



**C1 LARGE SCALE
WATER PURIFIER**
INSTRUCTION MANUAL
& TECHNICAL GUIDE



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INTRODUCTION

The LifeSaver C1 allows the user to take almost any existing or potential fresh water supply and make it safe to drink.

It is ideally suited for treating:

- Harvested rainwater
- Water from boreholes, wells, springs and rivers
- Untrustworthy municipal piped supplies

The C1 is an in-line microbiological filter that surpasses NSF P231 / EPA guideline requirements, bringing safe, clean drinking water in large volumes, in an easy-to-install and low maintenance package. It is a low pressure system; that pressure can be provided by a raised header tank, a pump or a pressurised municipal supply. It does not require chemicals or electricity, making it the most eco-conscious and reliable off-grid water purification option.

FAILSAFE TECHNOLOGY

The C1 uses a patented Ultrafiltration Cartridge to remove 99.99% viruses and parasites (cysts), 99.9999% bacteria, and 99% sediment, microplastics and organic matter. Acting like a sieve, as the filter approaches end-of-life, the flow rate starts to reduce until very little water comes through. We call this FailSafe and it means not only that you can never drink contaminated water from a LifeSaver C1, but you have plenty of warning that the filter needs replacing.



PRE-FILTERS

The C1 is designed to remove *microbiological* contaminants. It will also remove sand, silt, sediment and organic matter, but that will reduce the life of the Ultrafiltration Cartridge.

We recommend using a sediment pre-filter to remove general dirt from the water first. If your water tastes unpleasant, an activated carbon filter will help. These are both inexpensive, easy to come by and easy to maintain.

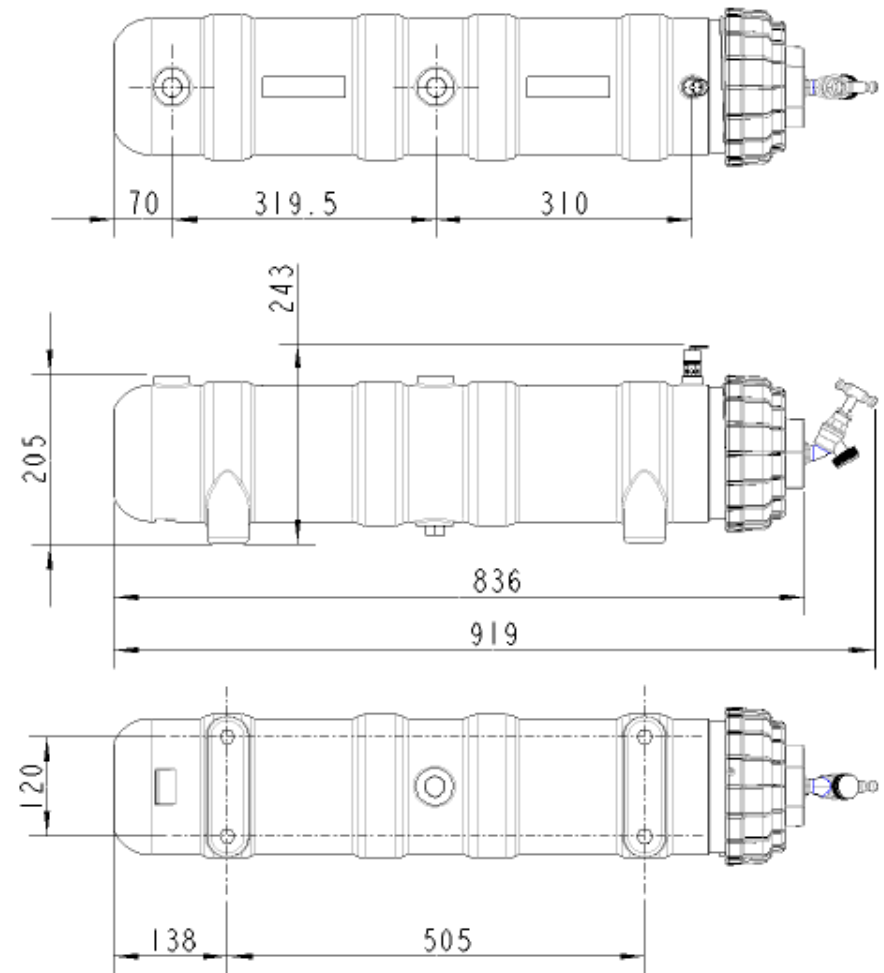
There are other contaminants that may be in your water supply, including heavy metals, chemicals and nitrates. Get it tested each year and add specialist pre-filters if required.

