



VELOXY SYSTEMS

Catalog & Configurations

VELOXY® is an equipment that allows the eradication of insect pests from Cultural Heritage collections (wood, paper, parchment, textiles, and any kind of organic material) without any use of insecticide gases, chemical substances or thermal traumas. By VELOXY® the objects can be treated directly in their conservation place.

The Company

RGI bioSteryl Tech Srl, a company specialized in Engineering for Cultural Heritage, began operating in the late 90s and increasingly established itself as a unique company, known and appreciated globally.

As a further demonstration of the uniqueness and quality of our services it should be emphasized that RGI bioSteryl Tech is the only company that carries out pest control services by its own production equipments.

Our systems - among them the VELOXY® (Very Low Oxygen) System, the complete system for anoxic treatments - and our services are known and appreciated in the world of Cultural Heritage in Italy and abroad. As you can see from our main references, many prestigious institutions have purchased the VELOXY® System or have used our services.

The widespread success of RGI is fundamentally due to the combination of some peculiar characteristics: attention to the needs of the Customer, research continues in the improvement of products.

VELOXY® System

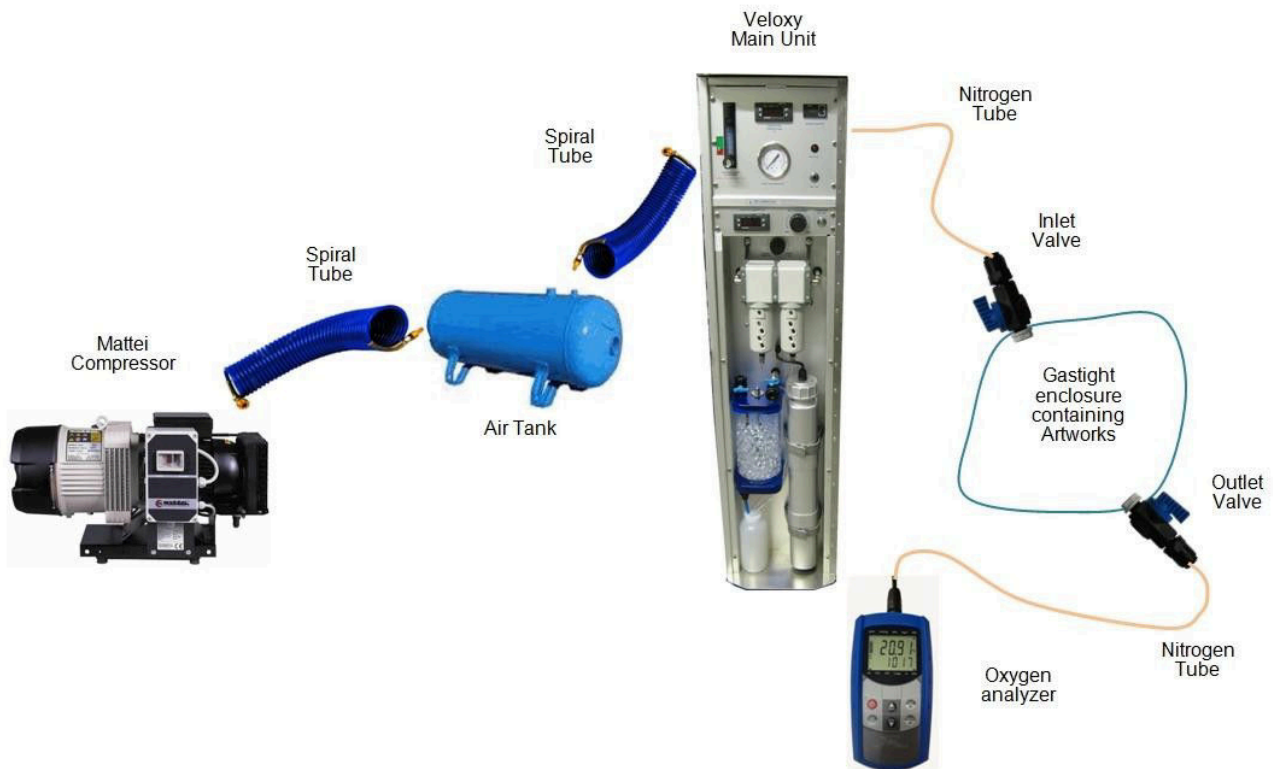
The VELOXY® technology was developed by RGI bioSteryl Tech for the containment of biological damages in Institutes for conservation of Cultural Heritage.

In fact, since the late 90s it was made available, as an environmentally friendly alternative to gas insecticides, the method of anoxia, which consists in eliminating pests simply by keeping the artworks in conditions of absence of oxygen for a few weeks.

