MŪV

ADAPTABLE WATER FILTER

TOTE GRAVITY WATER FILTER INSTRUCTIONS

The MUV Tote Gravity Water Filter is a revolutionary water filter that allows you to adapt the water filter to different water contaminations. The MUV Tote Gravity Water Filter can be configured in a variety of different ways, including; as a gravity water filter, in a water bottle, or with the Rush pump.

Assembly of the MUV Tote Gravity Water Filter is very simple. All the connection points are male or female and twist to lock in place.

HOW TO USE MUV WITH THE TOTE GRAVITY BAG

Pieces required to use the MUV and the Tote Gravity Bag. MUV 2 filter, PRE+28 housing, OUT+28 housing, two hose adapters, Tote Gravity Bag, hose with quick connect and hose clamp.

Begin with the MUV 2 filter and connect the PRE+28 housing to the bottom/female end of filter. Turn it clockwise to lock it in place. Next, insert the threaded end of one of the hose adapter into the bottom of the PRE+28 housing. Twist the hose adapter clockwise until it is snug with hand tightening. Do not use tools to tighten the hose adapter. Attach the female end of the OUT+28 housing to the bottom/male end of the pump, turning the OUT+28 housing clockwise to lock it in place. Insert the threaded end of the other hose adapter into the bottom of the PRE+28 housing. Twist the hose adapter clockwise until it is snug with hand tightening.

Remove the Tote Gravity Bag from the nylon bag. Ensure the hose clamp is on the hose. Pinch the hose clamp together sealing off the hose. Open the top of the gravity bag and dip it into the water source, collecting water into the gravity bag. Lift the gravity bag and roll the top onto itself two-three times and clamp the two ends of the of the gravity bag together. The gravity bag needs to be higher than the filter. Use the included nylon strap to hang the gravity bag from a tree or other surface. Insert the PRE+28 hose adapter end into the end of the tube of your Tote Gravity Bag. When installing the MUV filter, always make sure the flow direction points away from the dirty water source/ gravity bag. Unclamp the hose clamp on the hose to allow water to begin flowing through the filter. Place your water receptacle below the filter and allow gravity to push water through the filter. Once your water receptacle is full, press the hose clamp closed to stop the flow of water.

HOW TO USE THE MUV FILTER INLINE WITH A HYDRATION RESERVOIR

Pieces required for inline configuration. MUV 2 filter, PRE+28 housing, OUT+28 housing, two hose adapters, and a water reservoir (not included).

Begin with the MUV 2 filter and connect the PRE+28 housing to the bottom/female end of filter. Turn it clockwise to lock it in place. Next, insert the threaded end of one of the hose adapters into the bottom of the PRE+28 housing. Twist the hose adapter clockwise until it is snug with hand tightening. Do not use tools to tighten the hose adapter. Attach the female end of the OUT+28 housing to the bottom/male end of the pump, turning the OUT+28 housing clockwise to lock it in place. Insert the threaded end of the other hose adapter into the bottom of the PRE+28 housing. Twist the hose adapter clockwise until it is snug with hand tightening.

Once your MUV inline configuration has been assembled (see above), you will need to determine where you want to place the filter inline with your hydration reservoir (not included). Option 1: Put your hydration backpack on with the hydration tube hanging in front of you. The filter should hang just below your shoulder. Mark that location and cut your hydration tube. Insert PRE+28 hose adapter end into the upper tube of your hydration pack. Next, insert the OUT+28 hose adapter end into the other end of the tube that has the bite valve or spout. Option 2: Similar to option 1, but the tube needs to be cut inside of your hydration backpack. This option keeps the filter inside of your backpack. When installing the MUV filter, make sure the flow direction always points away from the dirty water source/your hydration reservoir.

Next fill your hydration reservoir with the contaminated water. Make sure the reservoir mouth piece and the OUT+28 end of the MUV filter to not come in contact with the contaminated water. This can cause cross contamination. Once your reservoir is filled with contaminated water, place the reservoir into your backpack or bag. Using the reservoir mouthpiece, begin to draw water through the mouthpiece as you normally would. It will generally take 5-10 seconds to draw water through the filter for the first time as the water has to make its way through the filter membranes. This is normal and is critical to make sure that the membranes are filtering the water.

HOW TO USE MUV IN A STRAW CONFIGURATION

Pieces required for using MUV as a straw will vary depending on the contamination level of the water you are filtering.

