

Protection of irrigation systems against limescale

New step in physical water treatment



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limescale

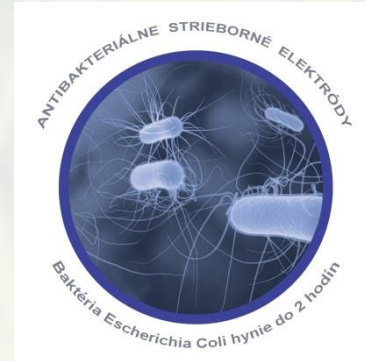
New step in physical water treatment

Ion Polarization System (IPS) Kalyxx

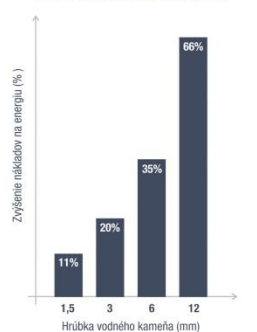


Portfolio IPS

- IPS GreenLine – For irrigation systems
- IPS BlueLine – Antibacterial – for drinking water
- IPS RedLine – for boilers and water heat exchangers



Koľko peňazí vám ušetríme?
(návrtnosť investície cca 9 mesiacov)



How Does it work?

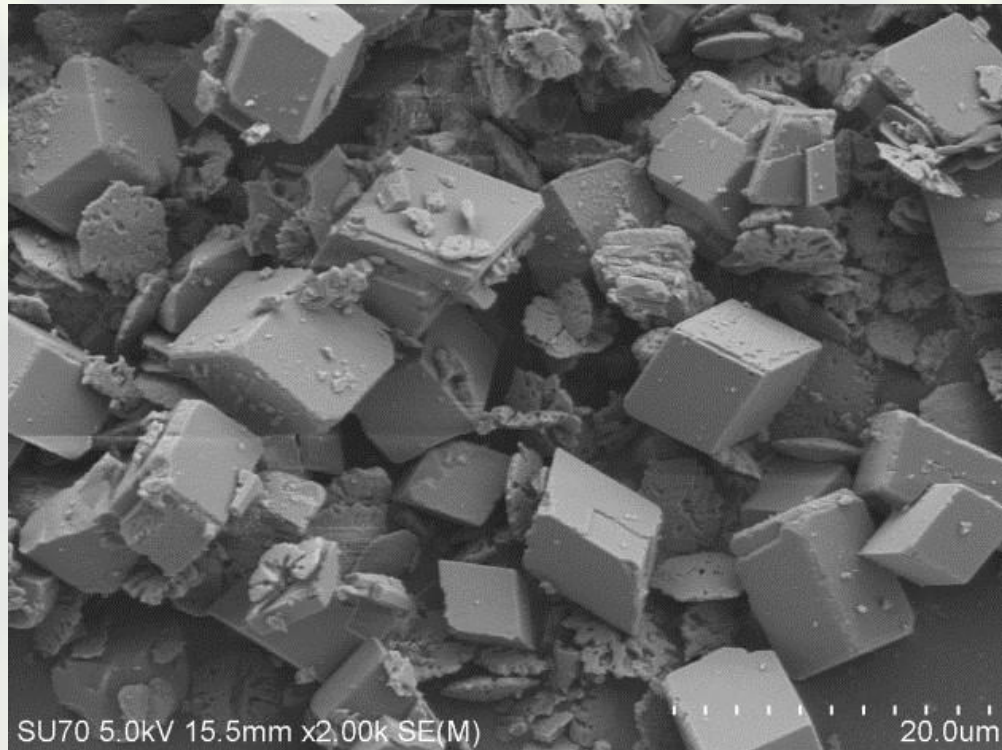
- In a galvanic treatment – a combination two different metals – forms a water-based galvanic wet cell where the standard voltage is 0,6 – 0,8 V
- Because of this current, there is a change in the structure of minerals in the water (calcite is transformed into Aragonite) the creation of limescale is eliminated.
- The water flowing thorough the IPS Kalyxx is exposed to two phenomena:
 - galvanic interaction with electrodes
 - rotation/turbulence – Turbulent Galvanic Polarisation (TGP)
- With this phenomenon, it acquires a higher kinetic energy and generates a voltage of 4,2-6V. The above-described process proceeds more intensely and efficiently.



