



**ZonoSistem**  
Ingeniería del Ozono S.L.



aire  
limpio



agua  
pura

fabricante de generadores de ozono

# Manual de Usuario



## Gama G



**G7**

**G12**

**G20**

**G40**

Fabricante:

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## Thank you for trust in us

*ZonoSistem, Ingeniería del Ozono S.L.U.* is a Spanish Company specialized in the development and manufacture of ozone generators systems, used primarily for disinfection and deodorisation treatments in the industry.

Formed by a team highly qualified and experience in the field of ozone, we manufacture a wide range of generators that more than covers the needs of our most demanding customers, both air and water.

Our clients... our best guarantee.

### What is ozone?

It is a gas composed of three atoms of oxygen O<sub>3</sub>.

**It is the most effective and fastest natural disinfectant known**, is widely used to disinfect air, water, food, surfaces, fabrics, furniture, is also used to remove odors and VOC's ... After making his feature converts back into oxygen it does not build, does not contaminate food, leaves no residue and is environmentally friendly.

### How ozone is obtained?

Ozone is obtained by subjecting oxygen to controlled electric shocks. The O<sub>2</sub> oxygen molecule dissociates and combines with other molecule in triatomic form O<sub>3</sub>. Ozone is generated and applied in-situ, that is, is not packaged, and is not transported. It is produced with the ozone generator using only

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## 1. About this Guide

### 1.1. How to use this guide.



**Read the complete manual before starting the installation or configuration of the equipment.**

**You can endanger your health and integrity of the ozone generator.**

If you do not understand the information contained in this manual, please contact our technical department sending an email to [info@zonosistem.com](mailto:info@zonosistem.com) or calling (+34)956-854-783.

Manufacturer recommends you:

- Save this manual during the lifespan of the machine.
- Note any modifications made to the machine.

### 1.2. Other documents.

With the delivery of the machine you will receive the following documents:

- CE Certificate of Compliance.
- Warranty Certificate.
- Certificate of receipt of material.

### 1.3. Copyright.

**This document is Copyright Protected. Total or partial reproduction of this manual is prohibited.**

Please address to *INGENIERÍA DEL OZONO S.L.U.*, if you have any question about use and reproduction of the document. We will advise you on how to do it properly.

*ZonoSistem, INGENIERÍA DEL OZONO S.L.U.* reserves the right to make changes to the product covered in this manual to improve performance, reliability or manufacturability.

## 2. Safety and Responsibility.



### **READ THIS INFORMATION**

**If you have questions, contact the manufacturer or your nearest dealer.**

**You can endanger your health and integrity of the ozone generator.**

Disregard of warnings or safety instructions can lead to situations of dangerous operation risk of electric shock or harmful to ozone exposures, compromising the safety of the machine, the customer and yourself.

- a) Never open the ozone generator while is connected to the power supply. See section 4. Design and function. (P. 6).
- b) Never try to modify any of the elements in the units.
- c) Never try to repair it yourself. (Contact your dealer or Authorized Service).
- d) Never push anything through the fan.
- e) Do not cover the ozone outlet (O3 OUT). See section 4. Design and function. (P. 6).
- f) Do not cover the air inlet (IN O2). See section 4. Design and function. (P. 6).
- g) Do not try to change the internal configuration without consulting an authorized dealer.
- h) If you detect any external anomaly in the unit, contact the manufacturer or your nearest dealer.
- i) If you detect any operational anomaly, disconnect the unit and contact the manufacturer or your nearest dealer.
- j) If you have to open the door of the unit, remember there could be hot parts after being in operation. Wait at least 15 minutes after being switched off and disconnected network before open the door.
- k) Please note the symbols and labels used in this documents and in the ozone generator parts.
- l) Ozone can be irritating at higher levels than those calculated in the previous study of the site.
- m) Do not directly inhale the ozone output.

**The manufacturer declines all responsibility for any damages resulting from incorrect and unreasonable use of the machine.**

### 3. Technical specifications.

#### 3.1. Machine types

The semi-industrial *G ozone generators* are the following models: G7, G12, G20 y G40.

This models are equipped with air cooling system and noiseless high frequency corona discharge technology.



