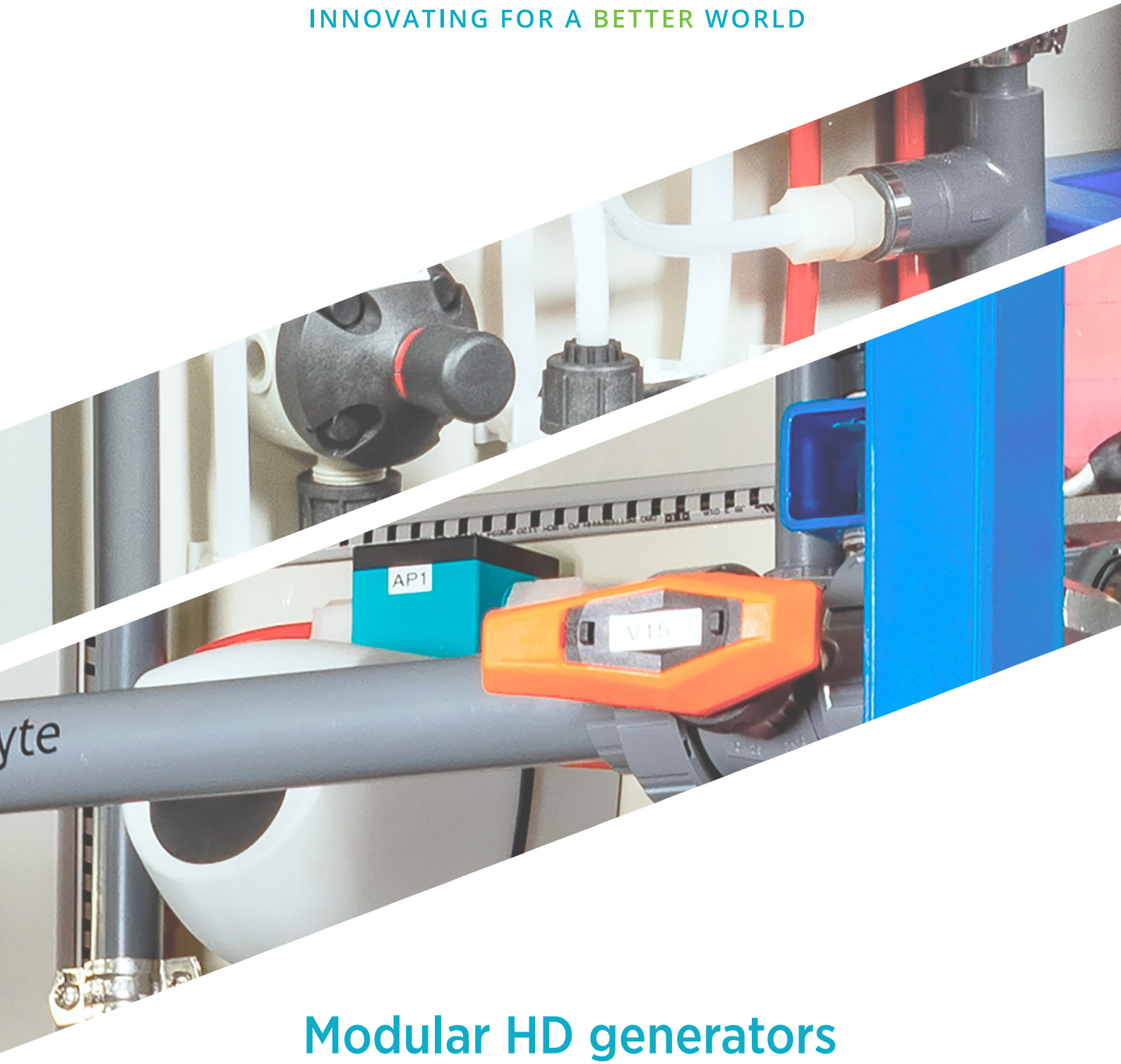
envirolyte®

INNOVATING FOR A BETTER WORLD



Modular HD generators of active chlorine (HClO)

On-site hypochlorous acid generator

Cleaning, sanitizing, and disinfecting products are used throughout the world on a daily basis, both in homes and in commercial settings. The use of these products has always posed a threat to consumers and to our environment. Regulatory authorities, including EPA, have issued repeated warnings about the toxic chemical-based products in use and have recommended looking for greener alternatives. Every year that passes sees more damage to the eco-system from the use of these products, and without making some drastic changes in the products we use, we will continue to damage the environment and pose health threats to consumers.

