

The most important consideration when choosing a swimming pond or bio-pool is the ability to swim in water free of chlorine and/or other chemicals. With our swimming pond and bio-pool systems, we offer the right solutions for this! When selecting the right system, the following question is essential:

100% chlorine-free or low-chlorine swimming?
The decision to go 100% chlorine-free (Types 1 through 4) is often a matter of principle—to swim in chemical-free water in order to protect the environment and the skin. With Types 1 through 3, biofilm is always present (slippery walls and floor), and there is a high likelihood that algae will grow on the walls and floor. The water in a Type 4 (100% chlorine-free) system is always crystal clear; the walls and floor



How does a swimming pond/biopool system work?

What do you need to create an optimal swimming pond or natural pool system? Below, we explain all the essential components we use. For each item, we indicate the type of system in which it is used.

Beadfilter Type 5 Type 4 Type 3

Bead filters are biomechanical filters:
The heart of our system is the bead filter. From the outside, a bead filter looks the same as a sand filter, but inside it's completely different. Instead of sand or glass, it uses small plastic beads on which billions of beneficial bacteria grow. These beneficial bacteria do the real work; they remove nitrogen (ammonia, nitrite, nitrate) and phosphate from the water—the main nutrients for algae! These beneficial bacteria multiply faster than harmful (disease-causing) bacteria, making the living conditions unfavorable for the harmful bacteria. Sweat (ammonia) and any “accidents” are therefore no problem!

Fine Mechanical Filtration
In addition to their excellent biological filtration, bead filters can make the water crystal clear because they can remove particles as small as 5 microns!

- Bead filters can replace plants (but they don't have to!)
- Bead filters have extremely low pressure loss (and therefore lower power consumption!)
- Bead filters experience less water loss during backwashing (thanks to the blower)
- The backwash water is 100% re-usable in the garden
- Bead filters have been used successfully in koi and swimming ponds for over 25 years
- *The filter material never needs to be replaced!*

are free of algae but can become slippery due to biofilm buildup. This can be addressed with a high-quality bio-robot equipped with special brushes. A Type 5 (low-chlorine) system uses all the components of a chlorine-free system but adds a low-salt hydrolysis system, resulting in a very low amount of chlorine in the water. We therefore no longer refer to such a swimming pond as a pond but as a “hybrid swimming pond” or biopool. Because the “Type 4 chlorine-free system” already makes the water crystal clear, the small amount of chlorine is sufficient to keep the walls and bottom free of biofilm. This is often the main reason for choosing a low-chlorine system. The amount of chlorine can be easily determined using the low-salt hydrolysis system and can be increased slightly during hot periods if necessary.



UV-C filter Type 5 Type 4 Type 3 Type 2

If there are still harmful bacteria in the water after it passes through the bead filter, they are effectively neutralized by UV-C radiation. UV-C radiation also kills algae, fungi, and viruses. The UV-C lamp is our most important disinfection method that doesn't require adding anything to the water.

Phosphate Removal Type 5 Type 4

Excess phosphate is completely absorbed by the Phospat cartridge filter. Algae cannot grow without phosphate.

In our Type 4 system, we use the Phospat cartridge filter and liquid Phosfree. Using Phosfree extends the lifespan of the (expensive) Phospat cartridge!

In our Type 5 system, we only use liquid Phosfree.

Microbe-Lift Clean & Clear Type 4 Type 3 Type 2 Type 1

A powerful formula of living bacteria that can break down (sunscreen) oils, fats, proteins, and other organic waste (such as sweat and urine). These bacteria are 100% safe for humans and animals. The bacteria are also automatically added by the second Dosatech dosing pump.

These bacteria are not used in a Type 5 system.

Low-salt hydrolysis Type 5

Low-salt electrolysis/hydrolysis has become a very popular disinfection method in recent years for both swimming pools and swimming ponds/biopools. The major advantage is that hydrolysis produces powerful disinfectants from water by splitting it into O and H atoms. These O and H atoms can then form the following oxidizing agents:

O₁ (atomic oxygen), O₂ (oxygen), O₃ (ozone), H₂O₂ (hydrogen peroxide), and •OH (hydroxide radical). These oxidizing agents are just as powerful (or even more powerful!) as chlorine, but do not produce harmful byproducts (such as chloramines).