**REMEMBER THAT THESE GENERATORS DO NOT INCLUDE COMPRESSOUR.  
IT IS COMPULSORY TO HAVE AND EXTERN SUPPLY OF AIR OR OXYGEN.**

#### 3.2. Aplications.

The powerful bactericidal, germicidal and deodorant capacity of ozone, make it a really useful tool, with a great variety of applications. This range of generators has been designed to disinfect and deodorize air, water, surfaces, fabrics and food...

A continuación se enumeran algunas aplicaciones de los equipos de la *Gama G*:

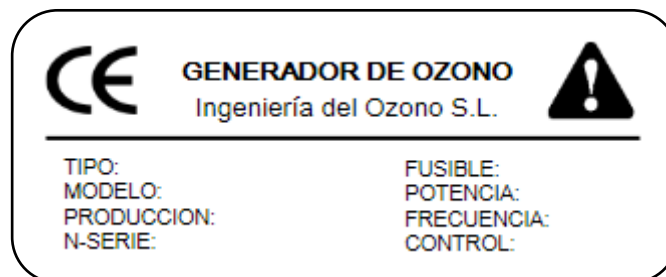
- Burble in water tanks.
- Ozoning water in waterline.
- Ozone injection in conduit.
- Ozone dilution in environment.
- Oxidation in contact chambers.

#### 3.3. Identification label.

You can find the identificative label in the side of the device and in this *User guide*.

**Do not try to modify, alter or remove the label.**

En ella vienen recogidos datos que pueden ser de interés para usted y para su distribuidor y/o fabricante.



- **Nº SERIE (SERIAL NUMBER):** Numerical device identification. ZonoSistem, Ingeniería del Ozono S.L.U. has a record of all the machines manufactured and each one identifies with a serial number
- **TIPO (TYPE):** It represents the classification of ozone generator. A (direct discharge), B (lead discharge), C (special discharge).
- **MODELO (MODEL):** identifies the ozone generator model.
- **PRODUCCIÓN (PRODUCTION):** it represents the ozone production or the amount of ozone produced in an hour and under standardized conditions.
- **FUSE (FUSE):** the fuse is a protection device that includes equipment.
- **POTENCIA (POWER):** indicates the power supply specifications.

- **TENSIÓN (VOLTAGE):** indicates the power supply specifications.
- **CONTROL (CONTROL):** it indicates the elements for controlling the unit.

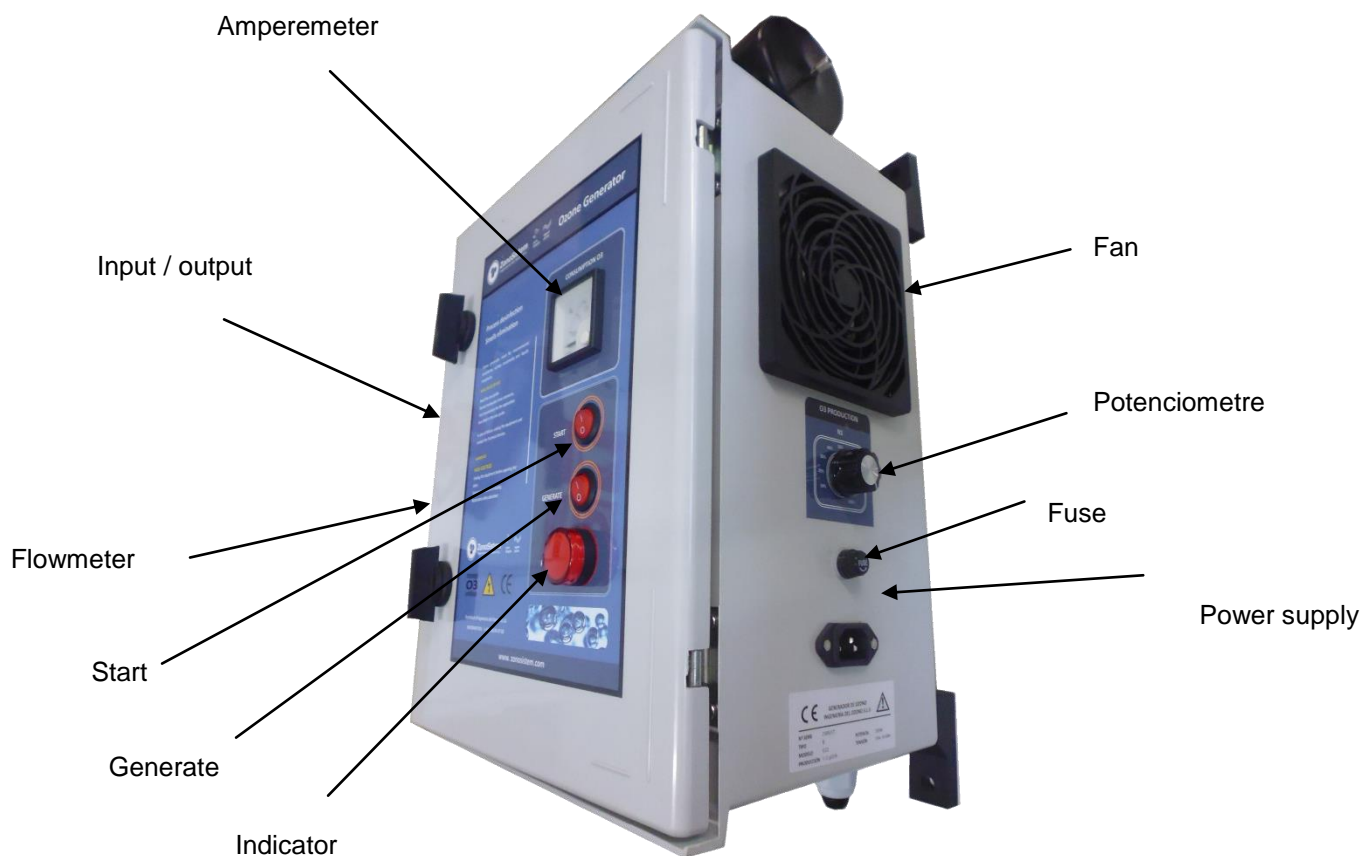
### 3.4. Overview.