There is a viable option that gives us a safe cleaning option and non-toxic sanitizing capabilities. It's called electrolyzed water for disinfection and cleaning (also known as hypochlorous acid - HClO or Anolyte), or on-site generation technology.

On-site generation technology lets us create powerful cleaners and sanitizers capable of killing 99.999% of common germs in less than 60 seconds, including Listeria, MRSA, Staph, VRE, Pseudomonas, Norovirus, H1N1, Salmonella, and E.coli O157:H7 bacteria. Hypochlorous acid is a part of this process.

The Envirolyte Modular HD generator (MHDG) is a stand-alone, on-site device optimized to produce hypochlorous acid with regulated pH, using Envirolyte technology. The system converts salt, water and electricity into an effective solution that can substitute for a number of conventional chemicals used on a daily basis.

Reliability

Envirolyte MHDG system produces HClO from the electrochemical reaction of water, salt and electricity. Envirolyte has profound experience in designing and manufacturing of on-site generators, using our patented cells and time-tested components.

Why generate on-site

When supply chains are stretched thin, having the ability to produce your own sanitizer and disinfectant at your facility means you no longer have to rely on third party suppliers. Raw materials for the production of HClO are easy to find and readily available from your local hardware stores. Producing hypochlorous acid on-site saves time and money. Why rely on supply chains for your sanitizing and disinfecting needs, when you can produce all the sanitizer you need, on-site, on-demand and at low cost.

Operational details

The Envirolyte MHDG system produces 3.0 kg/h or 5 kg/h of active chlorine in the form of HClO at 500 ppm, 1000 ppm, 2000 ppm, 3000 ppm or 5000 ppm of FAC with a pH range of 2.5 - 7.5, producing over ~99% as HClO flow rate consistently. The system utilizes flow, pressure, brine concentration sensors and level switches to automate the production process. As you use solution, the system automatically turns on and fills the holding tank. The Envirolyte MHDG systems utilize scale control, so cleaning of the cells is done on need-to-do bases.

HClO is pH dependent

pH is very important in the production of HClO. In Envirolyte generators pH can be regulated during production an set in the range pH ~2.5-7.5 with our automated system.

The necessary provisions to increase pH to have it pH ≥ 8 can be introduced upon request.

Cost to produce hypochlorous acid

Envirolyte systems require very little raw materials to produce HClO and can produce a liter of the solution for less than 1 cent. Compare that with the cost of sanitizing and disinfecting solutions purchased each month for your facility.

Advanced treatment capabilities of Envirolyte generators can include biofilm removal, disinfection byproduct (DBP) reduction, improved taste and odor, and improved water clarification. Customers also report the ability to maintain more consistent control of distribution residuals with lower applied chemical doses.

- Small footprint, easy to install and operate with minimal maintenance hours required
- Remote monitoring and control capability helps ensure optimal operation and reduced time on-site
- Modular design allows for system expansion with a very modest footprint
- Systems optimized for ease of use, reliability, and performance
- Pre-assembled and factory tested package ensures simple installation and small footprint