After reacting with an organic substance, they revert to water. The salt content can range from 1 to 2 g/l, with 1 g/l still considered fresh water! A very small amount of free chlorine is also produced, which provides a residual effect (this prevents the formation of biofilm). Furthermore, the redox value determines how much is produced. The lower this value, the less chlorine is produced.

Low-salt electrolysis is increasingly being used to solve the biofilm problem in (existing) swimming ponds. For swimming ponds lined with EPDM membrane, a maximum salt content of 1 g/l is recommended, along with a redox value below 400 mV when chlorine is not desired.

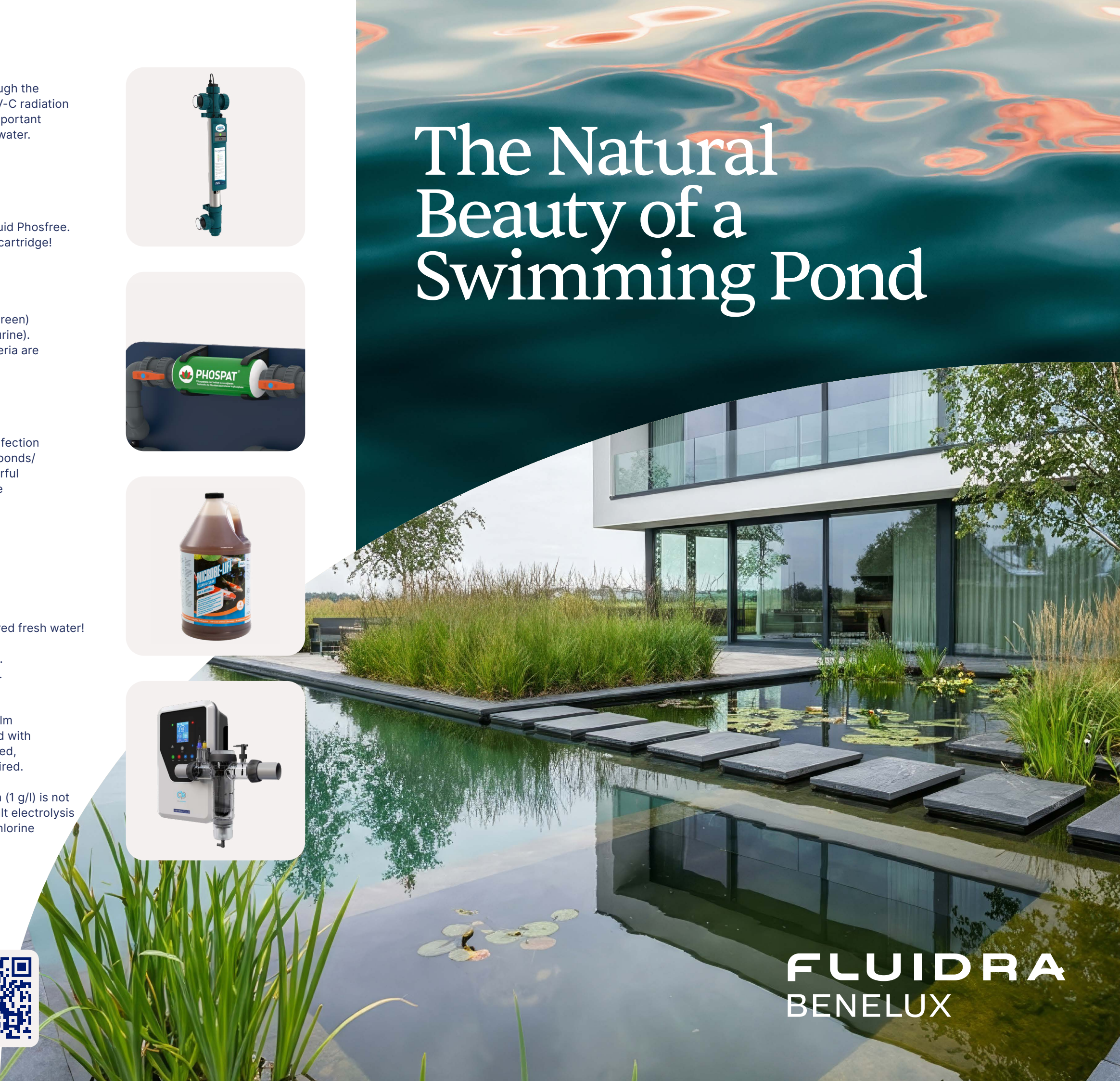
Plants can still be used, however, because the salt concentration (1 g/l) is not harmful and the chlorine concentration is also very low. A low-salt electrolysis system is not suitable for fish because even a small amount of chlorine is harmful.