The air is a mixture of nitrogen (about 78.08%), oxygen (about 20.95%) and other trace gases (argon, neon, helium, methane...).

Reducing the presence of oxygen up to negligible values, lethal conditions are obtained for all species of parasites, at each stage of their life cycle: **egg, larva, pupa and adult**. In case of adults, the absence of oxygen leads the parasites to enlarge the tubercles useful to their breathing so that to obtain their total dehydration.

This principle is exploited by the VELOXY® System (VEry Low Oxygen), invented, designed, manufactured and supported by RGI.



How to use it

The process is very simple. First, create an involucres/bubble tailored to the Artwork, with the special gas-barrier plastic film, supplied with the VELOXY® System. The film is easily weldable with the supplied sealing tongs. After realizing the bubble, you will apply the valves (supplied too). Then, by connecting the VELOXY® System, the air inside the bubble will be replaced with nitrogen generated by VELOXY® itself from the environment air.

The time to reach the anoxic level ($O_2 \ll 0,3\%$) depends on the power of the VELOXY® System, or, in general, on the available generated nitrogen flow. Generally, it is necessary to introduce in the involucres a volume of nitrogen of about 4-5 times the dimensions of the object inside to reach anoxia.

With the oxygen analyzer device the User will monitor the level of residual oxygen and once reached the anoxic level, the valves can be closed and VELOXY® can be turned off and unplugged.

The tailored involucres can be replaced by rooms semi-fixed and reusable.

The Certifications

The validity of the System, very cheap and easy to use, has been certified through the Research Project **Save Art** (1998-2000), funded by the European Community, as absolutely effective in pest control and harmless to humans, environment and artworks.

Four Ministerial Laboratories in Italy, Spain, England and Sweden, took part in the research project by recognizing and certifying the effectiveness of the method and machinery. VELOXY® has also been certified, with respect to **disinfection**, by a European project called **DISIO - Disinfection Sine Oxygen** (1998-2002), in collaboration with the Central Institute for Pathology of the Book, the Central Institute of Restoration, Center for Photoreproduction of the Archives of the State, University "La Sapienza" of Rome, National Research Council. The research was carried out to introduce new components and to study the effects of VELOXY® on microorganisms.

In conclusion, VELOXY® is a unique and exclusive technological response to needs of Museums, Restorers, Archives and Libraries, because it is the only alternative available compared to toxic gases and/or chemicals and harmful thermal and/or ionization methods.

Due to its characteristics, VELOXY® has become a worldwide reference and it is present in many important Museums, Libraries and Institutions, as well as in a lot of Restoration Laboratories, in Italy and abroad.

The Configurations

RGI produces two standard versions of VELOXY®, **Models 500 and 1000**; they differ mainly in the amount of nitrogen generated per time unit.

All VELOXY® **Systems** are made up of the **Main Unit VELOXY®**, the **Compressor** and some **Accessories** and **Consumables**.

The lack of integration of the various equipment, as the best engineering and functional choice, allows to easily transport the equipment in any place and to install in less than three minutes on the working site.

VELOXY® is the only system sold, in all its versions, complete with everything a Customer needs to start immediately a treatment of anoxic disinfestations.

VELOXY® is the only system sold, in all its versions, with a 24 months warranty: a real proof of reliability.

1. VELOXY[®] SYSTEMS

1.1 VELOXY[®] 500

The **VELOXY[®] 500** System generates a nitrogen flow, regulated according to needs, and ensures a nitrogen purity of 99.96% (residual O₂ of **0.04%**).

The performance of **VELOXY[®] 500** ensures a nitrogen flow up to **8 liters per minute at 99,8% purity (residual O₂ 0,2%)** and up to **12 liters per minute at 99,7% purity (residual O₂ 0,3%)**.

The Main Unit consists of an anodized aluminum chassis with external dimensions of cm 30 x 40 x 120h and weighing about 19 Kg.

In addition to the Main Unit, the VELOXY[®] System 500 is provided with **Compressor and Tank, and with all the Accessories, Tools and Consumables** to start immediately pest control treatments.

1.2 VELOXY[®] 1000

The **VELOXY[®] 1000** System generates a nitrogen flow, regulated according to needs, and ensures a nitrogen purity of 99.96% (residual O₂ of **0.04%**).

The performance of **VELOXY[®] 1000** ensures a nitrogen flow up to **17 liters per minute at 99,8% purity (residual O₂ 0,2%)** and up to **24 liters per minute at 99,7% purity (residual O₂ 0,3%)**.

