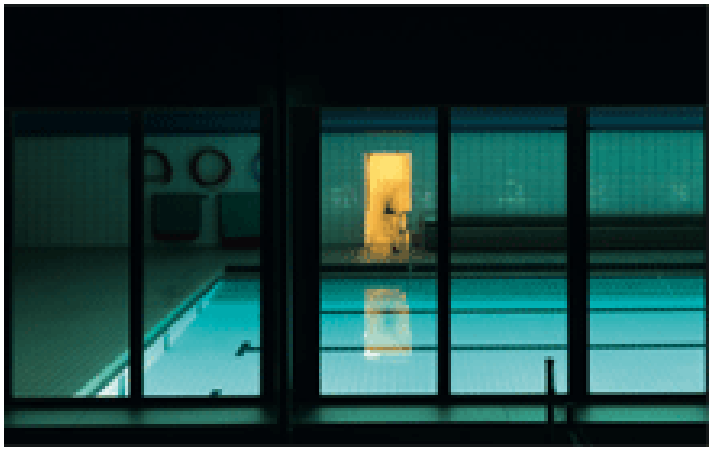
Case Study: Hallenbad Breitenbach, Switzerland



Project description:

Client	Breitenbach Community Council
Address:	Switzerland, Breitenbach SO
Year:	2018
Description:	Conversion to DAISY + in a school indoor pool (180 m³)
Objective:	Savings in operating costs and improvement of water quality

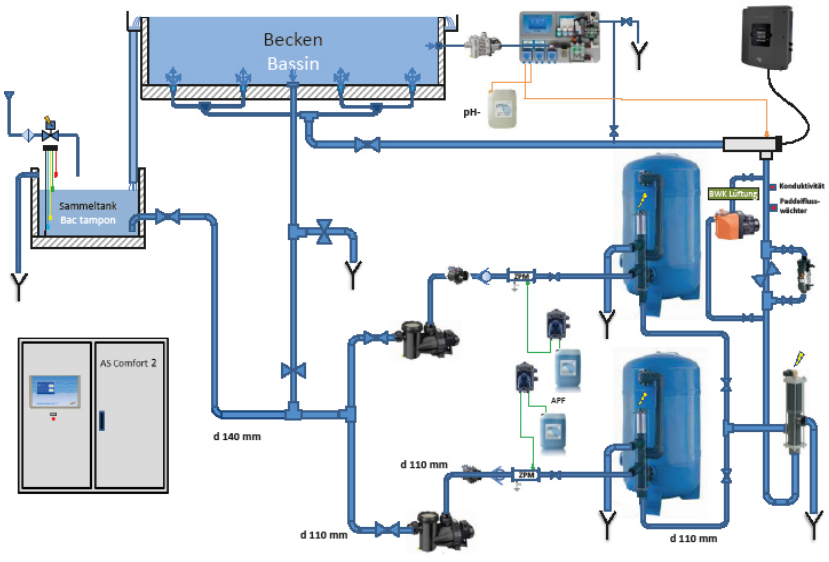
Project:

The indoor pool in the Breitenbach school is used by around 500 school children every week. The existing water treatment plant had to be replaced due to age. It consisted of two sand filters and a hydrochloric acid electrolysis plant. In cooperation with the company Aqua Solar AG, a complete DAISY⁺ ® system from Dryden Aqua was installed in 2018.

The two steel filters were replaced by two high-quality glass fibre reinforced polyester filters from Calplas and filled with the bio-resistant filter material AFM®. To reduce the combined chlorine, 10 cm of coconut shell activated carbon was used on top of the AFM filter bed.

The filtration pumps are controlled by a frequency converter to ensure the optimum filter speed at all times (50% flow reduction in night mode) and to minimise power consumption.

Disinfection is carried out by Dryden Aqua's innovative DA-GEN® hydrolysis system. Thanks to the low salt content used, the risk of corrosion is minimal and at the same time the water is disinfected by free radicals without harmful side reaction products. A small free chlorine residual is produced as a by-product, that ensures residual disinfection in the pool.



DRYDEN AQUA SUSTAINABLE WATER QUALITY

Results:

- 70% reduction in electricity consumption (filter pumps, ventilation and heating energy)
- 68% reduction in water consumption (reduction in backwash velocity and turnover)
- Reduction in acid consumption for pH control approx. 50%
- Reduced THM levels and extremely low chlorate values -> safe water for children
- Flawless water quality values and crystal clear water (turbidity <0.1 NTU)

Energy consumption per week

	Before	After
Filtration pumps (kWh)	1008	390
Backwash blower (kWh)	1.4	not needed
Room ventilation (kWh)	168	not needed
Water consumption (m^3)	50	16
Per bather (l)	100	32
Backwash water heating energy (kWh)	814	261
Energy saving (kWh)		**1'376**

Water parameter

	Before	After	Limits
pH	7,1	7,3	6,8 - 7,6
Free Chlorine (ppm)	0,3	0,4	0,2 - 0,8
Redox	730	750	
Combined Chlorine (ppm)	0,25	0,15	0,2
THMs		0.015	0.02
Chlorate		0,34	10
Turbidity (NTU)		< 0,1	0,2
Aerobic germs		0	1000

Estimated savings:

- **Annual electricity savings:** **71'500 kWh** **CHF 14'000** **(0,20/kWh)**
- **Annual water savings:** **1'770 m^3** **CHF 7'000** **(CHF 4.-/m^3)**
- **Unterhaltskosten:**

CHF 21'000.-

- **Investment Cost CHF 90'000**

Pay-back in less than 4 Years!

DRYDEN AQUA SUSTAINABLE WATER QUALITY