DIMENSIONS & SPECIFICATIONS

Feed Tank Height (Metres/Feet)	Pressure Equivalent (Bar/PSI)	Projected Flow Rate (Litres/Gallons per minute)
2m / 6 ft	0.2 Bar / 2.85 PSI	5 L / 1.3 gal per minute
3m / 9.5 ft	0.3 Bar / 4.3 PSI	5.5 L / 1.5 gal per minute
4m / 13 ft	0.4 Bar / 5.7 PSI	6 L / 1.6 gal per minute
5m / 16.5 ft	0.5 Bar / 7.1 PSI	6.5 L / 1.7 gal per minute

If a raised header tank is impractical, similar pressures can be achieved by adding a hand pump or a small electric pump to push water through the LifeSaver C1.

- Fully assembled dry weight: 6kg
- Water source connection via ¾" BSP Female input
- ¾" BSP link connection port available to connect multiple units
- Drain port incorporated for routine cleaning and flushing of filter
- Projected filter life up to 500,000 litres / 132,000 U.S gallons (based on <2.5NTU)
- Pre-filtration may be required, dependant on water quality
- Combined safety pressure relief valve and bleed valve allows maximum 1.5 bar (22 PSI) operation.
- Worldwide Patents applied



MICROBIOLOGICAL FILTRATION EFFICACY

The LifeSaver C1 exceeds a suitable adaption of NSF P231 testing as per the EPA Guidelines for microbiological purifiers:

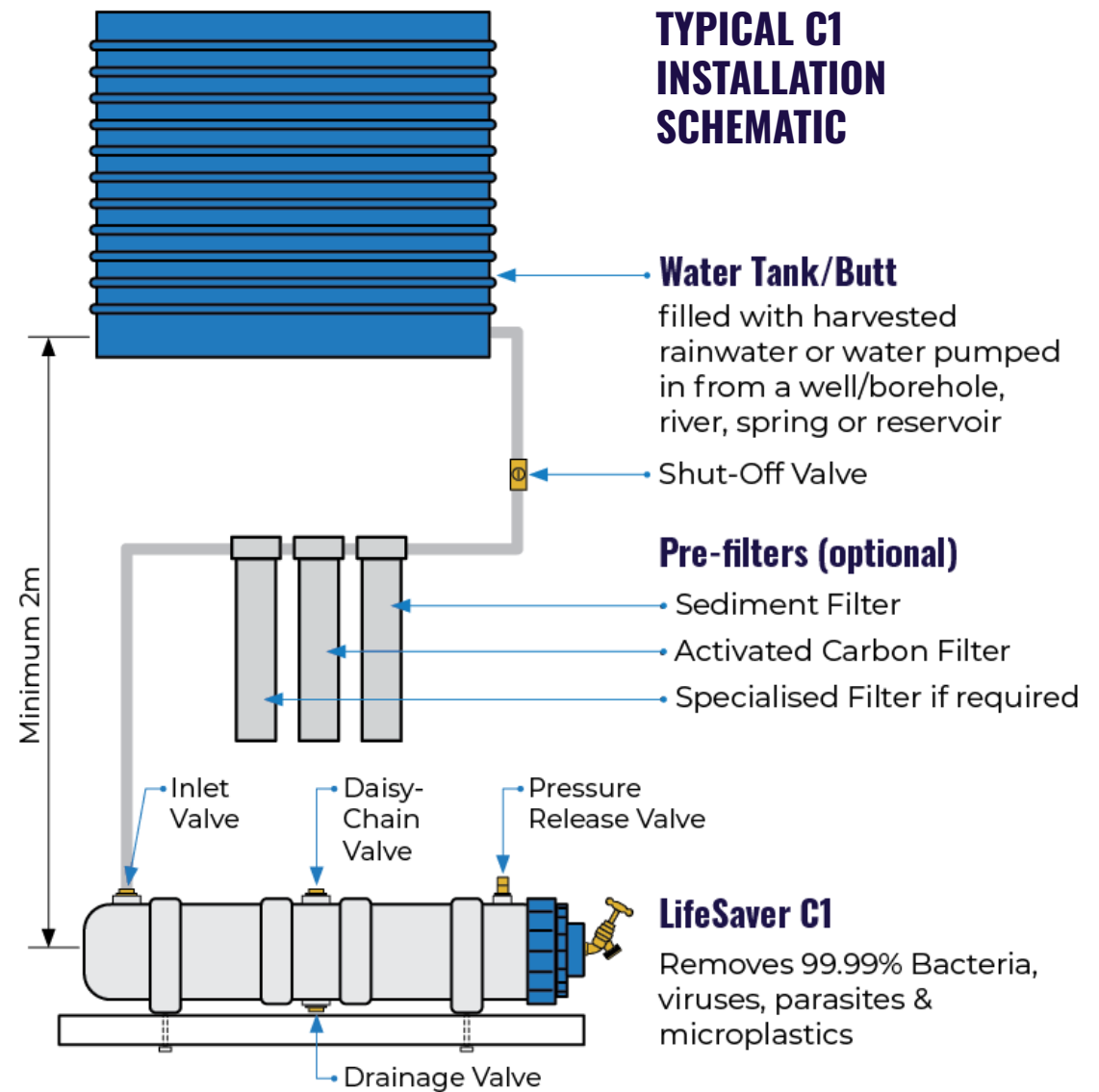
Bacteria retention	>99.9999% (Log 6)
Virus retention	>99.99% (Log 4)
Cyst reduction	>99.99% (Log 4)