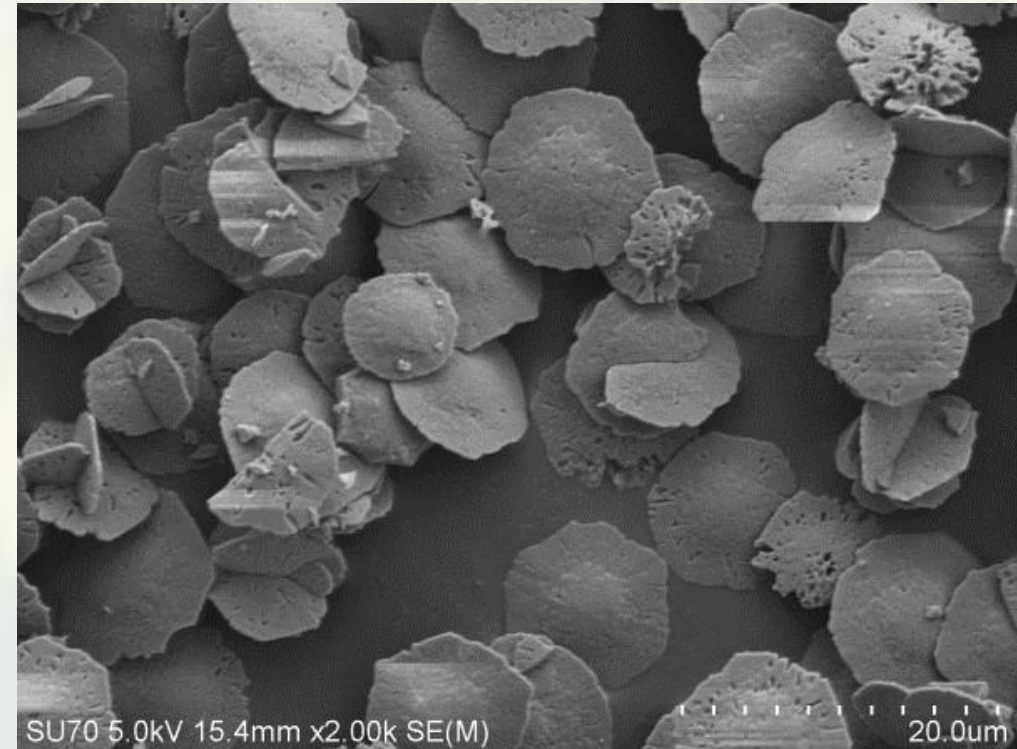
We do not take anything, we do not add anything...

Changing the structure of CaCO_3 (calcium carbonate)

In water, Calcite (Untreated water – hard inlays, limescale)



Aragonite (soft structure – powder)



Green to Green...

Advantages of IPS devices compared to other water treatments:


- Without external power source
- Without maintenance cost
- Without chemical use
- Minimal life span of 10 years
- Environmentally friendly product (Eko-friendly)

International certificate of effectiveness

International certificate

Confirming the effectiveness

Of the limescale reduction.

**TEST REPORT**
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<http://www.iapmorl.org>

Report Number: 2475-17001
Report Issued: September 29, 2017
Project No.: 28587
Client: Swiss Aqua Technologies SK s.r.o.,
Obereggerstrasse 50,
Berneck, Switzerland, CH-9442
Contact: František Pancurák

- Line 1) Stainless steel heating element, without water softener (untreated)
- Line 2) Stainless steel heating element, with IPS Kalyxx device.
- Line 3) Copper heating element, without water softener (untreated).
- Line 4) Copper heating element, with IPS Kalyxx device.

Note: Lines 2 & 4 were connected to the same IPS Kalyxx device (by a Tee).

During a period of 11 days, 4 times per day (at 8 AM, 11 AM, 1 PM and 4 PM), a 30 liters of water each time was drained and refilled simultaneously. Except the 2 weekend days, only 3 water exchanges were done (at 8AM, 12PM and 4PM).