You have purchased a semi-industrial *G ozone generator*.

When you start using it, you will see that meets the following objectives:

- Compact and safe.
- Easy operation.
- Easy assembly.
- Resistant and durable

In the picture below you can see the components in your equipment.



*\* Note: The picture below may not coincide with the equipment you have purchased.*

See Table 1 for the characteristics of your unit depending on the G acquired within the model range.

*Table 1. G generators models datasheets.*

CHARACTERÍSTICS	SEMI-INDUSTRIAL OZONE GENERATORS			
	G RANGE			
MODELS	G7	G12	G20	G40
<b>PHYSICAL</b>				
Size (cm)	40 x 30 x 20	40 x 30 x 20	50 x 40 x 22	50 x 40 x 22
Weight (Kg)	4	5	7	8
<b>CABINET</b>				
Material	Reinforced 5 mm poliester, free of halogens and auto-extinguible			
Color	White or grey			
Locking	Included	Included	Included	Included
Fixings	Mounting plates			
Ventilation	Forced by extraction. (120 x 120 mm and 130 m <sup>3</sup> /h fan)			
<b>GENERATION</b>				
Generation technology	Corona discharge at high frequency			
Ozone generator type	B. Lead discharge			
Generation lamp	INOX core with enamel dielectric. Viton seals and PVDF connections.			
Number of lamps	1 x N3	1 x N12	1 x N20	2 x N40
<b>ELECTRICS</b>				
Power supply	230 V, 50-60 Hz			
Consumption	50 W	100 W	200 W	400 W
Fuse	Fuse 0,5 A	Fuse 1 A	Fuse 2 A	Fuse 2 A
<b>PNEUMATICS COMPONENTS</b>				
O <sub>3</sub> Outlet	PVDF 8 mm bulkhead fitting.			
<b>CONTROL COMPONENTS</b>				
On/Off	Included	Included	Included	Included
<b>INDICATORS</b>				
Pressure (Red)	Included	Included	Included	Included
Amperemeter	Included	Included	Included	Included
<b>PRODUCTION</b>				
MAXIMUM (O <sub>3</sub> /hour) AIRE SECO - OXIGENO	2,5 - 7 g/h	7 - 12 g/h	10 - 20 g/h	15 - 40 g/h
Caudal de salida (lpm) DRY AIR – OXYGEN	25 - 4	50 - 4	50 - 4	50 – 7,5
Variation	15%	15%	15%	15%
<b>AIR TREATMENT</b>				
Type	Filtered - Dried previously			
Input gas	Compressed Oxygen / Dry and oil-free compressed air.			
<b>OTHERS</b>				
Power wire	Included	Included	Included	Included
Silicone tube	Included	Included	Included	Included
Inyector	Optional	Optional	Optional	Optional
Ozone ambient diffuser	Optional	Optional	Optional	Optional
Ozone water diffuser	Optional	Optional	Optional	Optional
Venturi	No	No	No	No

## 4. Operation.

Ozone generators are electro-pneumatic units that converts oxygen (O<sub>2</sub>) into ozone (O<sub>3</sub>).