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The Natural Beauty of a Swimming Pond

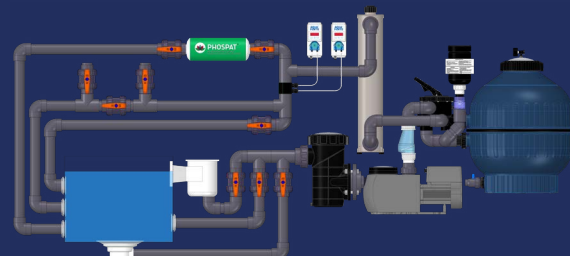


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TYPE IV

Crystal Clear

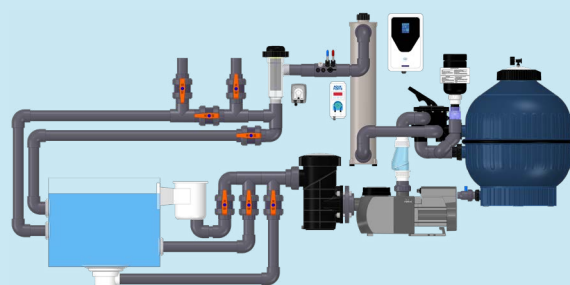
A Type 4 system is identical to a Type 3 system but includes an additional filter that removes phosphate. Without phosphate, algae do not grow on the bottom or walls, which is still the case with a Type 3 system. Plants are also used for decoration in this system. Swimming ponds ranging from Type 1 through Type 4 are 100% chlorine-free!



TYPE V

Biopool

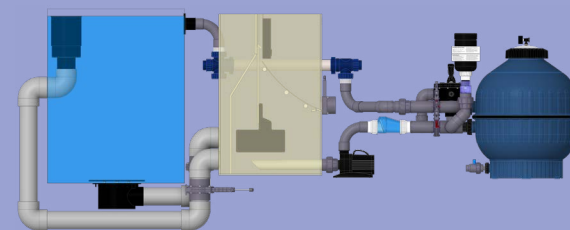
A Type 5 system looks like a swimming pool but is in fact biologically treated using a bead filter. Plants are not typically used in a biopool. The system is identical to the Type 4 system, but it has been expanded to include a low-salt hydrolysis system, which is why we refer to it as a low-chlorine system.



TYPE III

Clear

In a Type 3 swimming pond, we use a pre-filter, a pump, a UV-C lamp, and a bead filter. The bead filter acts as a fine mechanical filter, ensuring crystal-clear water, and also serves as a biological filter. Plant and substrate filters are no longer necessary but are often used for decorative purposes.



TYPE I

Pure Nature

This swimming pond offers a rich natural experience, with a diverse array of flora and fauna. This type of pond does not use any filtration technology. It is therefore normal for the water to be cloudy at times, just as it is in nature.



TYPE II

Natural

This type of swimming pond uses some basic equipment, such as a pre-filter, pump, and UV-C lamp, to ensure the water remains reasonably clear. However, an additional filter is still needed for biological and fine mechanical filtration. This can be a plant/substrate/gravel/lava filter.

