Case Study – Swiss Commercial Pool - Scale, Bio and Filtration

Water World Wallisellen Lättich Baar Indoor Pool with HydroFlow

Customer: Water World - Wallisellen Sports Complex, Zurich, Switzerland

Problem Description

Maintenance costs were high at the Water World facility due to poor water clarity and frequent filtration cycles. The goal of installing AquaKLEAR (HydroFlow brand in Europe) was to reduce chlorine and acid costs, and improve filtration efficiencies. Each goal was achieved within 30 days.

Results

The tank volume is 2000m3 and the circulation 400m3/h. The spa water is filtered through an area of 104m2. The fresh water supply is designed for the number of Spa guests and amounted to 100 liter/ guest before using the AquaKLEAR. Thanks to the AquaKLEAR device the fresh water consumption per guest could be reduced to 60 liters – a reduction of forty percent, while confirming that the operating parameters were maintained. In 2003, the average number of guests per day was approximately 600. The AquaKLEAR was installed April 16, 2003 and the cost savings were approximately 42,000 Swiss Francs (~$42,000 US Dollars).

Costs (Converted to $USD - Approx 1:1 Swiss Francs)	**Without AquaKLEAR**	**With AquaKLEAR**
Cost for Fresh and Waste Water @ $4.85/m3	$101,850	$61,110
Water Volume Saved (8,400 m3)	(21,000 m3)	(12,600 m3)
Cost of heating fresh water (4°C loss of heat recovery)	$3,907	$2,345
Electricity Consumption Reduction (39,080 kWh)	(97,700 kWh)	(58,620 kWh)
Total	$105,757	$63,455
Savings		**$42,302**

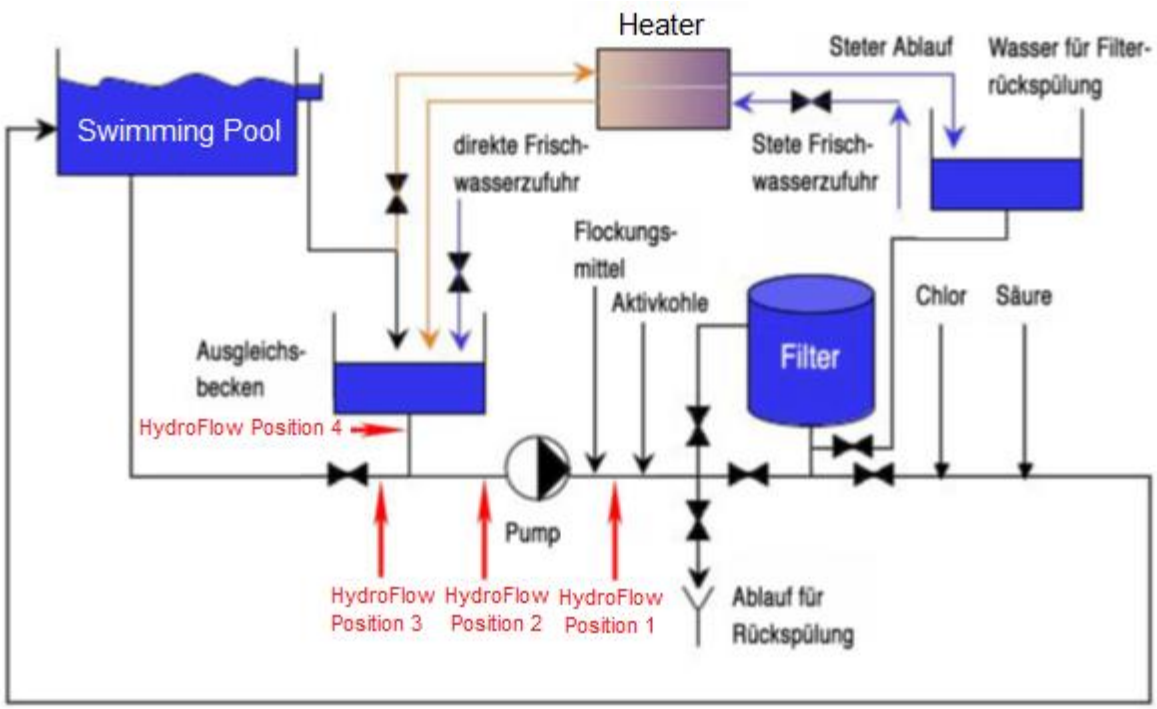
HYDROFLOW U.S.A. 1-425-497-3900 sales@hydroflow-usa.com www.hydroflow-usa.com

Product evaluation goals:

- Reduce maintenance costs.
- Reduce scale buildup inside heat exchangers and on pool surface areas
- Soften existing scale to allow easier cleaning.
- Reduce water consumption by reducing backwash frequency and duration.
- Improve water clarity in pool and spa by enhancing filtration efficiency.
- Decrease the “chlorine smell” by reducing chloramines.
- Maintain or improve biological eradication while decreasing chemicals.
- Reduce energy costs.

The No. 5 system consists of a water cycle after the pump, with activated carbon and flocculants added. The water is then passed through a quartz sand filter and finally the pH is adjusted with acid and the water is chlorinated (see diagram). The pool volume is 860 m^3, circulation 200 m^3/ hour. The filter has a diameter of 3 m and an area of 7.06 m^2. AquaKLEAR devices have been installed in positions 3 and 4. The trial lasted from November 22, 2002 until December 2003.

Pool System Diagram



By using the AquaKLEAR device, flocculent dose could be reduced to one-tenth and take the active carbon filter out of order. This extended the backwash interval of the sand filter from daily to every 3 days. The need for fresh water could be halved around so that the daily demand 3/day is now approximately 21 meters.

It was observed that less chlorine was used. Unable to determine the exact savings since multiple pool at same chlorine gas production plant. Other benefits include: the maintenance of active carbon filter was obsolete and had the floor cleaning to be done only once every 6-7 weeks, rather than every 4-5 weeks.

Installed HydroFlow (AquaKLEAR)

Positions 2 and 3

Additive	Volume	Costs
Flocculant	1,350 liters	$5,400
Active Carbon	850 liters	$2,500
Feshwater and Waste water	6,900 m3	$18,630
Total Cost Savings During 12 Months		**$26,530**

(Converted to $USD - Approx 1:1 Swiss Francs)