

# CHLORINE DIOXIDE GENERATORS





INNOVATIVE EXPERIENCE

**EMEC**



## THIRTY YEARS OF LEADERSHIP

EMEC ranks among Italy's top, consolidated industrial actors in the field of electronic control systems for fluids metering and management applications. Our products are designed and manufactured for both industrial and small-scale applications.

We are an all-Italian business entity with a clear strategic outlook, right from the outset, striving to merge design innovation with a long-term industrial footing. Our high-precision, hi-reliability products are entirely designed and assembled at our Rieti facilities.

EMEC's reputation as a market leader is expanding both in Italy and internationally, boosting demand for our quality, Italian designer products.

## QUALITY FIRST

Our products are supported by passion and a solid industrial background. At EMEC, we have always sought to identify and seize investment opportunities, committing our resources to technology and human resources.

That key to our success - and what sets us apart from market competitors - is our complete control of the production cycle, reliant on specialist business set-ups and resources. Our approach feeds into all aspect ahead of end product delivery: systems design, component production and assembly, software programming and final testing. In line with total quality commitments, we provide installation and maintenance specialists with up-to-date training for both our household and industrial products.

Our retail and commercial units operate with a technical mindset, encompassing a firm grounding in all aspects of design and production; as such, they stimulate product innovation and enhancements based on Customer requirements, feedback and field experience. That approach makes us ideal partners when it comes to delivering targeted solutions to specific requirements. Our claims are anything but overstated: complete control, to us, is the only viable approach to ensuring total product quality and effective service delivery.

## A CONSTANLY EVOLVING WORLD

Our 30-year industrial footing has bred constant improvements in all our products, expanding range and functions. Our range of products is currently implemented in a broad range of settings:

- Pools
- Saunas
- Industrial water treatment
- Drinking water treatment
- Irrigation
- Chemical industry
- Processing industry
- Cooling towers
- Refineries
- Car wash



### 100% MADE IN ITALY

All our products are manufactured in our factory in Italy.

## SUSTAINABILITY

Respecting and safeguarding the environment are the core values underpinning our business. In keeping with that commitment we engage in and promote all actions designed to curb the environmental impact of our processes, products and raw materials, on a life-cycle basis. Our company implements an Environmental Management System compliant with UNI ENI ISO 14001 standards, subject to ongoing updates.

Our goal is to curb atmospheric emissions, rationalise water consumption and enact appropriate waste management policies. Environmental impact assessments cover new products, process innovations and public tenders.

We are committed to providing our employees and staff with appropriate information and training concerning our company policy and its implementation with respect to both the workplace and our products.

## CERTIFIED SKILLS AND VALUES

EMEC's values and reliability are the result of a long-standing commitment to quality and detail. We testify to that commitment through ongoing human resources training, rigorous abidance by production benchmarks, and concerted efforts to curb all employee health hazards.

Our pledge is a firm one and is backed by our policy implementation and investment goals. Our global quality approach matches our market standing and is certified by the world's leading certification institutes.



## EMEC WORLDWIDE



### WARRANTY

All our solenoid pump membrane have 5 years warranty.







# LOTUS

CHLORINE DIOXIDE GENERATOR

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**M I N I**

Pressurized system  
capacities up to 20gr/h

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**A I R**

Pressure-less system for  
multi-point injection up to 60gr/h

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**M A X I**

Pressurized system  
capacities up to 1000gr/h

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**E A S Y**

Compact system with simplified operations  
capacities up to 80gr/h

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**U L T R A**

Compact system with simplified operations  
capacities up to 2000gr/h



LOTUS MINI is an all-round solution for all your need for water disinfection. It is safe and solid and can also be controlled remotely via the web application ERMES through a 2G/3G modem or a lan adapter, while Modbus is available as option.

Its elegant cover preserves the cleanliness of the inner components and their integrity. Chlorine dioxide produced by LOTUS MINI can be proportional to the circulating water flow or based on a measured setpoint. There is no storage of chlorine dioxide therefore there is no chlorine dioxide gas or concentrated solutions outside of the process application.

It is also available equipped with ClO<sub>2</sub> probe (SCL2 or SCL17) or mV probe (ERH), a probe holder and a filter.