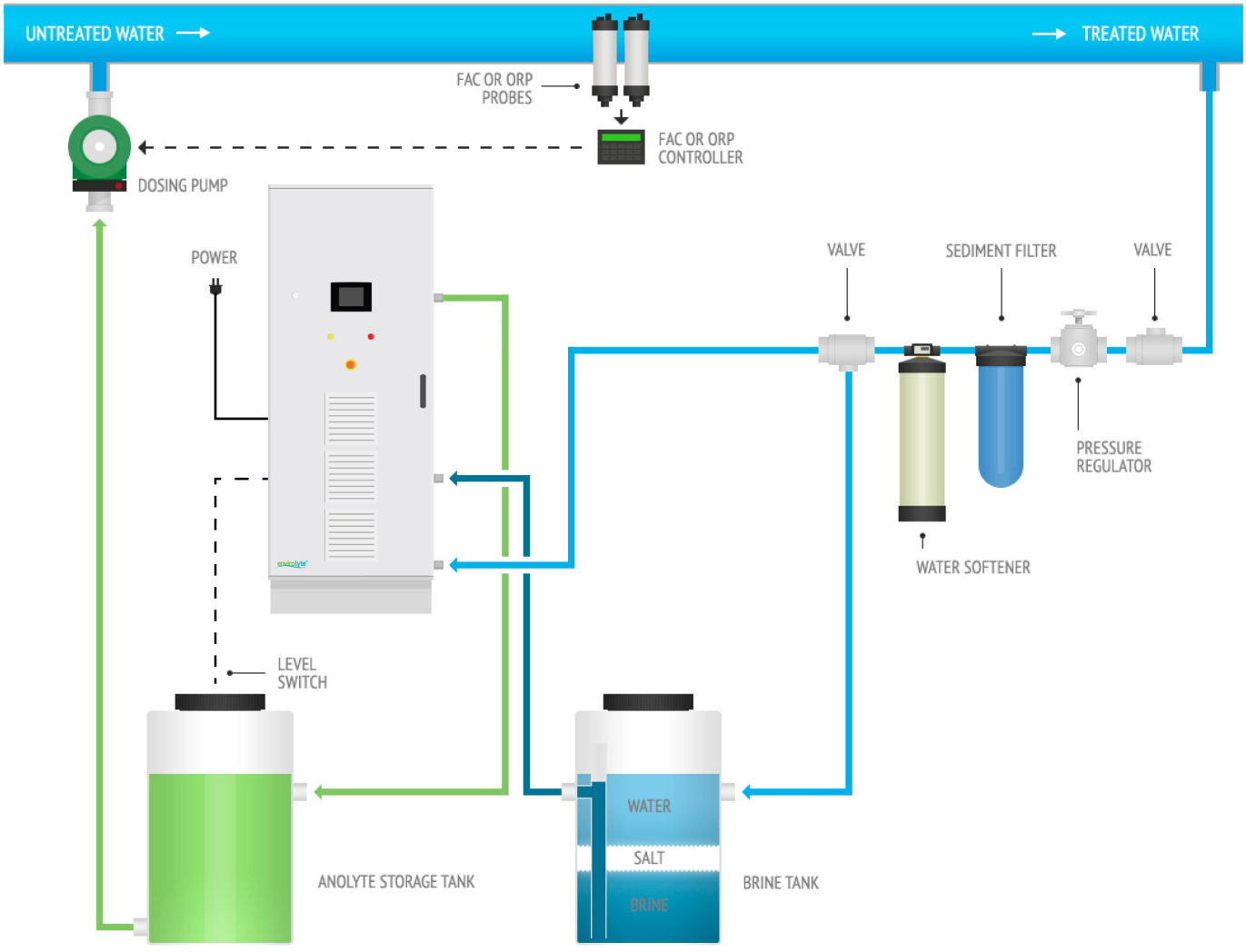
The on-site generation of hypochlorous acid provides a safe, economical, and effective solution for the treatment of water. For a variety of applications from drinking water treatment to microbiological control in food processing and cooling towers, on-site generation lets you generate the chemistry you need when you need it. This powerful and highly effective HClO solution is generated without creating or transporting hazardous chemicals, ensuring the safety of personnel and the surrounding community.

Hypochlorous acid is highly effective at controlling microbial populations, biofouling, and biofilm formation in water treatment applications across multiple applications and industries. Numerous laboratory studies and customer experiences prove that HClO is a much more effective biocide than chlorine alone, a property that is a result of the synergistic antimicrobial action of the multiple oxidants contained within HClO, its pH and ORP values – hypochlorous acid with other oxidative species.

Benefits of HClO

- Faster and more thorough microbiological inactivation superior than chlorine at same FAC dose
- Superior biofilm removal
- Elimination of Legionella counts
- Decreased dosing to achieve the same disinfection outcome
- Longer residual carry in distribution systems with longer detention time
- Reduction in disinfection byproduct (DBP) formation
- Improves filter runs
- Lowers final turbidity

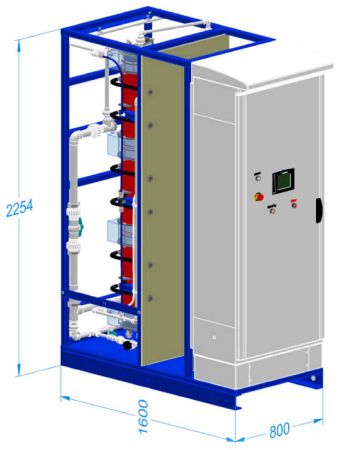
Typical installation of MHDG system for water disinfection



