

# Clever belt filter feed for healthy fish

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**Koi aficionados are willing to pay thousands of Swiss francs for these magnificent fish. Their size and coloring are greatly influenced by the purity of the water they live in. Filtration is therefore a subject of paramount importance for keeping koi. A belt filtration system for continuous water filtering developed by AquaFil contributes crucially to the precious fishes' wellbeing. Using a DC motor from Angst+Pfister, a technically and economically optimal solution was devised for automatically feeding the filter belt.**

Urs Imhof, AquaFil's general manager, had always had a great interest for everything related to ponds and fish. Having been a koi pond owner himself for years, he is familiar with all aspects of koi keeping and pond filtering. Originally coming from the field of technology and industry, the innovative developer soon started to put his ideas for effective koi pond filtration into practice. An extended development and trial period resulted in an ingenious belt filtering system that today is offered in three sizes with filtering throughputs ranging from 16 to 50 m<sup>3</sup>/h.

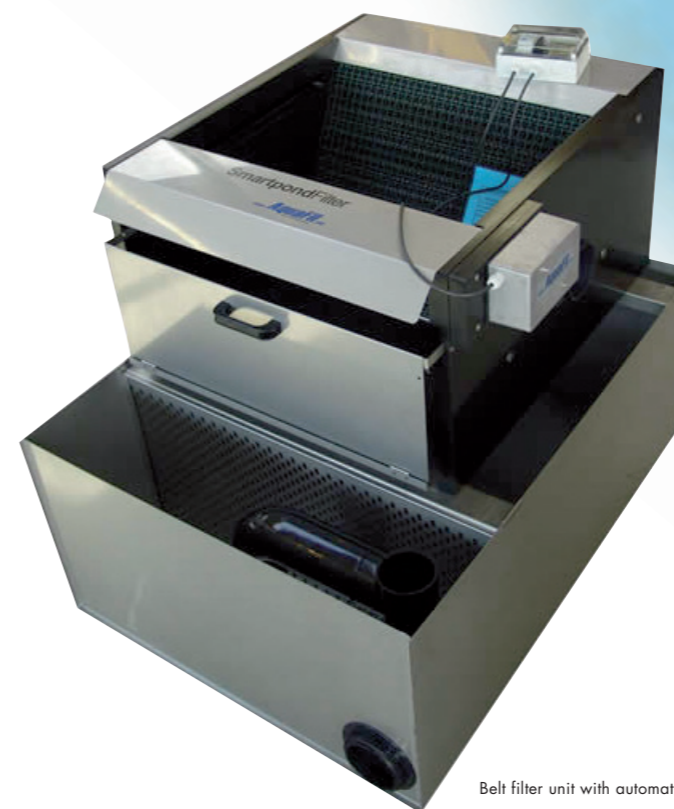
## Automatic filter belt feed

Depending on the belt filter unit version, the pond water is pumped onto the non-woven fleece fabric that acts as a filter, or it flows there by force of gravity. As it trickles through the fleece, the pond water is filtered. The fleece is wound off from a roll, and as soon as the permeability of the used area drops below a certain limit, a new piece of fleece is automatically pulled from the roll. Feeding is performed with the help of a

transport belt that carries the fleece and is driven by a DC motor. This procedure is controlled by the water level in the filter, which is measured using two electrodes and can be adjusted as desired. This way, the fleece is replaced automatically only when it is really necessary, which considerably lengthens the filter material's service life.

## In harmony with biology

After filtering, the water trickles into a bio chamber, where it is enriched with oxygen. This is vital for certain kinds of bacteria that provide for a healthy water quality. Additional aerating is thus unnecessary. The filtered and biologically purified water can be routed back into the pond. A 30-degree inclination of the transport belt guarantees that the dirt stays on the fleece and is not swirled back up by the water. This system eliminates having to drain off sludge in any fashion. This uncompromising method of dirt removal greatly reduces nitrate content and thus greatly inhibits algae growth.



Belt filter unit with automatic filter feed



## Successful drive solution

In its search for a drive solution for feeding the fleece, AquaFil contacted the drive experts at Angst+Pfister. The outcome of the resulting collaboration was a technically and economically optimal solution using a 63-mm-sized DC worm gear motor with a forceful starting torque of 35 Nm. With a power input rating of only 24 V, the selected motor is suited to operate in wet surroundings without extensive safety precautions. Its design is especially compact owing to the worm gear with a drive shaft offset from the main axis by 90 degrees. A threaded three-hole flange fastening enables the drive to be safely and firmly mounted inside the belt filter housing.

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ing torque to the motors with a small motor volume. The motors' low power consumption contributes to their longevity. Thanks to their robust design, they operate extremely reliably throughout their long service life. Their simple design makes application-specific modifications easy.

Ask for our documentation on our drive technology product range. Our drive experts will also be happy to help you on site in word and deed.



DC motor from Angst+Pfister

## DC motors perfected to the core

The DC worm gear motors from Angst+Pfister's drive technology program were originally developed for the automotive industry, where they prove their worth in enormous unit volumes. Bulk series production ensures an advantageous price-performance relation and continuous high quality. High-grade permanent magnets impart a high start-