SprayVaccination CABIN Hatchery

by HIPRA

INSTRUCTIONS FOR USE AND MAINTENANCE

List of Topics

1 GENERALITIES

1.1 General Considerations

The equipment has been designed and built to spray medicines such as vaccines and similar exclusively on animals. More specifically, it allows the treatment into chicks hatcheries with spray vaccines during the first hours of life.

It must not be used for any other purposes without the express permission of the company. This equipment has been designed to ensure the best results, remembering that all operating instructions and recommendations in this manual must be followed. For better results, the company recommends to perform regular maintenance in order to keep the machine in top condition.

1.2 Consulting the Manual

This manual has been organized so that the user can find the information necessary for the operation and maintenance of the equipment quickly and easily. The user must read the manual entirety and carefully, and make sure that all the information is perfectly understood. The secondary function of the manual is to be a reference document and consultation, to be used whenever it is necessary to perform a procedure or operation. Therefore it is important to keep this manual available to the personnel involved in the management and maintenance in order to be consulted at any time.

1.3 Legislation and Principal Reference Standards

- MACHINERY DIRECTIVE 2006/42/CE
- DIRECTIVE OF PRESSURE EQUIPMENT 97/23/CE
- UNI EN ISO 12100:2010 - Safety of Machinery
- UNI EN ISO 4414:2012 – Systems and automatic components.

1.4 Symbols used in the Manual

The following symbols are used in the manual to highlight important information and warnings:

FORBIDDEN

This symbol indicates the prohibition to perform certain maneuvers and operations that can threaten the safety of the operator and the integrity of the machine. Read the note on the side carefully.

DANGER

This symbol indicates important messages of danger essential for the safety of the operator and the machine. Please read the note on the side.

IMPORTANT!

This indicator aims to show a note in the manual particularly important for the use of the machine.

1.5 IDENTIFICATION PLATE

On the machine there is an identification Plate (Fig.1.1) indicating the following information:

Manufacturer's data
Model of the machine
Code (Number)
Year of manufacturing
Technical Features
CE Marking which certifies that the machine
complies with Directive 2006/42/EC.

1.5 ORDERING SPARE PARTS

Any request regarding spare parts must specify:
- Model of the machine;
- Serial number
- Code of the part to be ordered
- Quantity required;
- Means of shipping.
- Contact

1.6 WARRANTY AND LIABILITY

The unit is sent to the customer, after having passed the tests by the manufacturer, in accordance with applicable laws. The manufacturer ensures that the equipment described in this manual, for a period of 12 months from the date of delivery and within this period will repair or replace defective parts causing malfunction provided that the machine has been used successfully in accordance with the instructions in the manual of use and maintenance.

The warranty is completely void if:
- The equipment is tampered with by unauthorized personnel.
- Unoriginal parts are used
- For poor maintenance and abnormal operation of the machine.
- Spare parts replaced under warranty must be returned to the company
- The warranty does not cover equipment parts subject to wear and tear.

The Company is not responsible for malfunctions or general failures, caused by the use ,not allowed, of the equipment or due to intervention and / or modification by anyone other than not authorized.

2 SAFETY REGULATIONS FOR OPERATORS

2.1 REQUIREMENTS FOR THE SAFETY OF OPERATORS

The rules listed below should be read carefully and become a fundamental part of daily practice in the management and maintenance of the equipment in order to prevent any kind of injury to persons and / or damage to property.

Do not switch on the equipment until the functioning has been clearly understood.

Ensure that all safety requirements are aware of the personnel involved in the use, cleaning and maintenance.

Before using the equipment, the operator must check the presence of visible defects in the machine. In this case, immediately notify the person responsible for the equipment defect.

Replace the parts considered faulty with others indicated by the company; NEVER try risky solutions.

Before starting to work, the equipment must be disconnected from the air.

The machine must be used exclusively for the administration of drugs to animals, as determined by the company.

The equipment should not be subject to shocks that could damage and consequently jeopardizing the proper functioning of the apparatus.

IMP.: Apply and enforce safety regulations at all times, in case any doubt arise again refer to this manual before you act

2.2 DEFINITION OF THE TERMS OF SECURITY

In this manual, in relation to security, we make use of the following terms:

Danger Zone: Each zone within and / or around the machine in which the presence of an exposed person constitutes a risk to the safety and health of that person.