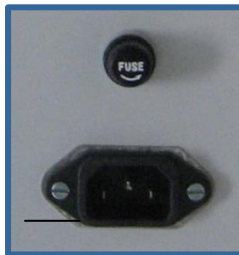
To achieve it, the ozone generator needs compressed oxygen or dry air that must be supplied by **Entrada de Aire – O2 (IN O2)**. See section 5. *Working conditions*.

This air, which has to comply with the required working conditions, is subjected to high voltage and high frequency electric discharge, making the oxygen turn into ozone. The ozone will be driven out through the **Salida de O3 (OUT O3)**.



Finally, ozone is conducted to the application point by a conduit.

The ozone generator you have acquired is ment for **continuous working**. To activate the device you only need to pulse **Iniciar** (1) and then **Generar** (2) and the device will be generating as long as both swithes are in position (I).



The **Red light** (3) indicates that pressure is too high in the generation core and so, the device is not generating ozone properly.

The **Amperemeter** (4) indicates the consumption of the generation core, if your amperemeter is not in 0, your generation core is active.

The system is also protected against overcurrent by **fuse**.

### 4.1. Installation.

Check section 5. *Operating conditioings* before installing the equipment.

The installation of the equipment have to be done by **trained/authorized personal**.

**Contact the producer or closer distributor** if you have any doubts about the installation of the equipment or any of it components.

Before connecting the power supply, make sure that the equipment is fully fisten by the four mounting plates either to the wall or the metallic platform and check the stability of the equipment. **Not following this indications may produce problems caused by vibrations**.

Maximum distance between the generator and the application point is 6 meters.

Take also into account the following advices:

- Use always ozone resistant materials (Teflon, PVC, silicone or PVDF).
- The driving should have at least a slope of 5%.



## 4.2. Start-up.

Before turning on the equipment check the following points.

- The equipment has been installed by skilled personal.
- There are no obstructions in the air input or the ozone output.
- Air / O<sub>2</sub> input must be connected to an external supply, or the O<sub>3</sub> output to an aspiration.
- O<sub>3</sub> output must be conducted.

Once the device is started for the first time confirm that:

- There are no friction noises.
- Ozone is being ejected through the outlet conduit.
- The amperemeter is indicating the consumption correctly.
- Light indicators are working properly.

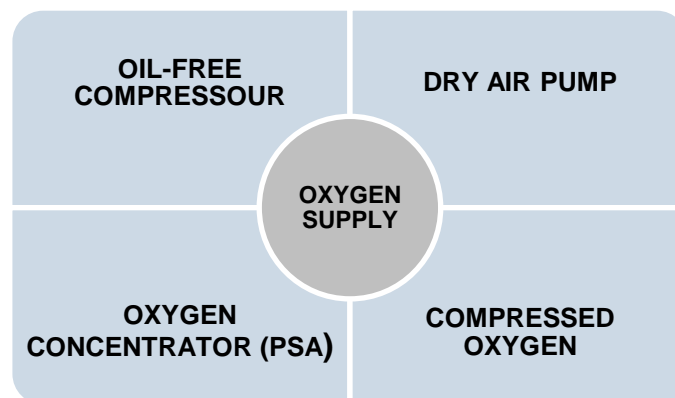
**The manufacturer recommends that the correct operation of the equipment is checked: the generator and its components during the first two weeks of operation.**

## 4.3. Configuration and control.

*G generators* control is done through a potentiometer. There is also de possibility of installing an external modular dispositive which we make the user able to control and configure the dosis and the time frames of the device. See *CRTL.AIR* controllers.

## 5. Working conditions.

*G generators* admit different types of oxygen supply. See the following scheme:



There is also another possibility, which is room aire supply going through a silica gel using a venturi to aspirate.

Humidity and powder are the two main reasons of failure in the proper working of the generators.

Consult *Table 2* and take into account the following indications before using your equipment.