Before each water draw, the hot water temperature was measured and registered, average of 65.2°C (min: 65.0°C / max: 65.5°C). During each water refill, the cold water temperature was measured and registered, average of 17.2°C (min: 16.9°C / max: 17.7°C). On daily basis, the water hardness was verified and registered, average of 17.9° dH (min: 17.51° dH / max: 18.06° dH).


At the end of the 11-day test, the heating elements were left drying and then taken out from the tanks. The lime scale, which was attached to the heating elements, were mechanically scraped off and weighed.

Finding:

Line number	1	2	3	4
Weight of deposited limescale (g)	0.7133	<u>0.1759</u>	4.7843	<u>1.1336</u>

From these results, it's concluded that the IPS Kalyxx reduced 75.3% limescale deposit on stainless steel heating element, and 76.3% limescale deposit on copper heating element.


Tested by,

Robert Schut, Project Specialist

Reviewed by,

Sean Vu, P.E., Manager, Specialty Projects



Patented design solution

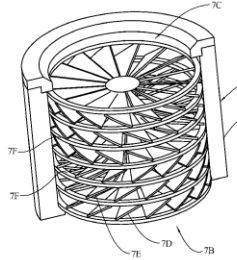
Granting a patent
For Kalyxx - vialturbine

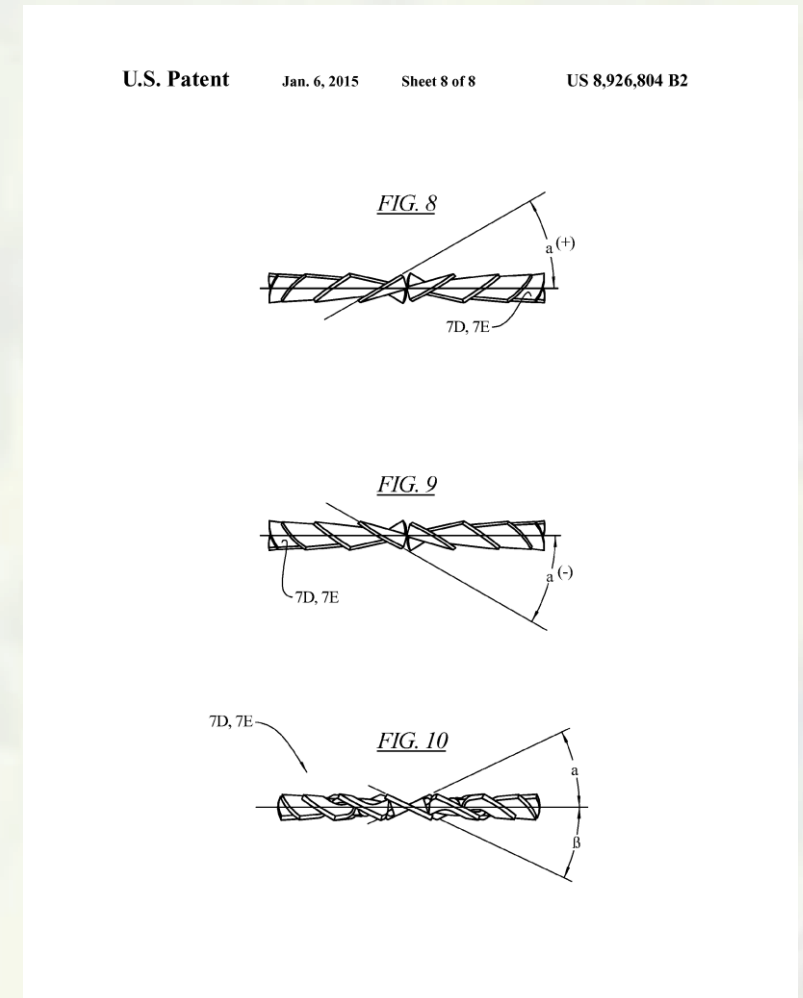


US008926804B2

<p>(12) United States Patent Pancurák et al.</p>		<p>(10) Patent No.: US 8,926,804 B2 (45) Date of Patent: Jan. 6, 2015</p>
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<p>(54) CONTAINER FOR ACTIVATION OF DRINKABLE LIQUIDS</p> <p>(76) Inventors: František Pancurák, Prešov (SK); Ladislav Jurec, Prešov (SK)</p> <p>(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 140 days.</p> <p>(21) Appl. No.: 13/207,601</p> <p>(22) Filed: Aug. 11, 2011</p> <p>(65) Prior Publication Data US 2013/0026031 A1 Jan. 31, 2013</p> <p>(30) Foreign Application Priority Data Aug. 11, 2010 (SK) 86-2010</p> <p>(51) Int. Cl. C02F 1/46 (2006.01) C02F 1/461 (2006.01) C02F 1/00 (2006.01)</p> <p>(52) U.S. Cl. CPC C02F 1/46176 (2013.01); C02F 2301/024 (2013.01); C02F 1/46109 (2013.01); C02F 2001/46123 (2013.01); C02F 1/005 (2013.01) USPC 204/248; 204/271; 205/745</p> <p>(58) Field of Classification Search CPC C02F 1/4618; C02F 1/46176; C02F 1/46104; C02F 1/46109; C02F 2001/46123; C02F 2001/46152; C25B 11/02; C25B 9/125 USPC 204/271, 212, 248, 289, 669; 205/745, 205/758 See application file for complete search history.</p>	<p>(56) References Cited U.S. PATENT DOCUMENTS</p> <table border="0"> <tr> <td>540,608 A</td> <td>6/1895</td> <td>Collier et al.