Exposed Person: Any person wholly or partially in a danger zone.

Operator: Person trained to use ordinary machine, for example: starting-up, stopping work order, maintenance tasks such as basic cleaning of components.

Safety Components: components designed by the manufacturer and marketed separately from the machine in order to fulfill the safety functions . Therefore it is possible to consider “security” when the failure of the component affects the safety of people exposed.

2.3 PERSONAL PROTECTIVE EQUIPMENT

The operator, before starting work, must know the characteristics of the equipment and must have fully read this manual.

IMPORTANT! **The employer must provide the Personal Protective Equipment and inform the staff on their proper use and maintenance.**

These are the PPE (Personal Protective Equipment) that must be used by the operator **during the operations of maintenance and cleaning** are work-clothing, gloves and goggles**.**



2.4 USE OF EQUIPMENT

The equipment has been designed and built to be used by an operator who takes care of adjustments (amount of medicine to be administered and pressure of administration), the loading animals to be treated and the drive of the machine.

2.5 AIRCRAFT NOISE AND VIBRATION

The equipment has been designed and built to minimize the noise level. The measurement of sound pressure has been performed on a machine of the same model and founding an energy score of less than 70 dB (A).

The vibration measurement has not been carried out because significant vibration has not been deemed and in any case there is no physical contact with the device during its use.

2.6 INFORMATION RELEVANT FOR SAFETY (ANNEX I DIR. 97/23/CE)

These instructions have been prepared in accordance with Annex I of the Directive 97/23/EC, paragraph 3.4. The user must take care to ensure that all pressurized components (pipes, fittings, pressure regulator, nozzles), before use have not undergone serious dents or corrosion. Both before and after use, the equipment must be protected from atmospheric agents. You must take care when handling during the storage and ensure appropriate packaging for transport (if necessary). The equipment should not be used beyond the limits envisaged by the project, limitations identified on the nameplate. Avoid that the equipment during the financial year, is subject to vibration that can induce failure. Any tampering or misuse is forbidden. Do not expose to open flames or sources of heat. Do not use the equipment in areas where there are risks of explosion and fire. The equipment should be used at a temperature between 0 ° C and 50 ° C. Do not use in equipment other type of fluids except air (in particular corrosive, highly flammable and toxic products are prohibited).

IMPORTANT! **The manufacturer's liability ceases with modifications or tampering or operations which may compromise the safety and stability, practiced after the final inspection and issue the declaration of conformity.**

It is forbidden to perform welding on the equipment or its components. The user must follow the provisions of the laws of the countries of destination.

3 FEATURES

3.1 GENERAL DESCRIPTION OF THE MACHINE

As shown in the following image, the apparatus consists essentially in a table enclosed by a cover open on three sides. The opening on the side allows the entrance of the animals to be treated in the chamber inside of which are present the spray nozzles that release the medicine (or other product) to be administered. The release of sprayed product is controlled by the operator with dedicated buttons on the front of the device.
I report a description of the main groups:

- Base: consists of a stainless steel structure with four feet of anchor, which make it stable and easily placed on many different shelves and, therefore manageable in each company. A central outlet allows the evacuation of the liquid which may be deposited on the bottom. Two guides adjustable in width, allow you to adapt any type box to the cab.
- Proximity sensor: in the terminal part of the hood a pneumatic sensor, equipped with a lever, is activated when the thrust of the box reaches the stroke end.
- Connection: can be implemented with any type of equipment capable of providing compressed air with a pressure between 6 and 8 bar, common to all air compressors on the market today. The connection is made with the special pipe provided between the graft placed in correspondence of the pressure regulator and the compressor of the company.
- Pumping unit: is integrally placed to the base with two screws in the moment in which the cabin spray is assembled. In addition the connections with the two air tubes identified by colors corresponding to their respective positions must be carried out simultaneously. The pumping unit consists of a pneumatic jack connected to the thrust load on the graduated cylinder in which the vaccine solution is first aspirated and then pushed towards the nozzles. The amount of liquid can be changed through the adjustment screw on the back of the cylinder. A locknut firmly fixes the set volume. The activation of the cycle takes place after the complete introduction of the box up to the front limit so as to activate the consent valve; the position of the box must be maintained until the completion of spraying. The first filling of the circuit at the beginning stage is done manually by acting on the stroke end until the verification that there are no air bubbles within the circuit.