*Table 2. Optimum working conditions for a G generator.*

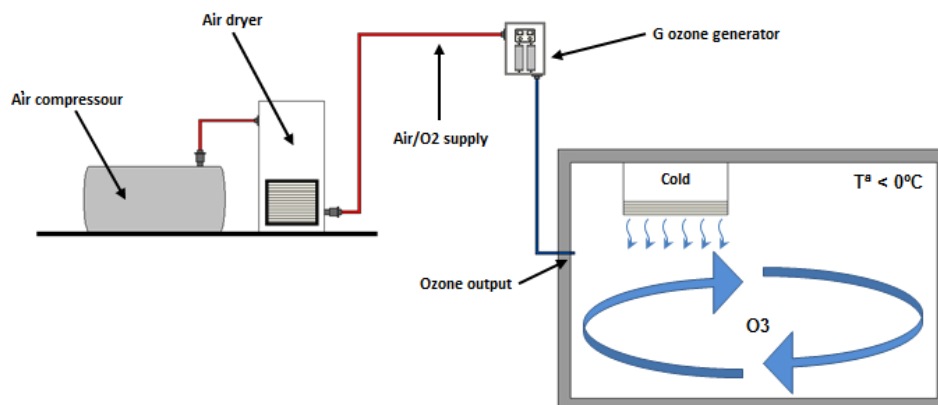
CONDICIONES DE TRABAJO	
Maximum pressure (input)	< 0,5 bar
Maximum pressure (output)	< 0,15 bar
Temperature	5-35°C
Humidity	< 70%
Powder	< 1 mg/m <sup>3</sup>
VOC's	< 150 ppm
Install it in a well-ventilated place.	
Do not install it in grassy environments.	
Do not install it in explosive environments.	

## 6. Other recomendations.

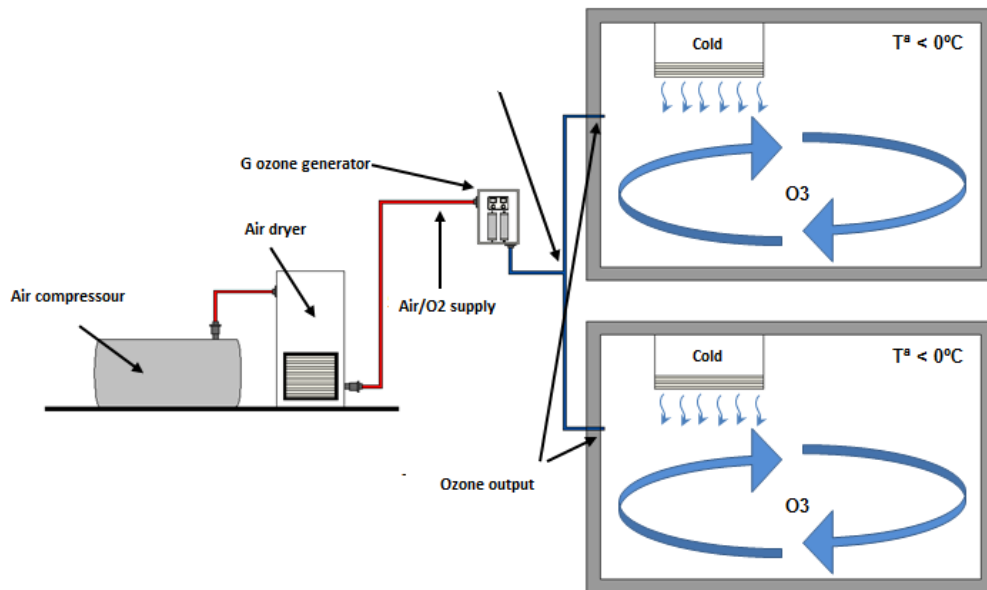
The objective of this sections is that you get the maximum efficiency from your equipment according to the more common applications for the *G generators*.

