

## POWERWIN DRINKING WATER SYSTEMS:

**POWERWIN's** partners are SECCUA a German company and one of the world's biggest brands in water filtration, who have developed and standardized equipment using the latest in technology to remove pathogens, suspended solids, pharmaceutical residues, and lime from water. Since we care about your health and wellbeing, none our technologies involves the use of chemicals nor the use of high-energy radiation. At the core of all our products are our innovative **ultrafiltration systems** using membranes with pore sizes that are less than 20 millionths of a millimeter wide. By comparison, a human hair is about 60,000 millionth of a millimeter thick.

SECCUA technology has proven its performance in removing all pathogens from water in extensive testing by the world's most strict environmental authorities, the **EPA** in the United States and the German Gas and Water Industry Association (**DVGW**).

In combination with additional modules from the company's product portfolio, Seccua systems can remove more than just pathogens and suspended solids. Seccua has developed unique technologies to protect the installation in your building from scaling. And atop we also combine further benefits, like removal of pesticides, residuals of Pharma and Arsenic into most innovative products.

**POWERWIN** strives to integrate the best technologies available into our treatment systems and has invested heavily in research and development to ensure we are offering the best possible product to our customers. We are an innovative company that eagerly accepts the challenge of changing the way wastewater treatment is traditionally approached and to follow the path of increased efficiency, sustainability, and longevity. Our proven technologies are implemented in many industries.

## **SECCUA AT GLANCE**

### SECCUA FILTRATION AT A GLANCE

- ☞ *Removes the cause, not the effect*
- ☞ *Completely free of chemicals*
- ☞ *More effective and more efficient*
- ☞ *Works regardless of water turbidity*
- ☞ *Residue-free removal of pathogens*

### SECCUA ULTRAFILTRATION

#### ☞ **Optimized control technology**

Seccua introduced its ultrafiltration systems and control systems (Seccua Control Pro) and related software in 2007 and has continually developed them ever since. Tried and tested **Seccua Control Pro** was especially designed for ultrafiltration processes and allows settings to be made on all of the major components to ensure an optimized purification process. The system also controls all of the sensors and actuators in a water treatment plant, thus making additional control equipment unnecessary. The **Easy Connect Kit** also allows systems

operated in parallel to use the same peripheral devices. In addition, the system can also be integrated via the CAN bus into a master controller.

### **Integrated alarm system**

An **internal modem** makes it possible to control and maintain the system remotely via the internet and take readings from the data logger to analyze and optimize operations. Alarm messages can be forwarded to up to 10 mobile numbers to ensure that downtimes are kept to an absolute minimum.

Seccua Phoenix systems are standardized with a modular design so that they can be introduced through any standard interface and extended at any time at low cost.

### **Residue-free disinfection with ultrafiltration(Successful sterilization despite water turbidity)**

It makes sense to use the state-of-the-art ultrafiltration process when turbidity is an issue because it can still remove more than 99.99% of all pathogens without leaving any residues.

Compared to conventional methods for sterilizing drinking water, such as UV radiation, thermal disinfection, or the use of chemical substances that often inadequate in eliminating the germs, the core ultrafiltration technology of Seccua provides clear advantages.

### **Environmentally friendly water treatment technology (Extensively tested by EPA and DVGW)**

Extensive testing conducted by the EPA and the DVGW have shown that Seccua equipment filters out all bacteria resulting in drinking water that after treatment is completely free of micro-bacteria.

### **Complete removal of bacteria**

Through the technology of Seccua the use of chemicals for disinfection and thus health and environmental damage can be avoided. Also pathogens that are resistant to disinfection methods such as UV, chlorine or ozone – for example, spores of parasites and amoebic dysentery, which often include Legionella – can be removed by Seccua ultrafiltration. In addition, ultrafiltration does leave the killed or inactivated microorganisms in the water, keeping the potential for subsequent contamination low.

### **Removal of Pathogens and Particles**

Seccua Filters remove all contaminants from water, which are large than 20 Nanometer. This includes:

-  Parasites (e.g. Cryptosporidia),
-  Bacteria (e.g. E-Coli),
-  Cyst (e.g. Giardia)
-  Spores (e.g. Crypto)
-  Turbidity and suspended solids
-  Nanoparticles

## ☞ Removal of Colour and Chloramines

If chlorine is used to disinfect such water containing color, carcinogenic disinfection by-products (DBP), like e.g. chloramine are created.  
Combined with a Seccua BioFilter, Seccua filtration can

- ☞ reduce colour
- ☞ reduce the amount of chlorine
- ☞ reduce the creation of disinfection-by-products (DBP)

## ☞ Removal of pesticides and residuals of drugs

Agriculture releases Nitrates, Phosphates and various pesticides into the ground, antibiotics and growth-hormones are widely applied in breeding of live-stock and reach our ground water through faeces and manure.