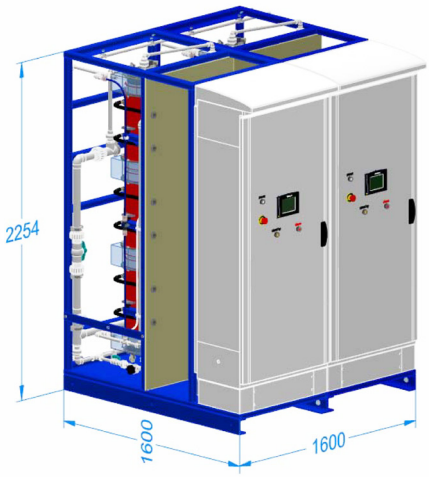
Specifications of 3 kg/h MHDG systems

Models	ELA-6000HD	ELA-10000HD	ELA-15000HD	ELA-60000ANW
Anolyte (HClO) output	600 l/h	1000 l/h	1500 l/h	6000 l/h
Anolyte concentration	5000 ppm	3000 ppm	2000 ppm	500 ppm
FAC output	3.0 kg/h	3.0 kg/h	3.0 kg/h	3.0 kg/h
pH of anolyte (regulated depending on the application)	2.5-7.5	2.5-7.5	2.5-7.5	2.5-7.5
Catholyte (NaOH) output	~10 l/h	~10 l/h	~10 l/h	~10 l/h
Catholyte (NaOH) concentration	~80 g/l	~80 g/l	~80 g/l	~80 g/l
pH of catholyte	~13.5	~13.5	~13.5	~13.5
Power source	380-420 VAC Three phase	380-420 VAC Three phase	380-420 VAC Three phase	380-420 VAC Three phase
Power consumption	21.0 kW/h	21.0 kW/h	21.0 kW/h	21.0 kW/h
Salt consumption	3.0 g/g of HClO	3.0 g/g of HClO	3.0 g/g of HClO	3.0 g/g of HClO
Unitronics / Vision 570 PLC	Touch screen, multicolor	Touch screen, multicolor	Touch screen, multicolor	Touch screen, multicolor
Main water input valve	+	+	+	+
Mains water flow sensor	+	+	+	+
Mains water pressure sensor	+	+	+	+
Temperature control on the cell	+	+	+	+
Control of the brine concentration	+	+	+	+
Integrated cell flushing	+	+	+	+
Water inlet	1”	1”	1”	1 1/2”
Anolyte outlet	1”	1”	1”	1 1/2”
Catholyte outlet	3/4”	3/4”	3/4”	3/4”
Brine inlet	1/2”	1/2”	1/2”	1/2”
Flushing acid inlet	3/8”	3/8”	3/8”	3/8”
Flushing acid outlet / Drain	3/4”	3/4”	3/4”	3/4”
Drain outlet	1/2"	1/2"	1/2"	1/2"
H2 outlet	3/4”	3/4”	3/4”	3/4”
Dimensions, HxDxW (mm)	2254 x 1600 x 800	2254 x 1600 x 800	2254 x 1600 x 800	2254 x 1600 x 800
Weight	720 kg	720 kg	720 kg	720 kg
Crated dimensions, HxDxW (mm)	2312 x 1960 x 930	2312 x 1960 x 930	2312 x 1960 x 930	2312 x 1960 x 930
Crated weight	800 kg	800 kg	800 kg	800 kg

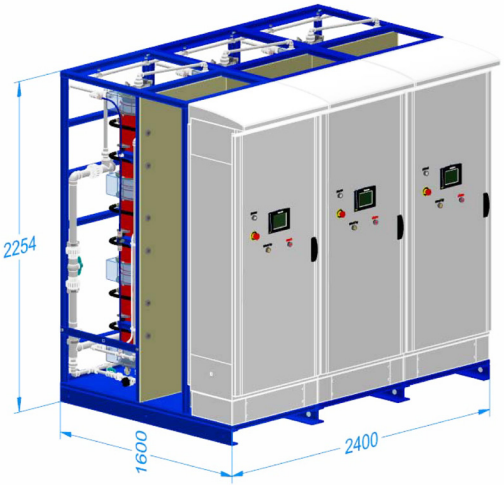
The Envirolyte systems have a modular design, which means the system can be easily expanded 5 X or more still with a very modest footprint, to meet increase in FAC demand.