If you are going to use the equipment for an inside air treatment, the manufacturer recommends to take into account the following advises:

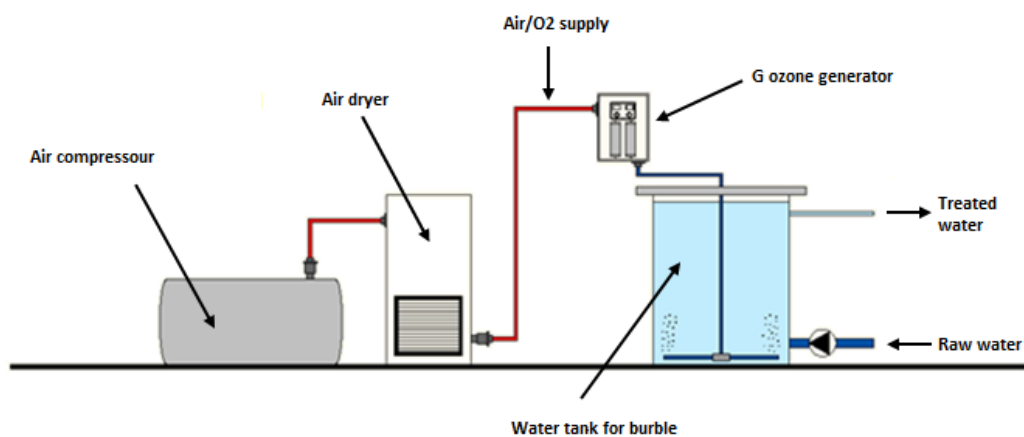
- It is possible to install the ozone generator in the upper part of the chamber, so that it coincide with the ventilation motor.



- It is possible to use one generator with two ozone outputs for two chambers if they are **not too big or too far**.

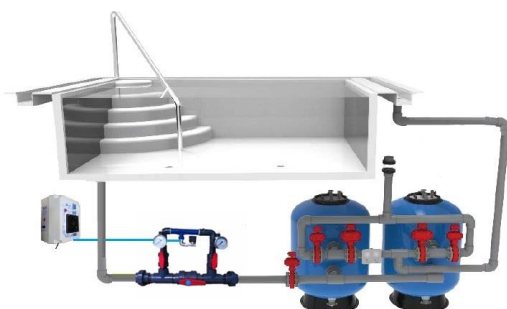
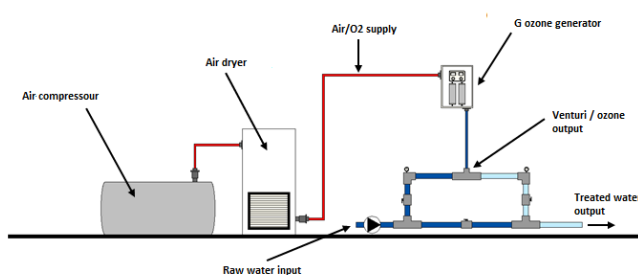


- If it were necessary to help dispersing ozone, a **diffuser** can be used.
- In case that the equipment is ment for water treatment in a water tank:
- It is recommended to complement the equipment with a **porous diffuser** that will be in the water and would be connected to the ozone output conduct (number and size of the diffuser will vary with the characteristics and volume of water that must be treated).
  - Take special care of the porous diffuser used: by conservating it in a good state will improve the efficiency of the treatment.



In case that the equipment purpose is a water line direct treatment:

- A venturi, or injection system must be installed. A venture aspiration can be complemented with a compressed air unit if wanted, or alone with a silica gel dryer.









