are at its bottom. Push the filling button several times. The tubes and the head must be perfectly filled with the distilled water.

Release the filling button and wait for a complete drain of the tub contents and remove 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 button is pressed.

After finishing all operation, switch off the unit.

7 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.

7.1 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 washing comb and its surroundings use isopropanol.

7.2 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.

8 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 fish tape from the cleaning set.
The contents of one well is not being suctioned.	Clogged suction needles – clear the needles with the thick fish tape from the cleaning set.