

# BlurFix 3+ 55 Filter Adapter - Instructions

## Introduction

The instructions on this page are for the BlurFix3+ 55 for use with the GoPro® HERO3, HERO3+, and HERO4 standard housing. The BlurFix3+ 55 allows you to mount 55mm filters to your camera.

## Benefits of Using Filters

- Circular Polarizers reduce glare and make the sky and clouds pop
- Neutral density filters slow shutter speed thereby reducing the “jello effect” in high vibration environments or “prop blur” in aviation applications
- Color-correction filters restore color to underwater video
- Macro filters magnify and allow for focus on close up items

## The Best BlurFix Yet

The BlurFix3+ 55 takes the best features of the BlurFix3 SO (slip-over adapter for the Hero3 standard housing) and the original BlurFix (adapter for the Hero and Hero2 housing). The BlurFix3+ 55 combines the easy installation and removal features of a slip-over adapter with the ability to create a completely sealed space between the camera housing and the filter. The BlurFix3+ 55 can be used in 3 configurations:

- Unsealed
- Sealed/air filled
- Sealed/liquid filled

## Unsealed

When used without one of the provided o-rings, the BlurFix3+ 55 acts as a “wet filter” adapter. Holes at the top and bottom of the filter allow the space between the filter and housing to flood easily. This configuration is commonly used during dives where a color-correction filter is used. The adapter can be quickly installed and removed during the dive as the water depth and lighting conditions change. For example, the filter can be removed at shallow depths or when lights are turned on in close proximity to a coral bud. The unsealed configuration is also the easiest to use on land when rain, mud, or snow intrusion is not probable.

## Sealed/air filled

In environments where rain, mud, or snow may be forced between the filter and the camera housing it is best to seal the space between the housing and the filter. Installing the correct size o-ring between the filter

and the adapter makes sealing this space easy to do. Capturing air between the filter and adapter is the simplest approach in most environments. Having an airtight seal also makes it difficult to remove the adapter due to pneumatic effects. The down side to trapping air in the space between the filter and the housing is any humidity in the air will condense and fog if rapid temperature changes occur. To avoid fogging, allow the camera, adapter, and filter to sit in the intended use environment before seating the filter against the o-ring. For example, installing the filter in the ski lodge before going skiing will likely result in fogging. Instead, install the filter after getting off the ski lift – when everything is cold.

Persons participating in snow sports, surfing, fishing, cliff diving – any situation where moisture may creep behind the filter during above water shots – will all benefit from the ability to seal the space behind the filter. Any below water to above water transition will be cleaner with a sealed unit since water is not going to be trapped behind the filter.

## **Sealed/Liquid filled**

Trapping liquid between the filter and housing is also an option. This configuration makes the adapter impossible to pull off since it is held on by hydraulics – liquid does not compress under pressure. This configuration is an excellent candidate for surfers as water is readily available and fogging is not an issue with a fluid filled space. Water is not a good fluid to use during snow sports since it will most likely freeze. Isopropyl alcohol can be substituted to prevent freezing but installation using alcohol is tricky as the unit must be submerged and all air bubbles shaken out before sealing the unit. This patent-pending sealing technology for filters has uses we haven't dreamed of yet so we're excited to see how our products are used to benefit you. We highly recommend checking compatibility to Nitrile (o-rings) and Delrin (Polyoxymethylene, which is what the BlurFix3+ 55 is made of). These links may be useful if someone would like to experiment:

Delrin---[http://www.omsdive.com/delrin\\_chem\\_chart.html](http://www.omsdive.com/delrin_chem_chart.html)

Nitrile--- [http://www.balseal.com/sites/default/files/tr60d\\_020707133101.pdf](http://www.balseal.com/sites/default/files/tr60d_020707133101.pdf)

We ask that users always use good judgement in choosing a liquid, always follow safe practices, and DO NOT ATTEMPT to fill the cavity with something that MAY BE HARMFUL to yourself or the environment.