The Main Unit consists of an anodized aluminum chassis with external dimensions of cm 30 x 40 x 120h and weighing about 21 Kg.

In addition to the Main Unit, also the VELOXY[®] System 1000 is provided with **Compressor and Tank, and with all the Accessories, Tools and Consumables** to start immediately pest control treatments.

1.3 MAIN FEATURES AND CHARACTERISTICS

The **VELOXY[®]** System, in all its configurations, presents itself as a system easy to use, highly safe for humans and for the objects and artworks, with high performance and capable of operating in the absence of controls, even continuously for days without stopping.

The separation of the different components of the system makes the operations of carriage, shipment and maintenance much more easier. This feature does not affect the simplicity of use: it is possible in fact to install the System in every place in less than three minutes.

All **VELOXY[®]** are designed to produce also a higher nitrogen flow, very useful to accelerate the achievement of anoxia, useful for the first part of treatment. In case of higher nitrogen flow, the residual oxygen will be higher than 0.2%.

The standard maintenance is equally simple and cheap and can be performed partly by the customer, increasing the economy and the simplicity of use.

It is possible to request from RGI solutions for an extended warranty and for the planning of the routine maintenance, as well as the possibility of personalized installation depending on the customers' necessities.

2. COMPONENTS, CONSUMABLES AND ACCESSORIES

All VELOXY® Systems are supplied with the components, accessories and consumables needed to start a anoxic pest disinfestations. Below are described all parts of the system that will be delivered by purchasing VELOXY® System.

In any case, the components of the System can be acquired by the Customer even separately and at different times at the Customer's discretion, in this way the investment can be distributed over time.

2.1 MAIN UNIT

The Main Unit of VELOXY® System represents the core component of the system, in fact in its interior the whole process of separation of oxygen from the air and consequently the generation of nitrogen takes place. Below are the main equipment of the main unit:

- Front panel with indicators and controllers:
- Flow meter with adjustment rate of the nitrogen flow at the outlet; LED display segments; pressure gauge; hour counter; status LEDs; heating led;
- Nitrogen Humidification/De-humidification: integrated optional device to set and control the relative humidity of the generated nitrogen flow. (optional)
- Filtering Group:
The filtering unit is composed of two units to ensure high air filtration standard from the dirty, water and oil, ensuring a production of very clean nitrogen. The filters have a fully automatic condensate drain, able to operate without interruption. A third activated carbon filter unit can be requested.
- Collection container for impurities and condensation

2.2 MATTEI ERC-1 COMPRESSOR

Electric rotary vane Compressor, complete with all the fittings, maximum reliability and quality, low noise and low vibration. Features:

- Rotary vane compressor (low noise and vibration),
- Flowrate 160 lt/min @ 10 bar,
- Pmax: 11 bar,
- Power consumption kw 1.5,
- Rotational speed 1.450 rpm,
- Dimensions cm 74 x 40 x 40,
- Noise level < dB 64,
- Weight Kg 46.

2.3 AIR COMPRESSED TANK

- Capacity 10/15 liters,
- Complete of fittings,
- Tap with fast engagement for draining the condensate.



2.4 SEALING TONG

- To seal till cm 30 in length, teflon coated,
- Electric net 230 V 50 Hz,
- Electric consumption 360 W,
- Regulation of sealing temperature,
- Pre-heating time 5 min,
- Weight 1.2 Kg.
- Dimensions mm 110 x 300 x 350.

2.5 CONSUMABLES

- a. **VALVES**, ball type with o-ring, complete with plastic nut and fast connector for 10 mm tube. Light weight and perfectly suited to anoxia applications, ensuring an effective gas seal.
- b. **PIPE for nitrogen transport**. The tube supplied is particularly suitable to the pressures, for high standards of safety, but at the same time soft enough to ensure easy connections between the main unit and the gas-tight enclosures.
- c. **PIPE for air transport**. Spiral type, for high-pressure connections with high safety standards quality. Included in the standard equipment: 30 meters
- d. **PLASTIC FILM, gas tight, multilayer**. It must be specified that for the realization of heat-sealed casings RGI employs a multilayer plastic film gas-tight particular technological quality and effectiveness. The plastic film supplied is marked every 10 and every 50 cm to facilitate the creation of gas-tight enclosures and make it faster. The height of the roll provided is 126 cm.

2.6 OXYGEN ANALYZER RGI OX-05

Electronic device with an high sensitivity and precision, it allows the detection of residual oxygen traces in the nitrogen generated by the VELOXY® System, making it possible to determine the exact pureness of it.