HEALTH & SAFETY NOTICES

- LifeSaver technology removes microbiological contamination from all water sources guaranteeing a minimum 99.9999% bacteria, 99.99% virus and 99.99% cyst removal. Chemical contaminations must use further removal technology to deem water safe as a long term drinking supply. This can be in the form of carbon treatment or ion exchange resins as pre-filters. Water sources with questionable chemical contamination should be tested before being used as a long term supply
- The LifeSaver C1 uses pressurisation as part of the filtration process. DO NOT ATTEMPT TO OPEN ANY OF THE CAPS OR PORTS WITHOUT ISOLATING THE FEED SUPPLY AND RELEASING THE PRESSURE FIRST. Use the pressure relief valve ring pull (located on the top front most port). To release pressure pull the ring pull vertically up, wait for the rush of air and/or water to stop before removing any parts of the C1.
- Never operate the C1 with the pressure relief valve disconnected, isolated or removed.

SITING THE C1

- The LifeSaver C1 should be sited indoors or in shade, away from direct sunlight whenever possible. This will inhibit bacterial growth, protect the plastics and keep water at a more palatable temperature.
- Do not allow items to be placed on top of the C1 tank, or fixed to it, it is not a load bearing object.
- The C1 should only be used when in horizontal orientation. Ensure the tank is level.
- Always ensure the C1 has been secured in position before filling and using.
- The feet are fitted with M10 fastening nuts. Use suitable length M10 bolts to fix through the substrate and into the C1 feet. Use four fixings in all circumstances.



