



**HATENBOERWATER**

*Fresh in water since 1906.*

## Copper/silver-ionization

### The ultimate disinfection for offshore drinking water

#### Hatenboer-Water copper/silver-ionization (CS-Ion)

It is known for centuries that copper and silver are strong disinfectants. Now it is possible to safely use these ions for disinfection in offshore applications. By means of ionization, the ions are released when the water flows through a flow cell containing copper and silver electrodes. The ions are carried along in the flow, penetrate the biofilm and work inside the entire piping system. This makes CS-Ion, extremely suitable for continuously combating Legionella in your offshore water supply systems where your existing water quality management measures are proving to be inadequate. All this without any danger to the health of your crew.

#### Use CS-Ion....

- ...when piping on board is heavily corroded and filled with biofilm.
- ...when large piping systems require high concentration of chlorine dosing.
- ...when problems with Legionella occur frequently.
- ...to prevent yearly shock treatment.
- ...to ensure safe water on board.

#### Application

In the last 20 years, more than 1200 CS-Ion systems have been installed in hospitals, hotels and industrial applications, worldwide. Now the technology finds its way to offshore applications, providing healthy water on board. Norwegian regulations (NiPH) will include the use of copper/silver ionization in the new edition of their guidelines.



*Prevent Legionella in corroded piping*



*CS-Ion comprises a control box and flowcell*



*CS-Ion is the solution for complex piping systems*

#### Features

The completely digital CS-Ion system distinguishes itself on a number of important points:

- The system is approved by the American EPA and Dutch Ctgb for use in drinking water.
- CS-Ion is compact, easy to install and capable to handle a large flow.
- CS-Ion is supplied with a spare flow cell to guarantee continuous disinfection, even during maintenance.
- The entire system is ETL and CSA tested and carries the CE-certification marking.



# Copper/silver-ionization

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CS-Ion system*	Water use per day [m <sup>3</sup> /day]	Dimensions control box [cm HxWxD]	Flow cell	Dimensions flow cell [cm LxD]
CS50-oa	2	38x32x16	CLTF42	30x7,6
CS100-oa	3-8	38x32x16	QF7	30x7,6
CS150-oa	9-15	38x32x16	QF7	30x7,6
CS300-oa	16-30	47x35x18.5	QF7	30x7,6
CS500-oa	31-50	47x35x18.5	QF14	18x7,6
CS750-oa	51-80	47x35x18.5	QF14	18x7,6
CS1000-oa	81-100	47x35x18.5	QF14	18x7,6

\*oa = Offshore Application

Above mentioned capacities are a guideline and based on a water conductivity of 300-500µS.

### Utilizing Hatenboer-Water CS-Ion

The CS-Ion system is comprised of a control unit and a flow cell. Each flow cell contains sacrificial copper/silver-electrodes. As water passes through the flow cell, a direct current is applied across the electrodes to stimulate the controlled release of ions. The rate at which the ions are released is automatically maintained by a solid-state, microprocessor-based control unit that is reliable and easy to operate.

The ion emissions of the CS-Ion ionization process are cationic, surface-active and a potent biocide. The disinfection action is attributable to the positively charged copper and silver ions which form electrostatic bonds with negatively charged sites on microorganism cell walls. These electrostatic bonds create stresses that lead to distorted cell wall permeability, reducing the normal intake of life sustaining nutrients. This action, coupled with protein denaturation, leads to cell lysis and death. The accurate dose-rate control system maintains precise ion levels, providing residual protection and prevention of recontamination. It is this residual protection that makes the CS-Ion system superior in the difficult offshore applications.



### Easy installation

The CS-Ion system is delivered together with an electromagnetic flow meter to be able to dose copper and silver ions flow proportionally. Hatenboer-Water provides you with detailed instructions how to install and connect the system including bypass and corresponding valves. To make installation even more easy, it is also possible for you to order a prefabricated wall panel with all piping, valves, flow meter and flow cell mounted on. This saves you installation time and ensures that the system is connected the proper way.