</td> </tr> <tr> <td>547,710 A</td> <td>10/1805</td> <td>Cassard</td> </tr> <tr> <td>866,618 A</td> <td>9/1907</td> <td>Itanason</td> </tr> <tr> <td>2,424,145 A</td> <td>7/1947</td> <td>Butler</td> </tr> <tr> <td>2,451,067 A</td> <td>10/1948</td> <td>Butler</td> </tr> <tr> <td>2,548,584 A</td> <td>4/1951</td> <td>Briggs</td> </tr> <tr> <td>2,670,327 A</td> <td>2/1954</td> <td>Rader</td> </tr> <tr> <td>2,754,260 A</td> <td>7/1956</td> <td>Butler</td> </tr> <tr> <td>2,930,568 A</td> <td>3/1960</td> <td>Rader</td> </tr> <tr> <td>2,974,747 A</td> <td>3/1961</td> <td>Coolidge, Jr. et al.</td> </tr> <tr> <td>3,026,259 A</td> <td>3/1962</td> <td>Phillips</td> </tr> <tr> <td>3,286,922 A</td> <td>11/1966</td> <td>Franz</td> </tr> <tr> <td>3,392,102 A</td> <td>7/1968</td> <td>Koch</td> </tr> <tr> <td>3,728,245 A</td> <td>4/1973</td> <td>Preis et al.</td> </tr> <tr> <td>3,974,071 A</td> <td>8/1976</td> <td>Dunn et al.</td> </tr> <tr> <td>4,126,544 A</td> <td>11/1978</td> <td>Baensch et al.</td> </tr> <tr> <td>4,749,457 A</td> <td>6/1988</td> <td>Yasuda et al.</td> </tr> <tr> <td>4,769,120 A *</td> <td>9/1988</td> <td>Chak</td> </tr> <tr> <td>4,886,593 A *</td> <td>12/1989</td> <td>Gibbs</td> </tr> </table> <p>(Continued)</p> <p>FOREIGN PATENT DOCUMENTS</p> <table border="0"> <tr> <td>UA</td> <td>61,317</td> <td>12/2002</td> <td></td> </tr> <tr> <td>WO</td> <td>WO 2010/023712 A1 *</td> <td>3/2010</td> <td>C02F 1/461</td> </tr> </table> <p>Primary Examiner — Harry D Wilkins, III Assistant Examiner — Ciel Thomas (74) Attorney, Agent, or Firm — Greer, Burns & Crain, Ltd.</p> <p>(57) ABSTRACT A fluid container with an output of drinkable activated and vitalized fluids, preferably activated and vitalized water, preferably for fluid intake, includes a hollow body with an opening for filling fitted with a connector connecting an openable cap. An outlet for the bottle is provided for dispensing the fluid. The outlet is fitted with a galvanic processing device for galvanic fluid treatment of the fluid and to produce a swirling motion of the fluid.</p> <p style="text-align: center;">20 Claims, 8 Drawing Sheets</p>	540,608 A	6/1895	Collier et al.	547,710 A	10/1805	Cassard	866,618 A	9/1907	Itanason	2,424,145 A	7/1947	Butler	2,451,067 A	10/1948	Butler	2,548,584 A	4/1951	Briggs	2,670,327 A	2/1954	Rader	2,754,260 A	7/1956	Butler	2,930,568 A	3/1960	Rader	2,974,747 A	3/1961	Coolidge, Jr. et al.	3,026,259 A	3/1962	Phillips	3,286,922 A	11/1966	Franz	3,392,102 A	7/1968	Koch	3,728,245 A	4/1973	Preis et al.	3,974,071 A	8/1976	Dunn et al.	4,126,544 A	11/1978	Baensch et al.	4,749,457 A	6/1988	Yasuda et al.	4,769,120 A *	9/1988	Chak	4,886,593 A *	12/1989	Gibbs	UA	61,317	12/2002		WO	WO 2010/023712 A1 *	3/2010	C02F 1/461
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IPS Kalyxx - GreenLine