C1 INSTALLATION

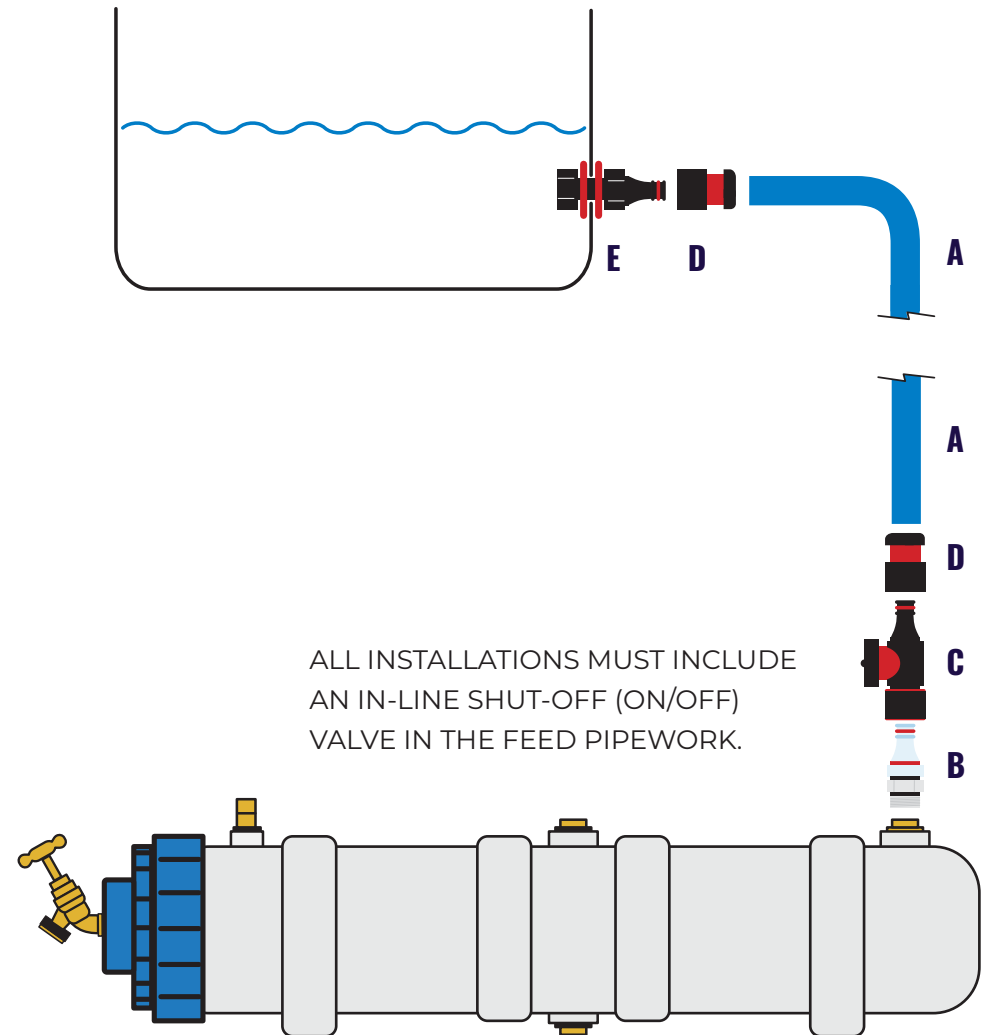
The C1 comes pre-assembled and pressure tested from the factory. All that is required to start using the product is connection to a source of water at pressure. Connections into and out of the C1 are made by $\frac{3}{4}$ " BSP ports on the top of the main body.

The C1 is supplied with:

- A** 3 metre length of drinking water hose
but copper or rigid plastic pipes can also be used
- B** Screw-in pre-filter to go into the top of the C1
- C** Push-fit connector with shut-off valve
- D** 2 x Push-fit hose fittings
- E** Tank connector
Silicone grease for the filter
Flush Cap for maintenance

The water supply can be from any feasible source, but a minimum delivery pressure of 0.2 bar (2.85 PSI) and maximum pressure of 1.5 bar is required. Using a harvesting or accumulator tank at height to feed the C1 is advised but a pump can also be used.

If using a pumped or municipal water source that is not controlled (and not first routing through an accumulator tank), it is recommended to add a pressure limiting valve before the C1. This will negate any water surges from damaging the system. Limiting the delivery pressure below 1.5 bar will stop the safety relief valve running constantly, a potentially dangerous scenario.