The analyzer is provided with a backlit display with two decimal figures, for an high precision and an immediate reading. The electrochemical sensor has a duration of 18-24 months.

2.7 MANUAL TOOLS KIT

- a. Manual hose cutter
- b. Base for the making of the holes
- c. Socket wrench
- d. Glass fiber reinforced tape for the valves
- e. Pipe-cutter



2.8 TRAINING & INSTALLATION

After delivery, RGI provides a training of about 8-10 hours, during which it will perform the first installation of machinery and training of the Customer operators, with issuing certificate of training.

The training is carried out by two trainers of RGI. After the completion of training, the customer can use the VELOXY[®] System, being able to operate completely autonomously on the different types of procedures and on daily ordinary maintenance. The installation and the educational training usually takes place at the customer site.

During the training, operators will be trained on real examples of anoxic disinfestation and can perform the treatment also on real Artworks.

2.9 CUSTOMER CARE

With the aim of making the use of the Veloxly System even easier, RGI offers a post-sale customer care service. Assistance is free for the first six months after the installation date and it allows the customer to clarify the doubts that may arise about the functioning of the system or about the realisation of the enclosures.

Assistance will be provided via mail or phone generally within 3 hours from the request.

2.10 WOODEN PACKAGES

The Main Unit and the compressor of VELOXY[®] System are delivered complete with their wooden boxes that ensure a safe transportation for the first delivery, but also a useful protection during transport of the VELOXY[®] System for use in different locations. RGI offers as an optional accessory on request some tailored box, provided with wheels and doors with hinges and lock fastening.

2.11 PACKING AND TRANSPORT of VELOXY[®] System

The VELOXY[®] System is shipped all over the world by couriers with door to door service.

The shipments are always assured. Every shipment is managed in accordance with best practice and every eventual problem with the shipments is managed by the RGI staff.

For very distant destinations, such as Vietnam, it may be more convenient for the customer to hire their own local courier, also for better knowledge and management of import operations.

3. VELOXY® SYSTEM STANDARD CONFIGURATIONS

As mentioned, the **VELOXY® Systems** are provided complete, even with different timing, with all the equipment and accessories needed to start making the anoxic treatments, referred to points 2.1 - 2.11. In the Table below, you will find the quantities provided in relation to the chosen model.

PRODUCT	PROVIDED WITH
VELOXY® 500	<ul style="list-style-type: none"> • VELOXY® 500 Main Unit • Compressor Mattei ERC • Air Compressed Tank 10 liters • Thermo hand sealer - 300 mm • Oxygen Analyzer OX-05 • N. 9 Valves • N. 9 Fast connector • N. 10 meters nitrogen tube • N. 50 meters of multilayer plastic film • N. 30 meters high pressure spiral tube • Wooden box for Main Unit carriage • Wooden box for compressor carriage • Tools Kit: hollow punch, base, socket wrench, Hollow punch, Socket tube wrench, Fiberglass reinforced tape, Hose cutter.
Humidification System - manual or automatic version (optional)	

PRODUCT	PROVIDED WITH
VELOXY® 1000	<ul style="list-style-type: none"> • VELOXY® 1000 Main Unit • Compressor Mattei ERC • Air Compressed Tank 15 liters • Thermo hand sealer - 300 mm • Oxygen Analyzer OX-05 • N. 18 Valves • N. 20 meters nitrogen tube • N. 100 meters of multilayer plastic film • N. 30 meters high pressure spiral tube • Wooden box for Main Unit carriage • Wooden box for compressor carriage • Tools Kit: hollow punch, base, socket wrench, Hollow punch, Socket tube wrench, Fiberglass reinforced tape, Hose cutter.
Humidification System - manual or automatic version (optional)	

According to their projects, the Customers can, in addition to those of standard configurations, customers can purchase additional quantities of accessories and consumables from RGI.

Accessories and consumables are validated by RGI itself for treatments with VELOXY, after long direct experiences and tests both functional and technical, such as high quality materials and high performance.



4. WARRANTIES

✓ VELOXY® System	24 months (or 1.500 hours working)
✓ Sealing Tong	24 months
✓ Oxygen Analyzer	24 months (Sensor 18 months)
✓ Compressor	12 months (or 1.500 hours working)

4.1 DISCLAIMER OF WARRANTY

- ✓ Any misuse of the system
- ✓ Non-compliance with maintenance periods, for this purpose the purchase of the spare parts and/or maintenance services will be verified
- ✓ The use of spare parts not supplied by RGI
- ✓ The use of customer care and/or maintenance service from third companies not explicitly instructed from RGI
- ✓ Damage of the warranty seals

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RGI bioSteryI Tech Srl
CEO

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