Utilization:

Ornamental gardens, public park areas, football lawns, golf courses, hydroponics, fruit and vegetable growing, livestock production.

Benefits:

- Protection of irrigation systems from limescale
- Protection of distributions, nozzles and related components
- Confirmed effects of treated water on faster germination and growth support for plants
- Confirmed effects of treated water on cell metabolism and livestock farming

Pre-gardens and ornamental gardens



Parks and public greenery



Sportground (football, golf, tennis...)



Gardens, fields, orchards



The effects of ionized water

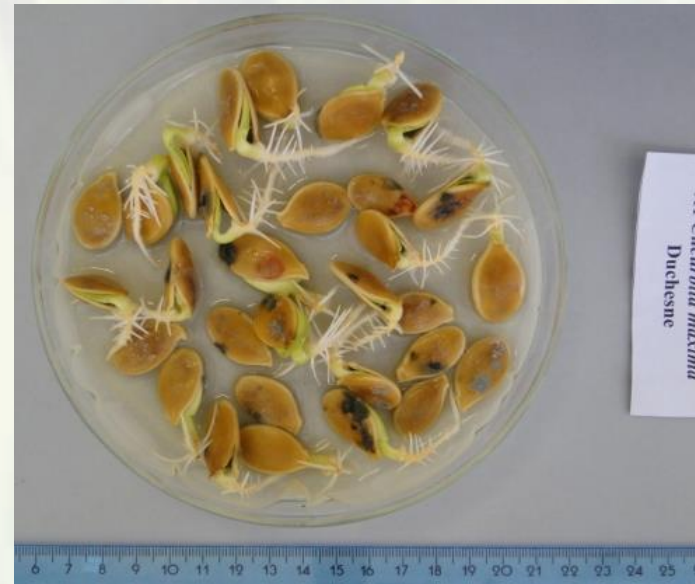
The effects of ionized water with a device Kalyxx for germination of oil pumpkin seed (Doc. Ján Brindza, Slovak University of Agriculture, 2013)

With the increased rotation in the galvanic environment, intermolecular water bonds are getting weaker, this has a high capillary tendency. It supports faster germination of plants and brings higher crop.