**RANGE: 8-20 g/h MAX CAPACITY: 480 g/day\***

### ADVANTAGES

- › Reaction at controlled pressure
- › High degree of stability of the chlorine dioxide solution
- › No ClO<sub>2</sub> loss due to closed reaction chamber
- › Diluted chemicals

### FEATURES

- › Instantaneous ClO<sub>2</sub> production
- › ClO<sub>2</sub> dosing in PROPORTIONAL mode
- › Flow control input (flow alarm)
- › Tank level controls (level alarms)
- › Water meter input
- › Stand-by input
- › Real time production data
- › Pumps and SEFL flow sensors monitoring
- › Permanent data storage with system data log (on Logbook menu)
- › Service due date
- › LOTUS control instrument
- › ClO<sub>2</sub> probe reading (LOTUS MINI SCL2 - LOTUS MINI SCL17)
- › Temperature probe reading (probe and accessories not included)



- › mV probe reading (LOTUS MINI ERH)
- › HCl (red) and NaClO<sub>2</sub> (blue) metering pumps
- › Pump for dilution water (grey)
- › 3 SEFL flow sensors as security
- › MFKT/V multifunction valve as pressure, safety, anti-syphon and bleed valve
- › PVC reaction chamber
- › ASA (Acrylonitrile Styrene Acrylate) enclosure
- › IP65 protection (NEMA4x) of LOTUS control instrument
- › ENCODER wheel control
- › Working temperature: 0-45°C (32-110°F)
- › mA output

### GAS SENSOR OPTION

LOTUS MINI with gas sensor detection.

	LOTUS MINI 8	LOTUS MINI 20
ClO <sub>2</sub> max capacity	8 g/h	20 g/h
Max pressure	8 bar	8 bar
Max chemicals consumption	0.2 l/h 0.2 l/h	0.5 l/h 0.5 l/h
Concentration	2 g/l	

\* Max capacity (gr/day) is referred to a 100% capacity / 24h.



LOTUS AIR is a pressure-less chlorine dioxide generator useful for those applications in which several injection points are required. Chlorine Dioxide is produced from diluted base chemicals: acid-chlorite process by Hydrochloric Acid (HCl 9%) and Sodium Chlorite (NaClO<sub>2</sub> 7,5%).

Chlorine dioxide produced by LOTUS AIR is stocked into a tank and then dosed proportionally to the request. It can also be controlled remotely via the web application ERMES through a 2G/3G modem or a lan adapter, while Modbus is available as option. Its elegant cover preserves the cleanliness of the inner components and their integrity.

It is also available equipped with ClO<sub>2</sub> probe (SCL2 or SCL17) or mV probe (ERH), a probe holder and a filter.

**RANGE: 10-60 g/h MAX CAPACITY: 1440 g/day\***

### ADVANTAGES

- > **Reaction at atmospheric pressure**
- > Multi-point injections
- > No emission
- > Diluted chemicals

### FEATURES

- > BATCH chlorine dioxide production
- > ClO<sub>2</sub> dosing in proportional mode
- > Alarms: products, water, emptying
- > Water meter input
- > Stand-by input
- > Real time production data
- > ClO<sub>2</sub> probe reading (LOTUS AIR SCL2 - LOTUS AIR SCL17)
- > Temperature probe reading (probe and accessories not included)
- > mV probe reading (LOTUS AIR ERH)
- > Pumps and SEFL flow sensors monitoring
- > Service due date
- > LOTUS AIR control instrument



- > ERMES communication
- > ClO<sub>2</sub> concentration measure
- > PVDF ball valve for reaction chamber empty
- > ClO<sub>2</sub> concentration: 2 g/l (0,2%)
- > LOTUS AIR control instrument
- > 3 metering pumps: red HCl pump, blue NaClO<sub>2</sub> pump and grey ClO<sub>2</sub> pump
- > Multifunction valve (MFKT/V)
- > Double chamber: reaction and storage
- > ASA (Acrylonitrile Styrene Acrylate) or fiberglass (LOTUS AIR 30/60 models) enclosure
- > IP65 protection (NEMA4x) of LOTUS control instrument
- > ENCODER wheel control
- > Working temperature: 0-45°C (32-110°F)

### GAS SENSOR OPTION

LOTUS AIR with gas sensor detection.

	LOTUS AIR 10	LOTUS AIR 30	LOTUS AIR 60
ClO <sub>2</sub> max capacity	10 g/h	30 g/h	60 g/h
ClO <sub>2</sub> max capacity*	240 g/die	720 g/die	1440 g/die
Max chemicals consumption	0.250 l/h (HCl) 0.250 l/h (NaClO <sub>2</sub> )	0.750 l/h (HCl) 0.750 l/h (NaClO <sub>2</sub> )	1.5 l/h (HCl) 1.5 l/h (NaClO <sub>2</sub> )
Dilution water consumption	5 l/h	15 l/h	30 l/h
Max pressure (feed water)	2 bar	3 bar	3 bar
Max pressure ClO <sub>2</sub> pump	8 bar	5 bar	5 bar**
Concentration		2 g/l	

\* Max capacity (gr/day) is referred to a 100% capacity / 24h.

\*\* For higher pressure use an external pump.