## 8. Troubleshooting.

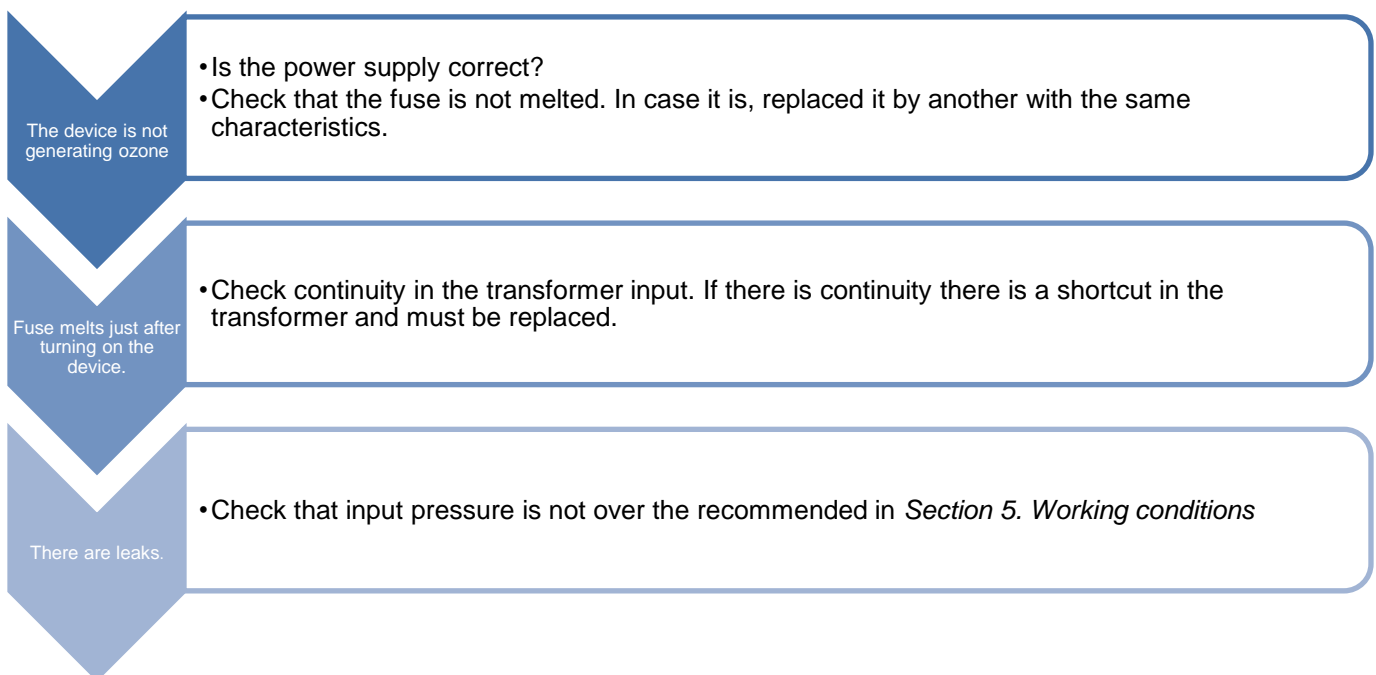


**INSTRUCTIONS DESCRIBED BELOW ARE DIRECTED EXCLUSIVELY TO QUALIFIED PERSONNEL**




**REMEMBER THAT BEFORE ANY MAINTENANCE OR REPAIR WORK MUST BE COMPLETELY DISCONNECT THE ELECTRICAL POWER EQUIPMENT.**

Here are the most common indicators of a possible malfunction of the G ozone generators:



<b>OZONE</b> (cylinder)	<b>ICSC: 0068</b> Peer-Review Status: 01.04.2009 Validated
<b>CAS #: 10028-15-6</b> RTECS #:                      Formula: O <sub>3</sub> RS8225000    Molecular mass: 48.0 EINECS #: 233-069-2	

TYPES OF HAZARD / EXPOSURE	ACUTE HAZARDS / SYMPTOMS	PREVENTION	FIRST AID / FIRE FIGHTING
<b>FIRE</b>	Not combustible but enhances combustion of other substances. Many reactions may cause fire or explosion.	NO open flames, NO sparks and NO smoking. NO contact with combustible substances.	In case of fire in the surroundings, use appropriate extinguishing media.
<b>EXPLOSION</b>	Risk of fire and explosion on contact with combustible substances.	Closed system, ventilation, explosion-proof electrical equipment and lighting.	Combat fire from a sheltered position.
<b>EXPOSURE</b>		<b>STRICT HYGIENE!</b>	
<b>Inhalation</b>	Sore throat. Cough. Headache. Shortness of breath. Laboured breathing.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Refer for medical attention.
<b>Skin</b>	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .
<b>Eyes</b>	Redness. Pain.	Wear face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
<b>Ingestion</b>			

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation.	<p><b>EC Classification</b></p> <p><b>UN Classification</b></p> <p><b>GHS Classification</b>                      Signal: Danger                      May cause or intensify fire; oxidizer                      Fatal if inhaled                      Causes eye irritation                      Causes damage to lungs if inhaled                      Causes damage to the lungs through prolonged or repeated exposure if inhaled</p> 






EMERGENCY RESPONSE	SAFE STORAGE
	Fireproof if in building. Separated from all substances. Cool.