  The solution is sucked through the tube of silicone rubber fitted on the front of the pumping element. The connection must be integral with the tap at the base of the container of the vaccine. The boost pressure can be varied via the pressure regulator.

- Nozzles: are in number of four or six. They are shaped as full cone and consist of two elements (a perforated plate and a vane in the series of 4 nozzles and a single body in the series of two nozzles). In case of disassembly and reassembly it is important to observe the correct order. The two nozzle elements are interposed to the anti-drip by a rubber seal. The fixing ring nut must be tightened so as to avoid improper drips. The nozzles can be replaced in relation to different characteristics of the vaccine used.
- Plexiglas hood: the Plexiglas hood is fixed on the interlocking base. At the first time, you have to take care to match the protruding part of the interlocking base with the slit formed on the basis of the hood. This ensures the containment or any drift of spray on the box. The transparent material enables to check the proper functioning during the deployment. The cleaning must be carried out avoiding the use of abrasive products in

order not to damage and alter, especially for aesthetic purposes, the natural transparency of the material.

In the picture on the next page you will see the main components of the equipment with two pistons. The version with a pumping element is not equipped with the flow regulator and with the second pumping.

POSITION	DESCRIPTION	POSITION	DESCRIPTION
1	Table	18	Washer thickness
2	Leg	19	Pressure Regulator
3	Legs Support	20	Flow Valve
4	Base cover	21	Pump bracket
5	Wall cover 800mm	22	Gauge
6	Wall Cover 575mm	23	Washer thickness
7	Nozzle	24	Tap
8	Nozzle holder	25	Elbow plug
9	Splitter	26	Micro
10	Tube	27	Elbow plug
11	Tube	28	ScrewTBEI
12	Tube	29	Screw TBEI
13	Tube dm.4	30	M5 nut
14	Angle bracket	31	Washer
15	Safety bracket	32	Screw TBEI
16	Pump bracket		
17	Gauge		