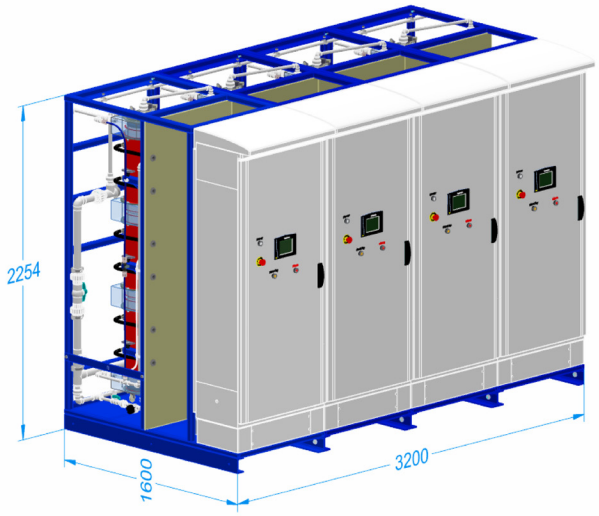
~3kg/h of active chlorine (HClO)



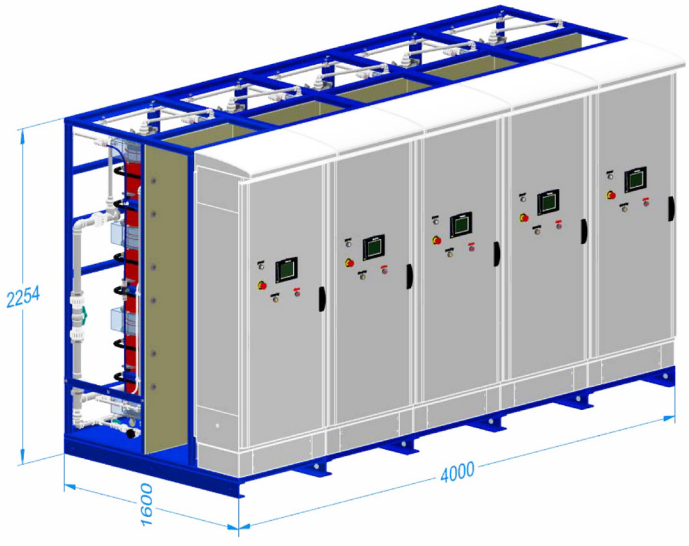
~6kg/h of active chlorine (HClO)



~9kg/h of active chlorine (HClO)



~12kg/h of active chlorine (HClO)



~15kg/h of active chlorine (HClO)

.....etc.

Specifications of 5 kg/h MHDG systems

Models	ELA-10000HD	ELA-17000HD	ELA-20000HD
Anolyte (HClO) output	1000 l/h	1700 l/h	2000 l/h
Anolyte concentration	5000 ppm	3000 ppm	2500 ppm
FAC output	5.0 kg/h	5.0 kg/h	5.0 kg/h
pH of anolyte (regulated depending on the application)	2.5-7.5	2.5-7.5	2.5-7.5
Catholyte (NaOH) output	~10 l/h	~10 l/h	~10 l/h
Catholyte (NaOH) concentration	~80 g/l	~80 g/l	~80 g/l
pH of catholyte	~13.5	~13.5	~13.5
Power source	380-420 VAC Three phase	380-420 VAC Three phase	380-420 VAC Three phase
Power consumption	35.0 kW/h	35.0 kW/h	35.0 kW/h
Salt consumption	3.0 g/g of HClO	3.0 g/g of HClO	3.0 g/g of HClO
Unitronics / Vision 570 PLC	Touch screen, multicolor	Touch screen, multicolor	Touch screen, multicolor
Main water input valve	+	+	+
Mains water flow sensor	+	+	+
Mains water pressure sensor	+	+	+
Temperature control on the cell	+	+	+
Control of the brine concentration	+	+	+
Integrated cell flushing	+	+	+
Water inlet	1”	1”	1”
Anolyte outlet	1”	1”	1”
Catholyte outlet	3/4”	3/4”	3/4”
Brine inlet	1/2”	1/2”	1/2”
Flushing acid inlet	3/8”	3/8”	3/8”
Flushing acid outlet / Drain	3/4”	3/4”	3/4”
Drain outlet	1/2"	1/2"	1/2"
H2 outlet	3/4”	3/4”	3/4”
Dimensions, HxDxW (mm)	2254 x 1600 x 800	2254 x 1600 x 800	2254 x 1600 x 800
Weight	720 kg	720 kg	720 kg
Crated dimensions, HxDxW (mm)	2312 x 1960 x 930	2312 x 1960 x 930	2312 x 1960 x 930
Crated weight	800 kg	800 kg	800 kg

