The WATER FILTRATION Guys – When to use a Pressure Booster Pump & UV-Light Stage in the 5-Stage RO Filtration System

Both the **Pressure Pump** and the **UV-Light Stage** are optional items in the 5-Stage Reverse Osmosis (RO) Filtration System.

This document explains both in terms of what they do and when they would be needed.

Pressure Booster Pump

What Does a Pressure Booster Pump Do in an RO System?

A **Pressure Booster Pump** is a compact, motorised (electric) unit added to an RO system to **increase the incoming water pressure**. RO systems rely on pressure to force water through the semi-permeable RO membrane. If the water pressure is too low, the system can't function effectively, and you'll experience:

- **Slow water production**
- **Poor filtration efficiency**
- **Inadequate tank filling**
- **Shorter RO membrane lifespan**

The booster pump solves this by **elevating the pressure** (typically to around 60–80 psi or 4–5.5 bar), ensuring the system runs optimally—even with a weak municipal or borehole feed.

When Should a Pressure Booster Pump Be Used?

You should install a pressure booster pump if:

- Your **inlet water pressure is below 2.8 bar (40 psi)**
- You're on **borehole water** with fluctuating or naturally low pressure
- Your home uses **gravity-fed tanks** rather than municipal pressure
- You notice that the system is **slow to produce water** or the **tank never fully fills**
- You live in an area with **intermittent or unstable water supply pressure**

Key Benefits

- **Ensures proper RO membrane performance**
- **Improves water production speed**
- **Extends lifespan of filters and membrane**
- **Reduces wastewater ratio**, making the system more efficient

Note:

Booster pumps are typically **low-voltage (24V DC)** and come with a **power adapter**. They run only when the system is actively producing water—thanks to a pressure switch that prevents overworking.

UV-light Stage in a Reverse Osmosis (RO) Filtration System

What Does the UV Filter Do in an RO Filtration System?

A **UV (Ultraviolet) light stage** is an optional but powerful **final layer of protection** in a 5-stage Reverse Osmosis Drinking Water Filtration System. While the RO membrane removes up to 99% of **dissolved solids, heavy metals, and many bacteria and viruses**, it is not always 100% effective against **all types of microorganisms**—especially in high-risk water sources. This is where **UV sterilisation** steps in.

The UV unit uses **ultraviolet-C (UV-C) light** to kill or deactivate **bacteria, viruses, and other pathogens** by damaging their DNA, rendering them incapable of reproducing or causing infection. The water flows through a **UV chamber** where it is exposed to the germicidal light, ensuring that any microorganisms that may have survived earlier filtration stages are neutralised.

When Should a UV Filter Be Used?

A UV Stage is highly recommended in the following situations:

- **Borehole, well, or rainwater systems** where microbial contamination is more likely
- Areas with **known issues of E. coli or coliform bacteria** in the supply
- Homes where the water source is **untreated or only partially treated**
- When an extra level of microbial safety is desired—especially for **young children, elderly**, or **immunocompromised** individuals

Summary

- **What it does**: Kills bacteria, viruses, and protozoa
- **Where it fits**: Final stage, after RO membrane and post-carbon filter
- **Why it matters**: Adds peace of mind and makes the water biologically safe—especially when source water is microbiologically unstable

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