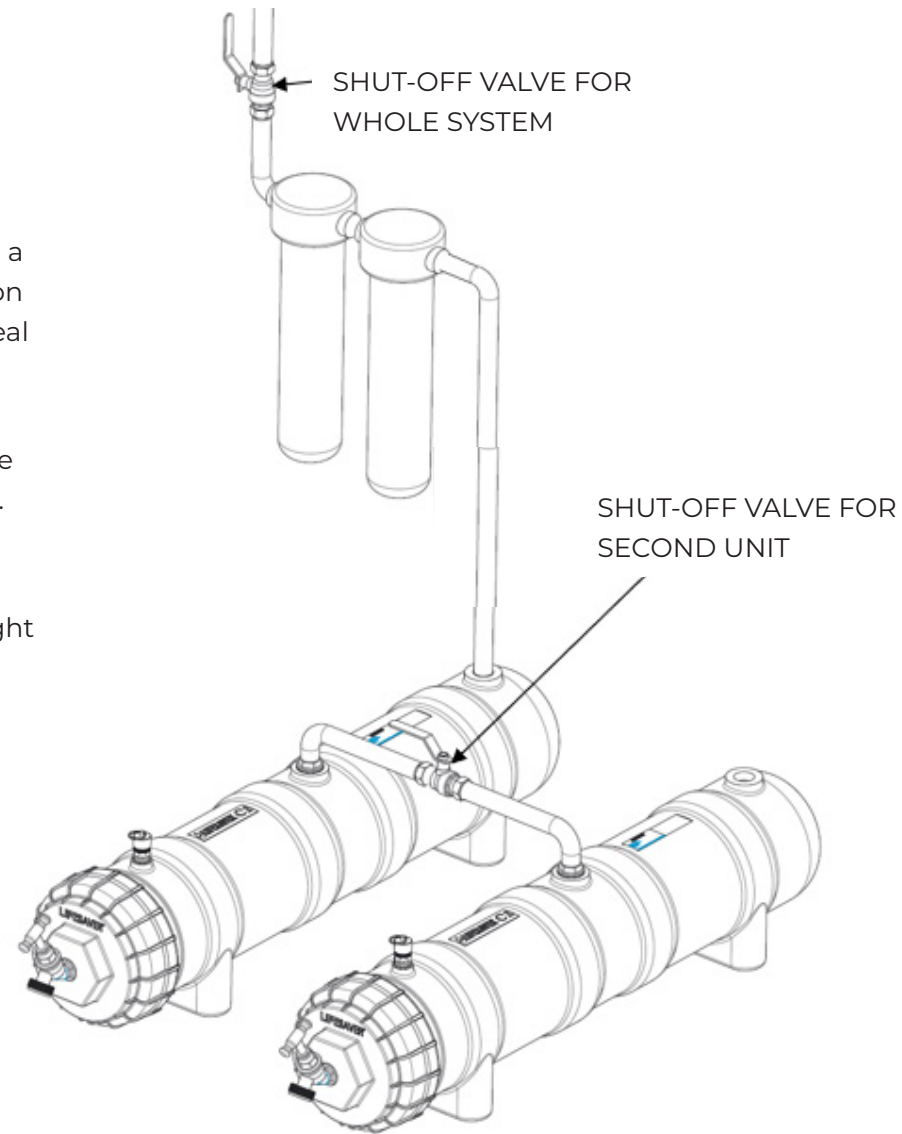


USE OF MULTIPLE C1 UNITS

Multiple C1's can be joined together by daisy-chaining them to a common source. This means the safe drinking water production can be significantly increased at a single installation point - ideal for community projects.

To do this simply add a link pipe between the two C1 units as per the diagram overleaf. Again use pipe and fittings to suit the $\frac{3}{4}$ " BSP fittings. Include an in line shut-off valve between units. Alternatively use a T into the source pipework to split it out to multiple units.

Do not have any excessive run of pipe between C1 units or height of pipe as this will cause air locks between the two vessels.



PRIMING

Priming is an essential step that should ideally be performed within three years of purchasing your LifeSaver C1. A foil-wrapped filter will last up to ten years before it should be primed.