Untreated water



Treated water



The effects of ionized water

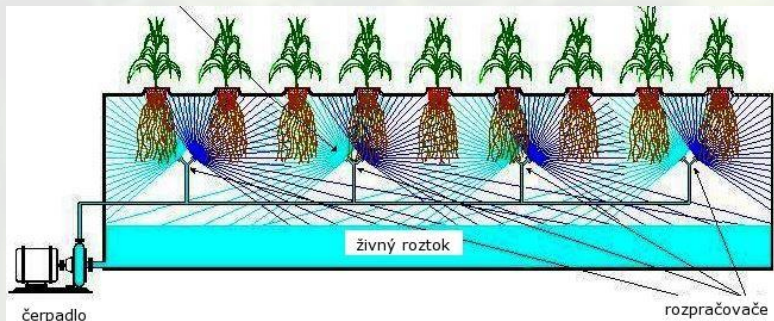
The effects of ionized water with a device Kalyxx the sprouting winter wheat (Doc. Jan Brindza, Slovak University of Agriculture 2013)



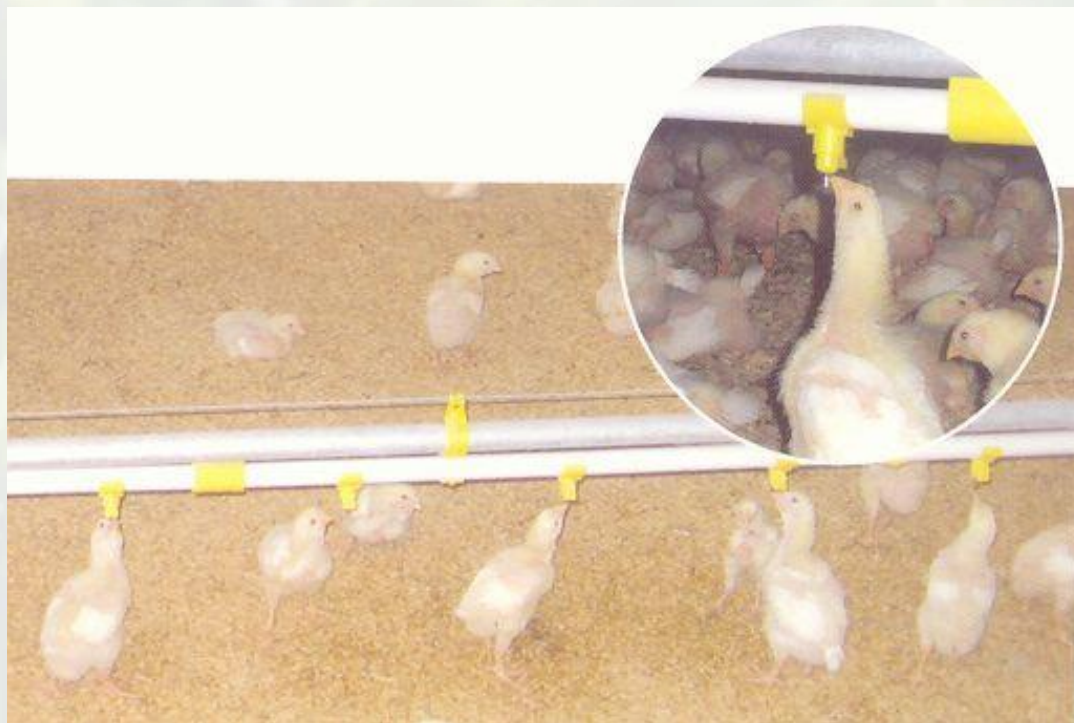
Greenhouse economy



Hydroponics (Growing in nutrient solution)