LOTUS MAXI is one of the largest product among EMEC Chlorine Dioxide generators and is used in all those cases in which there is need of a big production, such as large water treatment plants. Chlorine dioxide produced by LOTUS MAXI is set to be proportional to the circulating water flow or based on a setpoint, it is then dosed into the water flow.

It can also be controlled remotely via the web application ERMES through a 2G/3G modem or a lan adapter, while Modbus is available as option.

It is equipped with ClO<sub>2</sub> probe (SCL2 or SCL17) or mV probe (ERH), a probe holder and a filter.

**RANGE: 80-1000 g/h MAX CAPACITY: 24000 g/day\***

### ADVANTAGES

- › Reaction at controlled pressure
- › Large-scale applications
- › High degree of stability of the chlorine dioxide solution
- › No ClO<sub>2</sub> loss due to closed reaction chamber
- › Diluted chemicals

### FEATURES

- › Instantaneous ClO<sub>2</sub> production
- › ClO<sub>2</sub> dosing in proportional mode
- › Flow control input (flow alarm)
- › Tank level controls (level alarms)
- › Water meter input
- › Stand-by input
- › Real time production data
- › Pumps and SEFL flow sensors monitoring
- › Permanent data storage with system data log (on Logbook menu)
- › Service due date
- › LOTUS control instrument
- › HCl (red) and NaClO<sub>2</sub> (blue) metering pumps
- › Pump for dilution water (grey)
- › 3 SEFL flow sensors as security
- › MFKT/V multifunction valve as pressure, safety, anti-syphon and bleed valve
- › PVC reaction chamber
- › IP65 protection (NEMA4x) of LOTUS control instrument
- › ENCODER wheel control
- › Working temperature: 0-45°C (32-110°F)
- › mA output
- › ClO<sub>2</sub> probe reading (LOTUS MAX SCL2 - LOTUS MAXI SCL17)
- › Temperature probe reading (probe and accessories not included)
- › mV probe reading (LOTUS MAXI ERH)

### GAS SENSOR OPTION

LOTUS MAXI with gas sensor detection.



	LOTUS MAXI 80	LOTUS MAXI 160	LOTUS MAXI 240	LOTUS MAXI 400	LOTUS MAXI 600	LOTUS MAXI 1000
ClO <sub>2</sub> max capacity	80 g/h	160 g/h	240 g/h	400 g/h	600 g/h	1000 g/h
Max pressure	8 bar	8 bar	8 bar	8 bar	5 bar	4 bar
Max chemicals consumption	2.0 l/h 2.0 l/h	4.0 l/h 4.0 l/h	6.0 l/h 6.0 l/h	10.0 l/h 10.0 l/h	15.0 l/h 15.0 l/h	25.0 l/h 25.0 l/h
Concentration	2 g/l					

\* Max capacity (gr/day) is referred to a 100% capacity / 24h.



LOTUS EASY is the best solution if you want a simple but professional way to produce chlorine dioxide, thanks to an integrated All-in-One Controller equipped with two metering pumps.

Chlorine dioxide produced by LOTUS EASY can be proportional to the circulating water flow or based on a measured setpoint, it is then dosed into the water flow.

There is no storage of chlorine dioxide therefore there is no chlorine dioxide gas or concentrated solutions outside of the process application.

LOTUS EASY is designed so that the reaction to produce chlorine dioxide takes place in a reaction chamber. Multi function valves on injection points ensure security of the reaction chamber.

**RANGE: 8-80 g/h MAX CAPACITY: 1920 g/day\***



### ADVANTAGES

- › **Reaction at controlled pressure**
- › High degree of stability of the chlorine dioxide solution
- › No ClO<sub>2</sub> loss due to closed reaction chamber
- › Diluted chemicals

### FEATURES

- › Instantaneous ClO<sub>2</sub> production
- › ClO<sub>2</sub> dosing in PROPORTIONAL mode
- › Level alarms
- › Water meter input
- › Stand-by input
- › Real time production data
- › Pumps and SEFL flow sensors monitoring
- › Service due date
- › Main voltage control
- › Out of range voltage alarm
- › By-pass input
- › mA (0-20mA) input
- › ClO<sub>2</sub> concentration: 2 g/l (2%)
- › Level alarms
- › 2 flow sensors
- › MFKT/V multifunction valve as pressure, safety, anti-syphon and bleed
- › Static mixer
- › PVC reaction chamber
- › Working temperature: 0÷45°C (32÷110°F)
- › 600 x 800 mm panel mounting
- › By-pass diametre: DN 40

	LOTUS EASY 8	LOTUS EASY 20	LOTUS EASY 40	LOTUS EASY 80
ClO <sub>2</sub> max capacity	8 g/h	20 g/h	40 g/h	80 g/h
ClO <sub>2</sub> max capacity*	192 g/die	480 g/die	960 g/die	1920 g/die
Max pressure	8 bar	8 bar	8 bar	8 bar
Max chemicals consumption	0.2 l/h 0.2 l/h	0.5 l/h 0.5 l/h	1.0 l/h 1.0 l/h	2.0 l/h 2.0 l/h
Concentration	2 g/l			

\* Max capacity (gr/day) is referred to a 100% capacity / 24h.



