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# Bio-Plex<sup>®</sup> Handheld Magnetic Washer

## User Guide

Catalog #171-020100



**BIO-RAD**

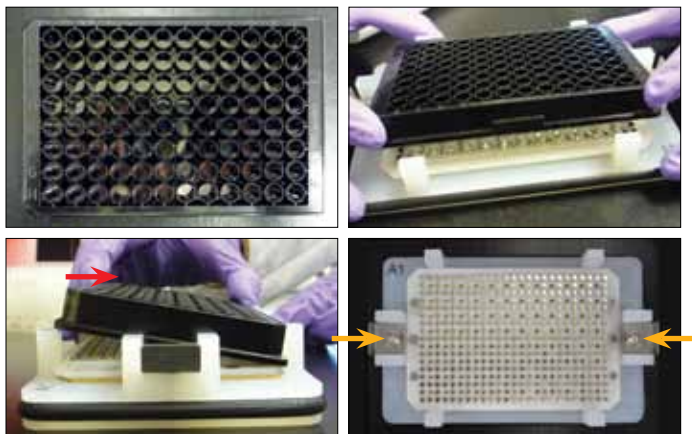
## Procedure

### 1.0 Setting up a new handheld magnetic washer

#### ATTENTION

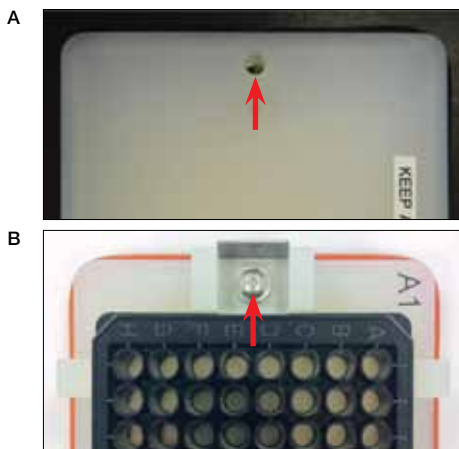
Please make all adjustments to the washer with the flat bottom plate positioned on the washer. Although the height and tension of the handheld washer have been preset to fit the black Greiner 96-well plate, it is still important to inspect a brand new unit to make sure that the retaining clips will properly secure your plate during washing.

- 1.1 Place an empty flat bottom plate on the magnetic washer by sliding it under the retaining clips at an angle (Figure 1). Push the retaining clips inward to secure the plate.



**Fig. 1. Setting up a new handheld magnetic washer.** The red arrow indicates the direction in which the assay plate is inserted. The yellow arrows indicate the direction in which the clips are pushed to secure the plate.

- 1.2 Make sure the plate is being held securely onto the magnets. If needed, the clips can be adjusted for height and tension. The height of the clips can be adjusted by inserting the large (3/16") hex key into the screw located on the bottom of the magnet assembly. Turn the screw clockwise to raise the clip height and counter-clockwise to lower it (Figure 2A). The tension of the plate retaining clips can be adjusted by inserting the small (3/32") hex key into the screw on the top of the clip assembly and the large (3/16") hex key in the bottom of the assembly. Hold the large hex key and turn the small hex key clockwise to increase the tension and counter clockwise to reduce it (Figure 2B). Inspect the washer periodically to ensure that the plate is held tightly against the magnets.



**Fig. 2. Adjusting clip height and tension. A,** Clip height adjustment. **B,** Clip tension adjustment. Red arrows indicate screw location.



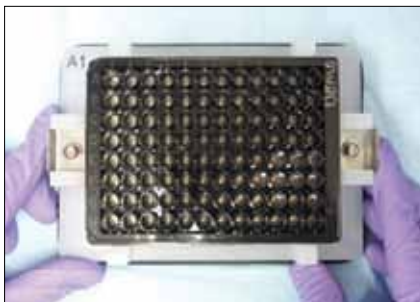
## WARNING

Placing metal objects, including tools, on the surface of the magnets can damage the product and cause injury.

### 2.0 Wash protocol

This section describes only the procedure for operating the handheld magnetic washer. Please refer to the instruction manual of the Bio-Plex Pro™ assays for details about wash cycles and sequences.

