

Manual for G2 och G3

How do you use the water filtration system?

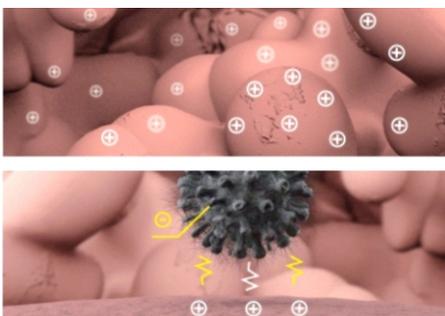
The system is designed to be installed under the sink, connected to the cold-water line. The filtered water is led topside via a separate faucet that you install on the sink. Use this faucet for clear, purified water that can be used for drinking, cooking, or making tea/coffee; use your regular faucet for doing dishes, mopping floors, and other uses that don't require the water to be purified. This way the lifespan of the filter cartridge can be greatly extended!

How does the filtration system work?

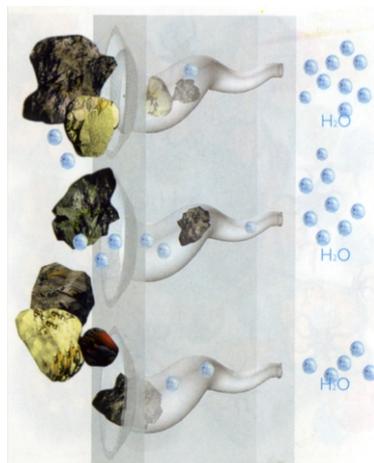
One special advantage of the system is that contaminants and pollutants are removed from the water without adding anything to it, as is done when purifying water using chlorination or flocculation. The result is water that is extremely pure but still retains over 50% of naturally occurring minerals and trace substances that the body needs. The other advantage is a safety feature built into the design that ensures no captured particles can dislodge from the filter at sudden pressure spikes in the water pipes. This can be an issue in many other filtration systems.

The filter cartridges are made from a unique microspiral material that combines six different purification techniques:

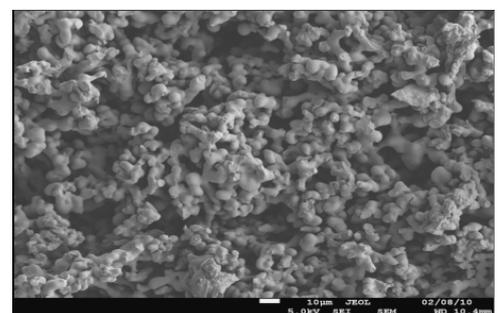
- ◆ *Electro-adsorption* is a method for eliminating viruses by taking advantage of the electric charges of the virus proteins to trap them in a filter material with the opposite charges. (Tested by Pasteur Institute on Legionella, Salmonella, Polio, Hepatitis, and Rotavirus strains.)
- ◆ *Mechanical purification* is the most fundamental form of filtration, where the pores in the filter capture and retain any particle larger than 0.05 μm (i.e. bacteria, parasites, microplastics).
- ◆ *Sorption*, which is the physical and chemical attachment of particles to a surface, ensures that chloride and the highly toxic chloride compounds are removed from the water to 100%, along with removal of biocides and pesticides (each filter cartridge is honeycombed with pores to create a total uptake area the size of a soccer field).
- ◆ *Ion exchange*, a method by which electric charges in the filter material binds harmful ions such as heavy metals from the water. In combination with the other techniques, radioactive particles such as uranium, cesium-137, and strontium-90 are also captured by the filter.
- ◆ *Softening* targets hard water and captures calcite, the mineral responsible for kidney stones as well as limescale deposits in pipes and cooking pots, while allowing its less problematic aragonite form to pass through the pores. Aragonite does not stick to surfaces the way calcite does, and has a higher rate of bioavailability. (Some studies on rats suggest aragonite might even help dissolve kidney stones.)
- ◆ *Bacteriostatic technology* in the form of pure silver integrated into the filter matrix, which prevents the growth of bacteria and viruses on the filter. (The silver is integrated into the filter material on a microscopic level and cannot dislodge in the water.)



Virus trapped by spiral structure with ca 40.000 charged pores. The filter has an immense inner surface structure of up to 500 m^2/g .



The material is honeycombed with funnel-shaped microspirals that effectively trap all pollutants.



Microspiral pores photographed through electronmicroscope. Scale 10 μm .

What is the difference between G2 and G3?

The G2 filtration system uses a single filter housing with one microspiral cartridge adapted to hold an additional inset. This allows G2 to be modified to suit varying needs. For very mineral-rich water there is a softening inset, and in areas with radioactive elements in the water a uranium inset can be used to further improve the efficiency of the filter. The default is a carbon inset, which yields a compact unit capable of purifying water in several steps.