Animal production – animal husbandry



Animal production – animal husbandry

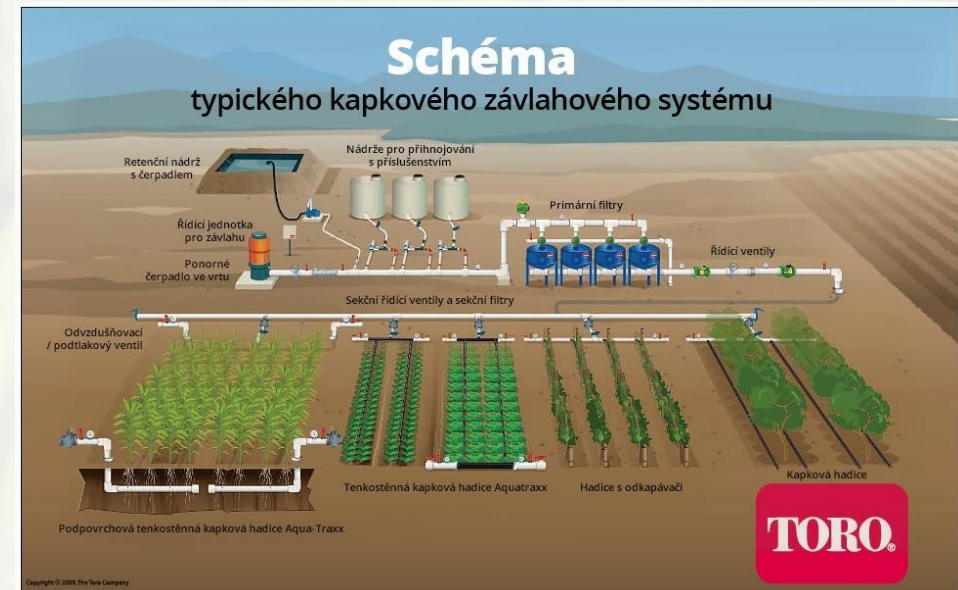
The effect of iPS Kalyxx (ionized water) was tested by the institute of Human Ecology in Kiev, led by Professor Michael Vasilyevitch Kurik. For 6 months on a sample of 300 cows. The structural properties of blood and saliva were compared in cows that drank ionized water and cows that drank untreated water.

The results showed:

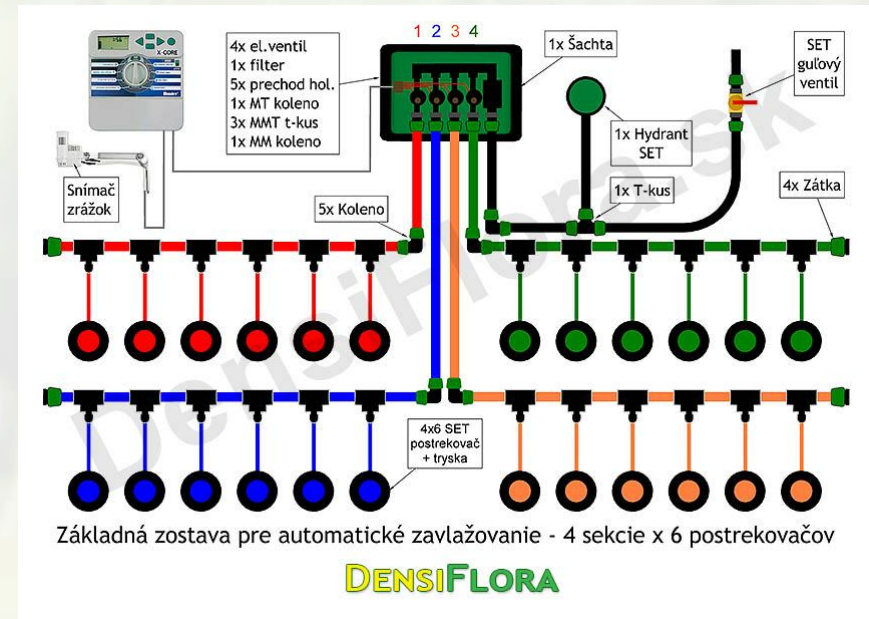
- Improves the structure and physiochemical properties of drinking water, and helps to maintain the health of the body of the tested cows.
- Ionized water quickly delivers nutrients and oxygen to the cells
- Ionized water normalizes the digestive tract of the animal
- It restores the functional activity of the digestive tract mucosa (in those cows that drank ionized water, the saliva structure was restored for 10 to 20 days)
- It has a positive effect on the structure of the red blood cells (erythrocytes), which accelerates the oxygenation of the organism

The results of the study confirmed the increase in pH, the improvement of the oxidative – reduction potential (ORP), the conductivity and the structure of the water and thus the positive effects on the organism. The Kalyxx devices were by the Scientific Council of the Institute of Human Ecology, recommended for both domestic and agricultural use.

Utilization of IPS Kalyxx GreenLine



Automatic irrigation system



Thank you for your attention

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