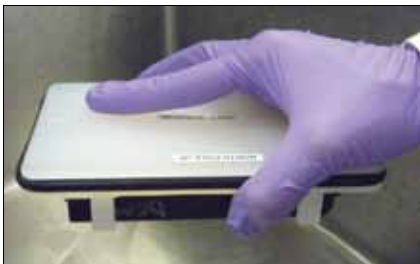
- 2.1 Place the flat bottom plate on the magnet by sliding it under the retaining clips at an angle. Secure the plate with the retaining clips by pushing the retaining clips inward until they click into place. Gently tap the magnet and plate onto the bench top to localize the beads onto the magnets (Figure 3).



**Fig. 3. Securing the plate.**

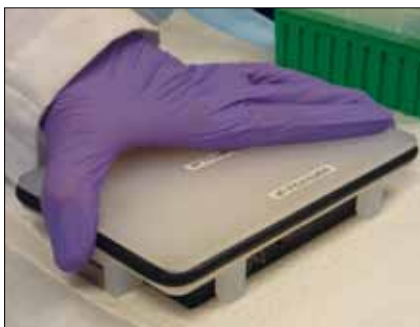
- 2.2 Allow the plate to stand for 1 min to ensure that all the beads are trapped at the bottom of the well.

- 2.3 Hold the magnet platform firmly. Invert and flick the magnet over a sink (or suitable absorbent pad) to empty the liquid from the wells (Figure 4).



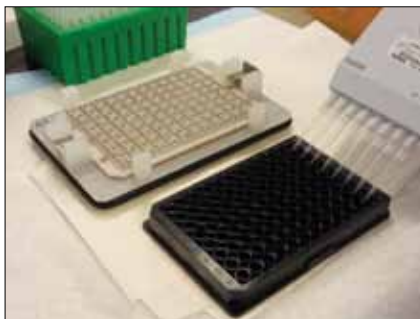
**Fig. 4. Inverting the plate.**

- 2.4 To remove any excess liquid from the wells, and to prevent well-to-well contamination, keep the magnet inverted and pat or tap gently on a paper towel as shown below (Figure 5).



**Fig. 5. Blotting the plate.**

- 2.5 For efficient washing of the beads, remove the assay plate from the magnet before adding the wash buffer. This will ensure that the beads are resuspended when the wash buffer is added (Figure 6).



**Fig. 6. Removing the plate before dispensing buffer.**

- 2.6 Carefully place the assay plate back on the handheld magnet and repeat steps 2.2–2.5 for the required number of wash cycles.

### **3.0 Care and Maintenance**

- 3.1 The handheld washer should be stored dry at ambient temperature. Wipe the unit dry with paper towels or air dry after each use. Do not use alcohol, abrasive materials, or other organic reagents to clean the washer.
- 3.2 The handheld washer has minimal magnetic shielding. Avoid placing it close to a Bio-Plex array system during data acquisition. Other items that can be affected include computer hard drives, watches, and pacemakers.
- 3.3 To avoid damaging the washer, do not drop or hit the unit with force.

## 4.0 Troubleshooting Guide

<b>Problem</b>	<b>Possible cause</b>	<b>Possible solution</b>
<b>Low bead count</b>	Improper washing.	Allow the plate to stand for 1 min to ensure that all beads are securely trapped.
	Plate not properly secured.	Ensure that the plate is held securely in place with the handheld magnetic washer.
	Handheld magnetic washer close to another magnetic field.	Keep the handheld magnetic washer away from any other magnetic fields.
<b>Carryover between wells</b>	Improper tapping on the plate.	Make sure that tapping of the microplate is done properly or as described in the user guide.
	Improper disposal of the waste.	Make sure to invert the handheld magnetic washer completely to remove the liquid into a waste container or sink.
		Make sure to change the paper towels after every wash/blotting step. Ensure that the sides of the microplate wells do not contain any liquid to avoid cross-contamination. Pat or tap gently on a bench over clean paper towels.

For technical support, call your local Bio-Rad office or, in the U.S., call 1-800-4BIORAD (1-800-424-6723).

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