In G3 the water passes through two filter housings. The first one contains a filter cartridge of the same model as in G2, and the second one is customisable. The default is a large, NSF-certified carbon cartridge, but the second filter housing may also be equipped with an iron cartridge, a softening cartridge, or an arsenic cartridge, depending on the contents of your water.

Note: the main cartridge used in both G2 and G3 (microspiral filter) comes in two varieties: soft to mid-hard water, and hard water. Make sure to get the one best suited to your water supply. (If using a uranium inset, combining it with the one for hard water is recommended.)

When to change the cartridge?

A filter cartridge clogged with pollutants will keep water from passing through; when the flow out of the faucet decreases notably, it is time to change cartridge. All components are changed at the same time: microspiral, inset, and (for G3) also the carbon/iron/uranium/softener/arsenic cartridge. (Individual or complete sets can be ordered as needed: when ordering a microspiral cartridge the inset is included.)

How long it takes for a filter cartridge to clog up depends on the amount of pollutants in the water; it is, however, recommended to change the filter after 1.5 years to guarantee adequate function. To keep a cartridge in use as long as possible it is advised to clean it every 6 months. This is done by cleaning it in warm water and scrubbing the surface with a soft brush. Clean the filter housing as well, and evaluate the need for changing the inset; decline in smell or taste of the water indicates it should be changed, but if uncertain it is better to err on the side of caution and change the inset at the 6 month cleaning. The lifespan of a microspiral cartridge can be extended beyond 1.5 years by regenerating it (see separate instruction).

Can I install the filtering system on my own?

You can, with minimum experience of plumbing and the necessary tools. The parts arrive ready to assemble and come with instructions. The basic requirement is a valve (3-way valve) on the cold-water supply line that the filtering system can be connected to: if there isn't one, a plumber can arrange one for you and install the filtering system. The faucet needs a hole atop the sink that you can drill yourself. The water lines are approved for drinking water but must be handled carefully: the washers at the joints are soft and must not be squashed from excessive tightening. In many cases it is enough to tighten the nuts with your fingers.

The piping inside the filter housings is tight and should not be tightened further. Take care that the valve lever should not be fully open: too high flow rate will not improve filtering, only strain the system components. Flow rate should be max 3 L/min when the faucet is opened fully.

Note: water containing uranium or lead is filtered more efficiently at even lower flow rates.

How long is cartridge life and how long the warranty?

Cartridges have a 1-year warranty from date of sale. The cartridge itself has a specified capacity, but how long the working lifespan will be depends on how frequently it is used and the quality of the water supply. It must not be subject to desiccation, freezing, or impact, as this creates cracks in the material that nullify the filtering function.

The warranty does not include installation and possible consequences of the installation process. The filter housings are manufactured to withstand very strong pressure spikes: we have yet to receive any complaints on the housings even with the several thousand units we have provided. The most common product failure is when a customer has tightened the nuts too hard, thus damaging the washers and causing leakage. Estimated lifespan of the water filtering system is 5 years or more.

Quick installation G2/G3

The procedure for installing G2 and G3 is the same, the only difference being that G3 has two filter housings. First, follow the instructions below. Once the filter system is installed, flow rate must be calibrated. Turn the faucet on and carefully open the lever to the valve (parallel with the water line feeding into the filter housing). Let the water run for a minute or so until it clears up: loose carbon particles must be washed out of the system. Proceed to adjust the flow rate by closing the lever to less than 3 L/min. Check all joints for potential leakage.



1) A washer is provided for the valve.,

2. Attach the valve to the cold-water line. This can often be done by taking advantage of the 3-way valve that is commonly fitted on the water line to shunt water to the dishwasher. Another 3-way valve can be mounted on the existing one, and if this is not possible a new 3-way valve can be added directly to the water line. If you are unsure how to do this, a plumber can help you. The 3-way valve should be a male connector size 1/2 inch/21 mm/15.



3. Secure the filter supply line to the valve by tightening the nut over the threaded pipe. Caution! Do not tighten the nut too hard, as this will damage the washer. Tightening it with your fingers should be enough.



4. Attach the supply line to the filter housing via the inlet port. Again, be wary not to tighten it too much! The brass nipple should not move!



5) Attach the faucet supply line to the exit port.



6. Drill a hole on top of the sink. The faucet needs a hole 11 mm in diameter. A quality steel drill is preferable, a step drill bit will do well but there are many good options. (Tip: putting a bit of tape on the sink helps keep the drill from skidding on the surface.)



7. Insert the faucet in the hole as shown in picture 7.

8. Tighten the adapter over the threaded end of the faucet, under the sink. Take care that the nylon washer is in place inside the adapter.

9. Attach the faucet supply line to the adapter as shown in picture 9.

Lastly, attach the filter housing to a suitable spot on the wall. Allow for a minimum of 20 cm between the filter housing and the cupboard floor, to enable easy change of filter cartridges. Make sure to secure all water lines with suitable hose clamps.