## **Divers Read This – Prevention of Microbubbles**

If you are diving with the BlurFix3+ 55 adapter we advise that you not use an o-ring between the filter and adapter – use the adapter in the unsealed or “wet filter” configuration (see above). Before entering the water make sure that the lanyard is installed on the adapter and that the other end of the lanyard is connected to the camera or your tray. Once you are submerged, remove the filter and shake it vigorously underwater with the back of the adapter pointed at the surface above you. This will shake out any microbubbles that might

be “stuck” to the filter. “Microbubbles” may be fun to say, but they are no fun when they show up in your video. After shaking the adapter, slip it back onto your Hero3+ housing ensuring that you press it on all the way. Now go enjoy your dive. If you have a URPRO CYD filter installed on the adapter, make sure you do not bump the filter on any hard or abrasive surface as it may scratch. One instance where the CYD filter is especially prone to getting scratches is when your camera rig is in the fresh water bucket provided on the dive boat to rinse your precious gear – someone else might throw their metal dive rig right on top of yours. Small scratches will not be visible in the video – large gouges will.

*Dive Video Tip: Hold your camera steady and on your subject for a long time. Move the camera around very slowly. New divers have a tendency to dart from one subject to the next very quickly because time seems to slow down in the excitement of the moment. What seems like a 10 second shot of a turtle, turns out to be only 2 seconds once you're topside. Slow down – you don't want your first epic dive on your honeymoon in Fiji to be a blur. If you get the chance, place the camera on some sand and take a self-portrait.*

## **How to select an o-ring for sealing the unit**

We provide three o-ring sizes for you to choose from for sealing against a 55 mm glass filter. Every filter manufacturer has different filter dimensions. The most critical dimension for sealing is the distance from the filter glass to the bottom of the filter. Snake River Prototyping has not tried all filter makes and models so there are no guarantees that one of the o-rings will work with the filter you have. We do know the following 55mm filters work/don't work with the listed o-ring size:

- SRP CPL – big o-ring
- Tiffen ND – small o-ring
- Zeikos UV – small o-ring
- Zeikos CP – no fit
- Rocketfish CP – no fit
- Marumi CP – medium o-ring

We did our best to provide you with a selection of o-rings that may work with your filter. We will expand the list above as more data is sent to us by our users ([info@snakeriverprototyping.com](mailto:info@snakeriverprototyping.com)). Your local hardware store may have an o-ring that will allow your filter to seal against the adapter if one of the o-rings we provided does not.

To select an o-ring thickness from the three provided, place the filter face down on a table. Starting with the smallest o-ring, place the o-ring into the filter as shown. The o-ring should protrude above the filter threads. If it does not, repeat with the next larger o-ring. Once you have identified an o-ring that protrudes slightly, you are ready to attempt to seal the filter into the adapter.



## How to seal the filter

At this point you should have selected an o-ring and it should be placed in the filter. If not, read the previous section. The adapter should not be on the camera housing. With the filter still face down on the table and the o-ring placed inside the male threaded ring of the filter, join the adapter to the filter thread and turn the adapter counter-clockwise. Yes, this is opposite the actual direction you need to go. Turning the adapter backwards lets you find the start of the threads before screwing the adapter on in the correct direction – clockwise. Turning the adapter backwards also helps move the o-ring into the right spot, especially when

the smallest o-ring is used since it tends to not seat well into the minimal height ring. Be very careful not to cross-thread the filter with the adapter when spinning the adapter clockwise.