IMPORTANT DATA	
<p><b>Physical State; Appearance</b> COLOURLESS OR BLUISH GAS WITH CHARACTERISTIC ODOUR.</p> <p><b>Physical dangers</b> The gas is heavier than air.</p> <p><b>Chemical dangers</b> Decomposes on warming. This produces oxygen. This generates fire and explosion hazard. Reacts violently with inorganic and organic compounds. This generates fire and explosion hazard. Attacks rubber.</p> <p><b>Occupational exposure limits</b> TLV (light work): 0.1ppm as TWA;. TLV (moderate work): 0.08ppm as TWA;. TLV (heavy work): 0.05ppm as TWA; A4 (not classifiable as a human carcinogen); (ACGIH 2009). MAK: Carcinogen category: 3B; (DFG 2008).</p>	<p><b>Routes of exposure</b> The substance can be absorbed into the body by inhalation.</p> <p><b>Inhalation risk</b> A harmful concentration of this gas in the air will be reached very quickly on loss of containment.</p> <p><b>Effects of short-term exposure</b> The substance is irritating to the eyes and respiratory tract. The substance may cause effects on the central nervous system. This may result in impaired vigilance and performance. Inhalation of the gas may cause lung oedema. See Notes. The effects may be delayed. The liquid may cause frostbite.</p> <p><b>Effects of long-term or repeated exposure</b> Repeated or prolonged inhalation of the gas may cause effects on the lungs.</p>

PHYSICAL PROPERTIES	ENVIRONMENTAL DATA
<p>Boiling point: -112°C Melting point: -193°C Solubility in water: none Relative vapour density (air = 1): 1.6</p>	<p>This substance may be hazardous to the environment. Special attention should be given to plants.</p>

NOTES
<p>The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered. Card has been partially updated in April 2010: see Fire fighting; GHS classification.</p>

ADDITIONAL INFORMATION

<p><b>IPCS</b> International Programme on Chemical Safety</p>   	<p>Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission © IPCS 2004-2012</p>
<p><b>LEGAL NOTICE</b> Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information.</p>	



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# INGENIERÍA DEL OZONO S.L.U.

## DECLARATION OF CONFORMITY

( GB ) CE- DECLARATION OF CONFORMITY  
( I ) DICUIARAZIONE "CE" DI CONFORMITA  
( F ) ATTESTATION "CE" DE CONFORMITE.

According to the directive 98/37 / EC of the European Parliament and of the Council of 22 June 1998 on the approximation of laws of Member States relating to machinery declare that the ozone generator:

\_\_\_\_\_

\_\_\_\_\_

complies with the requirements of the following directives:

- 98/37/CE, d. 22.06.1998 – referente a la aproximación de legislaciones sobre máquinas. (Machine directive, Directiva Macchine, Directive Machines).
- 89/336/CEE, d. 19.02.1973 – ref. a la compatibilidad electromagnética. (Directive on the electromagnetic compatibility , Direttiva sulla compatibilità elettromagnetica, Directive sur la compatibilité électromagnétique).
- 92/31/CEE por la que se modifica la Directiva 89/336/CEE.
- 73/23/CEE ref. a la aproximación de legislaciones sobre material eléctrico (baja tensión).
- 93/68/CEE en referencia a los materiales eléctricos empleados en esta máquina.
- UNE 400-201-94 ref. a Generadores de Ozono. Seguridad química.



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# INGENIERÍA DEL OZONO S.L.U.

## WARRANTY CERTIFICATE

The manufacturer of the GZO ozone generators extends a warranty of two years on new units to the end user from the date of purchase, on the condition that the unit is used and maintained in the proper manner.

### Warranty conditions

This warranty is valid if the unit is not damaged due to incorrect use or maintenance, negligence or other causes other than those due to material or production faults.

The warranty does not cover accessory items and defects which only impair the use of the instrument to a minor degree.

The warranty does not cover travels for repair damaged units.

The warranty is void if the defect is caused by reasons arising from natural disasters.

### Scope of warranty

If a fault occurs during the warranty period the unit must be returned to the manufacturer or an appointed agent. The unit will be inspected and all defects caused by materials or production faults will be repaired or remedied using spare parts of the appropriate quality, free of charge.

Following a warranty claim, the unit is subject to the statutory warranty conditions up to the end of the warranty period.

Further claims, in particular for compensation for damage not affecting the unit itself, are excluded.

The manufacturer warranty exists alongside the legal warranty rights of the end user is not affected if his contract is with a third party.

### Proof of warranty

Proof of purchase is required as entitlement to claim under warranty. If relevant paperwork is not submitted the repairs will be chargeable at the service prices pertaining at the time of repair.

Purchase date for warranty purposes will be shown on the invoice.

### Transport

Please return the unit complete with its packaging, full description of defect and purchase receipt.

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