LOTUS ULTRA is the largest product among EMEC Chlorine Dioxide generators and is used in all those cases in which there is need of a big production, such as large water treatment plants.

Chlorine Dioxide is produced from concentrated base chemicals: acidchlorite process by Hydrochloric Acid (HCl 33%) and Sodium Chlorite (NaClO<sub>2</sub> 27%). Chlorine dioxide produced by LOTUS ULTRA is set to be proportional to the circulating water flow or based on a setpoint, it is then dosed into the water flow.

**RANGE: 2000 g/h MAX CAPACITY: 48000 g/day\***

**ADVANTAGES**

- › Reaction at controlled pressure
- › Large-scale applications
- › High degree of stability of the chlorine dioxide solution
- › No ClO<sub>2</sub> loss due to closed reaction chamber
- › Diluted chemicals

**FEATURES**

- › Instantaneous ClO<sub>2</sub> production
- › ClO<sub>2</sub> dosing in proportional mode
- › Flow control input (flow alarm)
- › Tank level controls (level alarms)
- › Water meter input
- › Stand-by input
- › Real time production data
- › Pumps and SEFL flow sensors monitoring
- › Permanent data storage with system data log (on Logbook menu)
- › Service due date
- › LOTUS control instrument
- › HCl (red) and NaClO<sub>2</sub> (blue) metering pumps
- › 2 pumps for dilution water (grey)

- › 4 SEFL flow sensors as security
- › MFKT/V multifunction valve as pressure, safety, anti-syphon and bleed valve
- › PVDF reaction chamber
- › IP65 protection (NEMA4x) of LOTUS control instrument
- › ENCODER wheel control
- › Working temperature: 0-45°C (32-110°F)
- › mA output
- › Temperature probe reading (probe and accessories not included)



**GAS SENSOR OPTION**

LOTUS ULTRA with gas sensor detection.

	LOTUS ULTRA 2000
ClO <sub>2</sub> max capacity	2000 g/h
Max pressure	5 bar
Max chemicals consumption	12.2 l/h 12.2 l/h
Concentration	2 g/l

\* Max capacity (gr/day) is referred to a 100% capacity / 24h.



## AVAILABLE CONFIGURATIONS



### BASIC

- › RS485 output to link other EMEC instruments



### ETHERNET

- › RS485 output to link other EMEC instruments
- › LAN connection to web app ERMES
- › Alarm messages via email



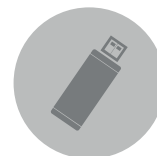
### 3G

- › RS485 output to link other EMEC instruments
- › 3G connection to web app ERMES
- › Alarm messages via email
- › Alarm messages via SMS



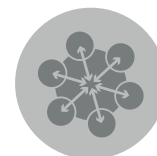
### WIFI

- › RS485 output to link other EMEC instruments
- › WIFI connection to web app ERMES
- › Alarm messages via email



### USB

- › RS485 output to link other EMEC instruments
- › USB connection for downloading of log files to be viewed on web app ERMES



### MODBUS

- › Connection to other PLC instruments via RS485 or TCP/IP for reading and modifying parameters

## REMOTE CONTROL

### FEATURES

LOTUS chlorine dioxide generators are the only ones in the world with remote control. Thanks to ERMES, the EMEC exclusive online management system, it is possible to monitor and regulate your systems from everywhere and through a simple but powerful web interface.

### ADVANTAGES

- › Less plant intervention and inspections
- › Real-time status of the connected devices (probes, outputs, alarms, setpoints)
- › Instant notifications about alarms via sms or email
- › Up to date reports about all plant instruments
- › Instruments activity logs displayed as line graphs and charts, downloadable to USB drive in xls or PDF format

## ERMES



### ERMES

ERMES web app is the exclusive online system developed by EMEC to remotely interact with your plants, by reading, analyzing and regulating the parameters of EMEC control instruments and systems wherever you are, with any browser and using a PC, a smartphone or a tablet connected to the internet.

You just have to enter the website **[www.ermes-server.com](http://www.ermes-server.com)**, register your account and add your plants.

LOTUS systems with 3G or WIFI configurations will be immediatly connected and available for ERMES remote control. Furthermore, with ERMES you can receive alarm messages via email or SMS, with different report option on instrument status.

But ERMES interface can also be used to control LOTUS systems with ETHERNET configuration inside a Local Area Network (LAN) or to read log files downloaded from LOTUS systems with USB configuration.





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