Such contaminants are significantly reduced by the [Seccua BioFilter](#), which removes:

- ☞ Pesticides
- ☞ Residuals of drugs and
- ☞ Hormones and endocrines disruptors

## Why to use Seccua filtration on your well water

- ☞ Seccua filtration offers full rejection of pathogenic bacteria and parasites, higher than any media and cartridge-filtration. The rejection of Seccua filters has been tested and verified to US EPA and German DVGW standards by third parties.
- ☞ Seccua filtration also removes all suspended solids from water, so turbidity and nano-particles will be fully removed. Unlike media filtration it will never "break through", if the load of particles in the feed becomes unexpectedly high.
- ☞ Seccua filtration is flushing itself when needed. As the only one of its kind, Seccua UrSpring Well filters come with a sensor that determines the rate of fouling of the filter, which involves more than only sensing differential pressure.
- ☞ As an extension to a Seccua Filter, the Seccua BioFilter provides solutions to remove Arsenic and dissolved contamination like pesticides or residuals of pharmaceuticals from well water. The BioFilter can also stabilize hardness in the water and prevent scaling.

## The #1-choice for treating GUDI

Especially in mountain regions, the rocky soil with its large caves and cracks has very little filtration effect. Seccua Filters take over instead:

- ☞ Physical filtration with pores smaller than 20 Nanometer

- ☞ Full removal of all particles
- ☞ Automatic flushing of the filter

### **Tested under supervision of the US EPA**

In long-term tests, Seccua filters have been tested under the supervision of US EPA and the Department of Health of Minnesota. They have proven:

- ☞ Full removal of bacteria
- ☞ Full removal of parasites
- ☞ Greater 99,99% removal of virus
- ☞ Up to 30% reduction of color

### **ADVANTAGES OF SECCUA ULTRAFILTRATION**

#### ☞ **Chemical-free**

Filtration is a purely physical process. We dispense entirely with the use of chemicals and irradiation and only use natural technology. This preserves the water's natural balance and does not change it.

#### ☞ **Little energy and water consumption**

Seccua water filters consume little power. In addition, the flushing operation consumes only a minimal amount of water compared to conventional reverse osmosis technologies. Much of our equipment also flushes automatically and only when really necessary.

#### ☞ **Low maintenance costs**

No need to worry about remembering to flush Seccua filtration systems. The flushing usually takes place at night and automatically. An installer only needs to come out once a year to check up on your system.

#### ☞ **Clean drinking water to every tap**

Seccua water filter systems are installed directly at the transfer point from the public water lines into your home. They prevent millions of germs from ever penetrating your domestic pipelines and you get the best drinking water at every tap.

#### ☞ **Patented Nanotechnology**

Seccua is a global innovation and technology leader in the field of drinking water in public buildings and private homes. The filtering processes have been subjected to extensive testing by the DVGW & the EPA!

#### ☞ **Flexible, easy-to-use technology**

The installation of Seccua water filter systems is simple and can usually be installed by your plumber. For larger systems, please contact our authorized service and installation partners.

## ☞ **Seccua integrity test (membrane test)**

To make sure that all pathogens are removed, Seccua's Virex and Phoenix systems have been subjected to patented, fully automated, high-resolution integrity tests according to the most stringent technical certification requirements of the US EPA. (The DVGW added parts of these requirements to its W213-5 regulations in 2013.) The membrane test can be performed automatically daily and will automatically detect defects of up to 1.6 µm, automatically calculate the actual pathogen collection rate (log stages), and store the results in the data logger. If there is a defect and the data shows a drop below the minimum collection rate, the system will automatically shut down and send out the corresponding alarm. Seccua Control Pro allows you to switch on a turbidity meter and conduct an instant integrity test if there is any turbidity in the filtrate, thus allowing continuous membrane monitoring.

## ☞ **Secure, sustainable, and cost-effective operation**

The electricity required to run the ultrafiltration system is minimal (5 W during filtration; 35 W during flushing); the only other costs are maintenance and the electricity to run the feed pump. Seccua's many years of experience designing ultrafiltration systems have resulted in a system with low operating costs. Flushing the system with just water and cleaning only when the build-up requires makes for a highly efficient system, even if the incoming water varies in quality. Only seldom do systems have to be equipped with automatic chemical cleaning.