The filter membranes are infused with glycerine during the manufacturing process to keep them hydrated up until the filter is primed. During priming you are flushing water through the filters, which removes the glycerine. Glycerine is a natural food source and whilst the presence of glycerine is not harmful you should not drink the water used for priming (it will taste sweet).

Flushing all the glycerine away is imperative to mitigate the risk of bacteria growing in the system and prematurely blocking the filter.

PRIMING STEP BY STEP

- Once your $\frac{3}{4}$ " BSP connection is made to either of the top ports of the C1 turn the in line shut off valve on to allow flow of source water to the C1.
- Pull the ring pull on the top of the brass safety relief valve, keep this pulled open until all air is bled from the system and water starts to pass from the valve (this will take several minutes). Once water pours from the valve, release the ring pull to close the valve.
- Allow the filter to sit for 5 minutes to soak up water.
- Check the entire system for any signs of leaks whilst waiting.
- Open the brass tap on the front of the C1. Purified water should start to flow. Pull the bleed valve momentarily again to check no air has entered the system.
- Allow the first approx. 50 litres of water (10 minutes @ 5 l/min) to flow freely from the tap to drain.
- Shut off the tap. The C1 is now primed and ready to use.
- It is recommended you start using the C1 straight away after priming so do not prime until the unit is ready to be used.

GENERAL USE

Using the C1 from day to day once connected to a reliable source of water is as simple as turning the tap on. If the water supply becomes interrupted and the C1 does run dry for a period, shut off the in line supply valve and close the tap. Ensuring all inlets and outlets are closed will seal the filter and keep it hydrated due to water condensing around the C1 internally. It is likely the system will need to be bled of air when the source is reinstated. Follow the first two priming steps to get the system back up and running.

NEVER LET A PRIMED FILTER DRY OUT

Whether disconnected for maintenance, or disassembled for cleaning, the filter must never dry out once primed. If the filter is to be removed for cleaning or maintenance, never allow it to sit for more than 1 hour outside of a submerged state. This will risk membranes drying up and ceasing to function.

REMOVING THE FILTER

LifeSaver's patented Ultrafiltration filters come pre-installed and should only be removed for replacement or for periodic cleaning.

To remove the filter first isolate the water supply to the system. Use the pressure relief valve ring pull (located on the top front most port). To release pressure pull the ring pull vertically up, wait for the rush of air and/or water to stop. Drain the C1 by removing the lower drain plug. Once drained reinsert the drain plug and re-tighten.

Follow these steps to remove the filter:

- Using the supplied tap cap spanner position over the top of the tap onto the cap nut.
- Turn anti-clockwise to release the cap. Fully unscrew the cap and set aside.
- If you are cleaning the filter, fit the flush cap supplied with your C1 over the filter face as soon as the tap cap is removed to stop contamination. Ensure it is fitted tightly, creating a seal over the face and around the sealing flange.
- Using cleaned or gloved hands, pry behind the sealing flange and gently pull the filter out. If you are replacing the filter dispose of the old one at a recycling centre.

CLEANING THE FILTER

- Soak the filter in a bath of clean, tepid water for up to an hour. During soaking, agitate the filter periodically to dislodge any algae or residue.
- Stand the filter on its end (filter flush cap upwards) and hose it down from top to bottom.
- Empty the bath and leave the filter to stand and drain for a maximum of an hour. **DO NOT ALLOW THE FILTER TO DRY OUT.**
- Re-fit the filter (or install a new one) and remove the flush cap. Use an alcohol wipe or sterilising spray to ensure the filter face has not been contaminated.
- Replace the tap cap and tighten the cap nut with the spanner
- Refill the system and bleed off any air. Your C1 is now ready to be put back into use.



CONTACT US

If you have any questions about the use of the LifeSaver C1 or if you wish to purchase any additional parts, please contact us.

E: info@iconlifesaver.com

Icon LifeSaver Ltd

Hall Chase, London Road

Marks Tey, Colchester

Essex CO6 1EH, UK

www.iconlifesaver.com

DISCLAIMER

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