Tighten the filter down snugly. Now it is time to verify whether you successfully created a sealed space behind the filter. This can be done in one of four ways:

1. If the filter is transparent enough to see through to the inside, you should be able to see a black line all the way around the circumference of the glass. This black line forms where the o-ring is squished against the glass (see photo below).
2. Place the adapter on the housing before screwing the filter all the way down. Screw the filter down. Try to remove the adapter. A sealed filter will make this difficult to do because of pneumatic principles – the same principles that allow a suction cup to work.
3. Screw the filter down snugly with the adapter off the housing. Slowly press the adapter onto the housing. A sealed filter will cause resistance. When you get the adapter on halfway, stop pressing. The adapter should rebound slightly if the filter is sealed because you're creating a high pressure cushion of air between the adapter and Hero3+ housing. Once the seal is verified, unscrew the filter slightly to vent, push the adapter on completely, and screw the filter back on to re-form the seal. If you do not vent before pressing the adapter all the way on, the adapter could rebound some while you are shooting video, thereby introducing mechanical vignetting into your shots.
4. If your filter is a polarizer then when the o-ring seals against the glass you will not be able to turn the outer ring.



## **Setting polarization with a sealed Circular Polarizer filter**

A circular polarizer changes polarization when the ring at the front of the filter is turned. This lets you dial in your level of polarization. In addition, polarization changes depending on which direction the light is being reflected from. The ability to turn the filter glass once the filter is installed is a must so that you can dial in the polarizer based on conditions. The first thing you should do when using a polarizer with the BlurFix3+ 55 is to hold the filter out in front of you, look through it, and turn it to the desired position. Make a mental note of

the filter orientation based on the location of the text on the rim of the filter. For instance, maybe the word “CPL” is located towards the top. After the filter is installed on the Hero3+, “CPL” should be towards the top to maintain the polarization setting you dialed in.

Setting the orientation of circular polarizer when used in the “sealed configuration” with the BlurFix3+ 55 is done using method 3 described in the previous section with one difference. After screwing the filter down all the way post venting, the ring is impossible to turn due to the glass sealing on the o-ring. In order to set the desired polarization setting, you will have to unscrew the filter slightly until you can turn the front ring. Turn the front ring and re-tighten the filter. You may have to do this several times before getting the desired orientation.

## **How to Create a Seal with Liquid**

Creating a seal with liquid can be very beneficial in certain applications. In order to create a liquid seal that is free from bubbles you will need enough liquid to fully submerge the adapter in. For instance, if using Isopropyl Alcohol you will need a container that allows you the freedom to move in. After verifying that you have a seal in air, remove the adapter with sealed filter from the camera. Unscrew the filter slightly so that it can vent. Place the filter and adapter face down in the liquid of choice. Shake the adapter so that all air bubbles are released. Leave the adapter and filter submerged. Next, bring the camera housing down into the liquid. Shake the camera once the housing lens is submerged so that any air trapped on the surface of the lens is persuaded to leave. Press the Hero3+ housing lens into the adapter. Before removing the camera from the liquid, tighten the filter onto the adapter. If you’re going surfing this is easy. Simply put the adapter underwater and shake. Put the camera housing underwater and shake. Join the two underwater and screw the filter completely on.

If you’ve completed this step properly you will not see any air bubbles behind the filter. In addition, removing the adapter is impossible because the liquid hydraulically prevents the adapter from moving.

## **Installing the Lanyard**

A piece of nylon cord is included with the BlurFix3+ 55 so that you can create your own lanyard. To create the lanyard, join the two ends of the cord and tie a square knot. Now it is necessary to thread the lanyard through the BlurFix3+ 55 adapter. Locate the tab to the side of the adapter (as opposed to the top or bottom). Tie a piece of dental floss onto the middle of the lanyard you’ve created opposite the knot. Thread the dental floss through the top hole of the tab from the back (as shown) and pull the lanyard through until it stops on the knot. Then thread the dental floss through the bottom hole on the same tab, returning to the back of the adapter. Cut the dental floss away. Now you’re in business! Be sure to attach the other end of the lanyard to some secure point on the camera housing during use.



## Adapter Orientation

The photo below shows the correct orientation of the BlurFix3+ 55 adapter on your Hero3+ housing. The tab that is on one side of the adapter is intended to have the lanyard installed in it. The top and bottom tabs are for venting (above the waves) and flooding (below the waves). Make sure the lanyard tab is positioned away from the camera housing. There is no tab on the right side of the adapter when viewed from behind so that you can easily see the Hero3+ LCD display.





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