## ☞ **Removal performance**

Completely removes:

- ✓ Viruses (MS2 Phage)
- ✓ Bacteria (B. Subtilis, E-Coli)
- ✓ Parasites (Crypto)
- ✓ Turbidity

## ☞ **Water consumption during flushing**

- ✓ typically about 1%

## ☞ **Specials**

- ✓ full-automatic, daily filter flushing
- ✓ tested by German DVGW and U.S. EPA
- ✓ optional: integrated membrane test

### COMPARISON: SECCUA FILTRATION V/S RO

SR.NO	RO	SECCUA
01	Membrane Technology	Ultra-filtration Technology
02	High Waste of Water between 50-75%	Less than 1% waste of water
03	Dispose of Waste water is critical to tackle.	Simple waste water and even can recycle.
03	Chemical Dosing is must for water purification.	No Chemical dosing required for water Purification.
04	RO Changes in Water Equilibrium	No change in water Equilibrium
05	Excess removal of healthy Minerals causes the root of lot of diseases.	Retention of Healthy Minerals so healthy water for healthy life.
06	*Less removal of bacteria. (* rated as per WHO)	*99.99% removal of Bacteria. (***) rated as per WHO)
07	*Less Pathogen Removal. (* rated as per WHO)	*99.99% removal of Pathogens. (***) rated as per WHO)
08	*Less Removal of Virus. (* rates as per WHO)	*99.99% removal of Viruses. (***) rated as per WHO)
09	Only modifies the DNA of bacteria but leaves them in the water so E-Coli could not remove completely.	Full removal of E-Coli.
10	RO can't reach through the shell of Cysts and Spores, so Giardia and Crypto cannot be reliably removed.	Full removal of Cryptosporidia
11	RO needs Operator	Fully Automatic
12	High Chemical Consumption.	No Chemical usage.
13	High Operation and Maintenance cost	Very Very Low maintenance cost and Powerwin offers 5- year free Operation and Maintenance.
14	High Power Consumption for operation of RO	Very Very Negligible ( less than unit per hour) power consumption.
15	RO Size is big.	Compact size.
16	Life is not more than 15 years.	40 years Life

## How does reverse osmosis affect the water's equilibrium?

### Change of chemical equilibrium

Cold water that comes out of our tap is usually in chemical equilibrium, which means that no dissolved substances are being released and no substances are being absorbed from its environment. In some regions (for example, the foothills of the Alps, the water has excess calcium in it making it hard, while in other regions the water tries to absorb minerals as it flows by (for example, in the Bavarian Forest).

If one removes the minerals dissolved in water, this changes the water's pH level and it will try to absorb new minerals to restore its equilibrium. The same thing happens when you change the pressure or temperature of the water. In reverse osmosis, H<sub>2</sub>O is extracted from the water and that has consequences.

### Consequences of extracting H<sub>2</sub>O in reverse osmosis

- ✓ The concentration of the dissolved components on the feed side increases, causing a faster transfer of material through the reverse osmosis membrane.
- ✓ On the feed side, the previously dissolved ions precipitate as crystals and create a layer on the membrane. This not only reduces the flow of the membrane dramatically, but the concentration of salts directly can theoretically increase infinitely, allowing a lot of dissolved substances to pass through.
- ✓ The water on the permeate side of the reverse osmosis now has a lower pH and stays in this state at room temperature in the pipes and reservoirs of the home's water system until it is consumed.

**POWER WIN**

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## Brief Technical specifications

POWERWIN-SECCUA – SPECIFICATIONS AT A GLANCE						
Sr.No.	Model	Article No.	CAPACITY IN LPH	CAPACITY IN LPD	SIZE (Without Outer Cabinet) in Inches (HxDxW)	Weight (Without outer cabinet) in Kgs
<b>RESIDENTIAL UNITS</b>						
1	Rayn Filter (Min. 10 units)	11768	100	1,200	6.1*1.5*3.1	2.5
2	UrSpring Basic		100	2,400	5.9*6.4*50	12
3	UrSpring Home	11413	200	4,800	49.9*5.9*6.4	12
4	UrSpring Well	11414	200	4,800	49.9*5.9*6.4	12
5	UrSpring Hotwater	10975	350	8,400	49.9*5.9*6.4	12
<b>PUBLIC &amp; INDUSTRIAL UNITS</b>						
6	Virex Pro	10776	2500	60,000	54*14*10.5	50
7	Virex Pro Connect	10973	2500	60,000	54*14*10.5	50
8	2-Virex Pro Connect		4500	1,08,000	105*28*21	100
9	Phoenix 4	10800	9000	2,16,000	51*24*75	136
10	Phoenix 7	10801	18000	4,32,000	71*24*75	362
11	Phoenix 10	10802	36000	8,64,000	110*24*75	498
12	Phoenix 20	10916	75000	18,00,000	143*24*75	635

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