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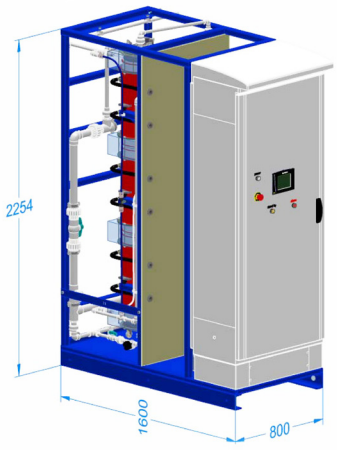
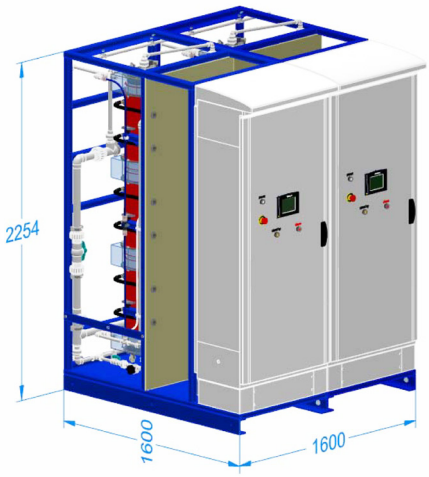
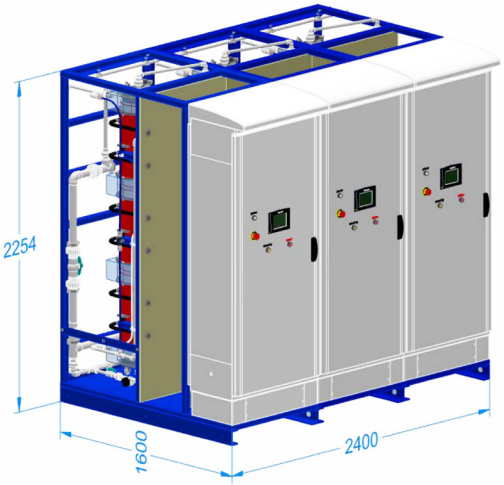


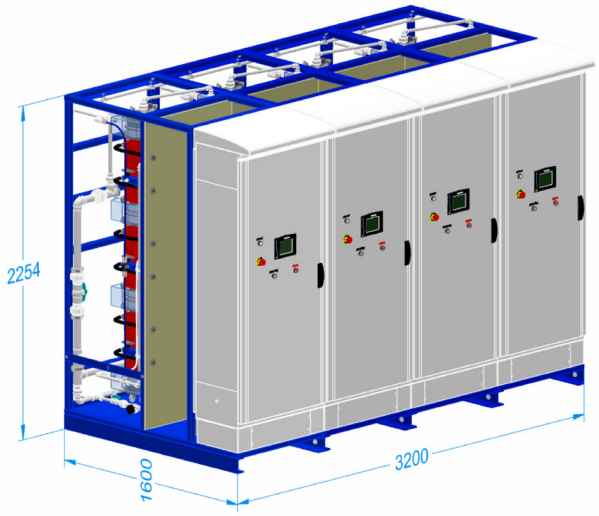
~5kg/h of active chlorine (HClO)



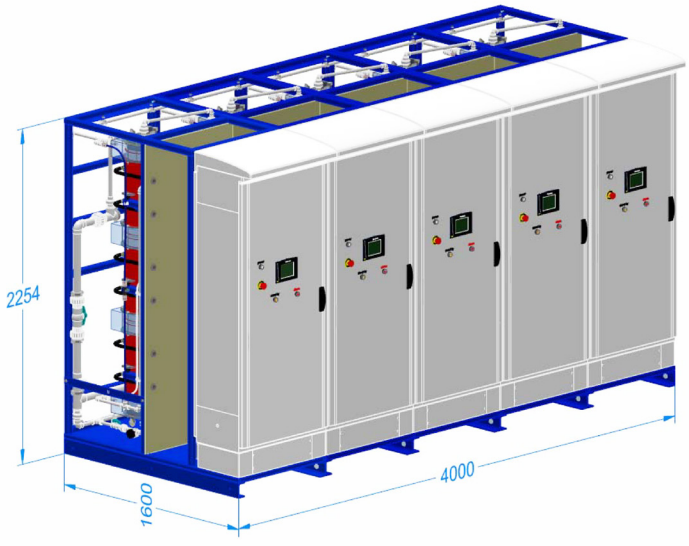
~10kg/h of active chlorine (HClO)



~15kg/h of active chlorine (HClO)



~20kg/h of active chlorine (HClO)



~25kg/h of active chlorine (HClO)

.....etc.

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