Begin with the PRE+28 housing and connect the male end to the female end of the MUV 2 filter. Turn it clockwise to lock it in place. Connect the male end of the filter to the female end of the mouthpiece. Turn it clockwise to lock it in place. Insert the PRE+28 end of the configuration into the water source and begin to suck water through the filter. It will generally take 5-10 seconds to draw water through the filter as the water has to make its way through the filter membranes. This is normal and is critical to make sure that the membranes are filtering the water.

HOW TO USE MUV WITH A THREADED 28MM WATER/ SODA BOTTLE

Pieces required for threading MUV onto a water/soda bottle top. PRE+28 housing, MUV 2 filter, and the mouthpiece.

Begin with the PRE+28 housing and connect the male end to the female end of the MUV 2 filter. Turn it clockwise to lock it in place. Connect the male end of the filter to the female end of the mouthpiece. Turn it clockwise to lock it in place. Fill your water/soda bottle with contaminated water and then twist the top into the threaded/bottom end of the PRE+28 housing. Turn the bottle and filter upside down and drink through the mouthpiece. It will generally take 5-10 seconds to draw water through the filter as the water has to make its way through the filter membrane. This is normal and is critical to make sure that the membranes are filtering the water. A gentle squeeze of the bottle will help push the water through the filter.

CLEANING AND MAINTENANCE

Backflushing

Backflushing MUV 2 filter will extend the life of the filter and will improve its performance. After every use, you should run clean water backwards through the filter to dislodge and remove any contaminants within the filter. This can be done in a few different ways. 1) Run a steady stream of tap water through the filter, opposite of the flow direction marked on the filter. 2) With the OUT+28 housing attached to the MUV 2 filter, use a water/soda bottle with 28mm threading to flush clean water through the filter.

Tote Gravity Bag

The Tote Gravity Bag should be rinsed and allowed to dry between uses. The Tote Gravity Bag should not be used for long term storage of water. For storage or for long breaks between uses, the Tote Gravity Bag and MUV 2 filter should be allowed to completely dry before storing.

UNDERSTANDING FILTER TECHNOLOGY

Activated Carbon Fiber - MUV 1 Module

Unlike traditional activated carbon in powder or granular form, Activated Carbon Fiber is a fibrous adsorbent that has 10x higher adsorption than traditional activated carbon and gives you faster flow rates.

Activated Carbon Fiber can remove:

- Chemicals
- Heavy metals
- Discoloration of water
- Negative taste
- Filters up to 150 gallons

Hollow Fiber - MUV 2 Module

Hollow Fiber membrane are tiny hollow tubes that look like straws. These fibers have a porous membrane wall that allows clean water into the fiber and prohibits contaminants from passing through the membrane. Hollow Fiber membranes filter water by size exclusion. Size exclusion works by having a pore size smaller than the size of the contaminants. Clean water is allowed to go through the membrane while large contaminants cannot fit through the pores.

Hollow Fiber can remove:

- Bacteria (E. Coli, Cholera, Typhoid, etc)
- Protozoa (Cryptosporidium)
- Parasites (Giardia)
- Filters up to 100,000 gallons
- 0.1 Micron

Nanalum - MUV 3 Module

The technology used in Nanalum was developed by NASA as a way to reuse waste water on the International Space Station. Nanalum works through electro-absorption and is manufactured with non-woven highly engineered water filter paper which is also impregnated with Granular Activated Carbon (GAC). The Nanalum module has a strong positive electrostatic charge when wet. Like a strong magnet, the positive electrostatic charge of the Nanalum attracts and traps organic contaminants.
Nanalum can remove:

- Viruses (Hepatitis A, Hepatitis E, Poliovirus, Meningitis, and more)
- Bacteria (E. Coli, Cholera, Typhoid, etc)
- Protozoa (Cryptosporidium)
- Parasites (Giardia)
- Heavy Metals
- Chemicals
- Negative taste
- Filters up to 90 gallons

EPA Est No.94660-CHN-1 ⚠

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CONTAMINANTS	MUV 1 Activated Carbon Fiber	MUV 2 Hollow Fiber	MUV 3 Nanalum
HEAVY METALS	Yes	No	Yes
CHEMICALS	Yes	No	Yes
MICROBIOLOGY / BACTERIA	No	Yes	Yes
VIRUSES	No	No	Yes
SEDIMENT AND WATER CLARITY	Yes	Yes	Yes
ABILITY TO BACKFLUSH/CLEAN	No	Yes	No