Swiss Aqua Technologies AG
R&D department

eMail: info@swatec.ch

IPS KalyxX BlueLine and RedLine and its effectiveness depending on changes in key parameters and properties of water

● IPS KalyxX RedLine ... long-term contact with drinking water / reduction of scale formation up to 76%

● IPS KalyxX Blue Line ... long-term contact with drinking water / reduction of scale formation up to 76% / antibacterial effect

The data presented below are based on a lot of our laboratory measurement and experiences which we recorded over the last ten years. The charts represent average data recorded during the testing and measurement results of every single test oscillates about the shown curve because results depending on several factors such as chemical composition of water or a surrounding environment. Presented data can be applied only by standard conditions of IPS installation described in user manual (max. pressure: 10Bars, Flowrate (depending on model), temperature: 10 - 65°C (recommended) other range after consultation). When IPS is installed in non-standard condition, we cannot guarantee given efficiency. The efficiency of IPS in standard conditions is proven by IAPMO laboratory and thousands of successful installations over the world.

OPTIMAL PARAMETRES TO MAINTAIN MAXIMUM EFFICIENCY

- PH	6,5-8,5
- Iron	< 0,5 mg/l
- Hardness	< **25** ◦**dH** (450 ppm)
- EC	< 150 ms/m
- TDS	< **950 ppm**
- Salinity	< 2000 mg/l
- Temperature	4 – 65 ◦C

EFFICIENCY

- **As it is measured and assessed?**

Efficiency is achieved by physical treatment of water. There is no change in the chemical nature and composition of minerals in the water. This remains identical to the parameters from the water distributor. However, during the process, minerals recrystallize, which remain chemically unchanged, but are physically deformed so that they cannot form hard deposits, i.e. limescale, on surfaces where they come into contact with water.

It would be incorrect to measure the change of hardness the water before and after using IPS. The mineral content remains unchanged, and therefore the water hardness is the same.
It is necessary to empirically measure the amount of scale on the surfaces, assuming the use of IPS and without it in two completely identical cases of equipment, operating parameters and water parameters.

Test procedure:
Preparation - test tanks with a capacity of 50 liters; in the test process filled with water always up to a volume of 45 liters; the filling of the first tank takes place directly from the source, the filling of the second tank from the source by flow through the IPS; identical heating spirals (copper (or stainless steel)) are located in the tanks.
Timing - total test duration 11 days; 4 times a day at exact times (ex. 8 am, 11 am, 1 pm and 4 pm); 30 liters of water are discharged from the tanks and new water is filled at the same time; only in the middle of the process is the "weekend mode" set and for two days the exchange takes place only 3 times a day (ex. 8 am, 12 pm, and 4 pm). The water in the tanks is heated by heating spirals.
Operating parameters

- average filling water temperature 17.2 ° C (min. 16.9 ° C / max. 17.7 ° C);
- average heated water temperature 65.2 ° C (min. 65.0 ° C / max. 65.5 ° C);
  - ► measuring the temperature of the filled water always at filling and the water in the tank always at the top heat time
- average water hardness 17.9 ° dH (min. 17.51 ° dH / max. 18.06 ° dH)
  - ► check the hardness of the filled water once a day

Evaluation - after the end of the 11-day test emptying water from the tanks and after drying the heating coils, their removal; limescale formed on heating coils is mechanically removed and weighed on laboratory balances; the percentage weight loss of scale on the spiral when using IPS compared to the weight without using it means the percentage effectiveness of the reduction in scale formation.
Results – in SAT and other independent laboratories was confirmed, that the IPS KalyxX reduce 75,3% limescale deposit on stainless steel heating element and 76,3% limescale deposit on copper heating element.

Note:

- The above test procedure is analogous to the tests performed for this purpose in DVGW Germany or IAPMO USA.
- Visual inspection of the effectiveness of the IPS can be performed by recording:
  - reduced or zero scale formation on surfaces in contact with water compared to with the previous period,
  - significantly easier by removing traces of water drying on these surfaces without the use of force or chemistry.