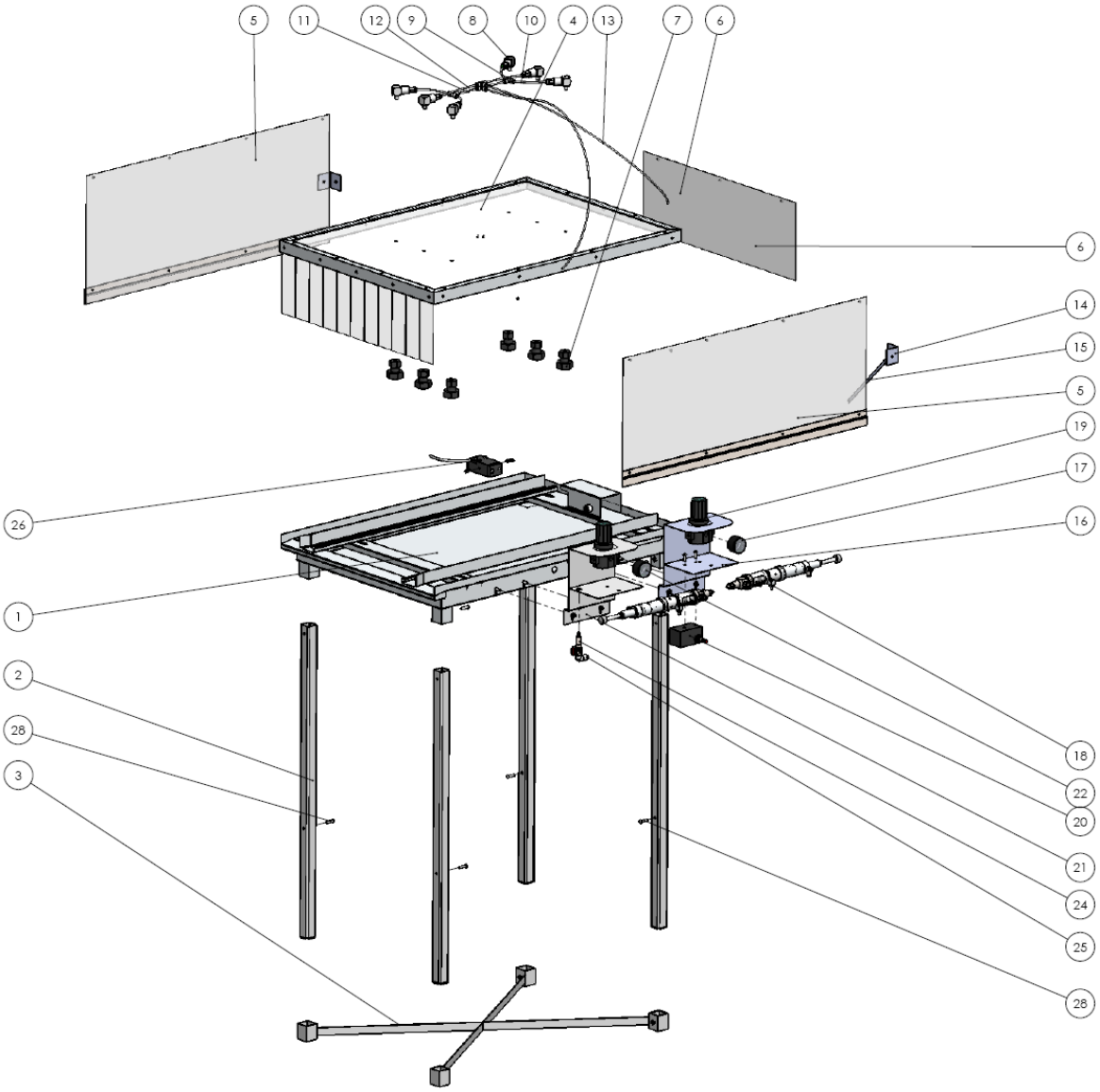


Fig. 3.1 Principal Component

3.2 TECHNICAL SPECIFICATIONS

Weight of the Machine: Cabin mono **Cabin dual**	15 kg 16 kg
Height	1188 mm
Depth	521 mm
Widht	810 mm
Supply Pressure	6 bar

3.3 PRINCIPLE OF FUNCTIONING

On the equipment it is installed a valve lever that activates the pump delivering the product for the treatment of animals.
The version is available with single or double pumping.
The version with two pumping elements, can deliver in sequence two types of vaccine.
The operator can perform three types of adjustment:

1. Adjusting the amount of product/s to be delivered to animals subjected to the processing, is performed by acting on the pumping elements (indicated above);
2. Adjusting the pressure of the fluid atomized, is performed using proper controllers (one for each product to be administered) associated with manometers.
3. Adjusting treatment times (only for two pumping version)

The drive takes place via the insertion of the animals in the room where it operates a microswitch which detects the presence and controls the release of the treatment, in the form of spray, through nozzles which may be n. 4 or #n.6 (in the version with two pumping) installed on the top of the lid.

4 STORAGE, TRANSPORT, ASSEMBLY

4.1 LIFTING AND TRANSPORT

To avoid that, in case of fall of the apparatus, some parts may affect people or break, make sure that during transport, there are no obstacles.

IMPORTANT! **The company is not liable for any damage caused to the equipment during transport.**

4.2 STORAGE

In case of prolonged storage, keep the machine protected from rain and wind, and possibly in a dry place. Protect particularly well against dust and external agents. The device will be damaged if, during its storage, will be kept in environment at critical temperatures. Do not expose the machine at temperatures below 0 ° C and above +50 ° C.

4.3 ASSEMBLY

The equipment is supplied disassembled and packed. To use it you must:
- Remove components from the packaging;
- Place the supporting feet below the table and fix them with 4 screws (detail A);
- Insert the leg supports and fasten with the appropriate 4 screws (detail B);
- Place the three polycarbonate screens below the base of the cover;
- Attach the cover to the frame by a specific angle bracket and a stud attached to it;

- Attach the nozzle to the cover;
- Fix the delivery groups to the table;
- Connect the pipes through the couplings, respecting the positions or the attack sites corresponding to the length of the wired tubes ,already present in the body of the table;
- Connect the pumping elements to the respective feed pipe of the nozzles through the elbow piece on the front of the pumping element;
- Connect the table to the primary power line (6 bar);
- Connect the suction pipes to the containers in which the vaccine is stored

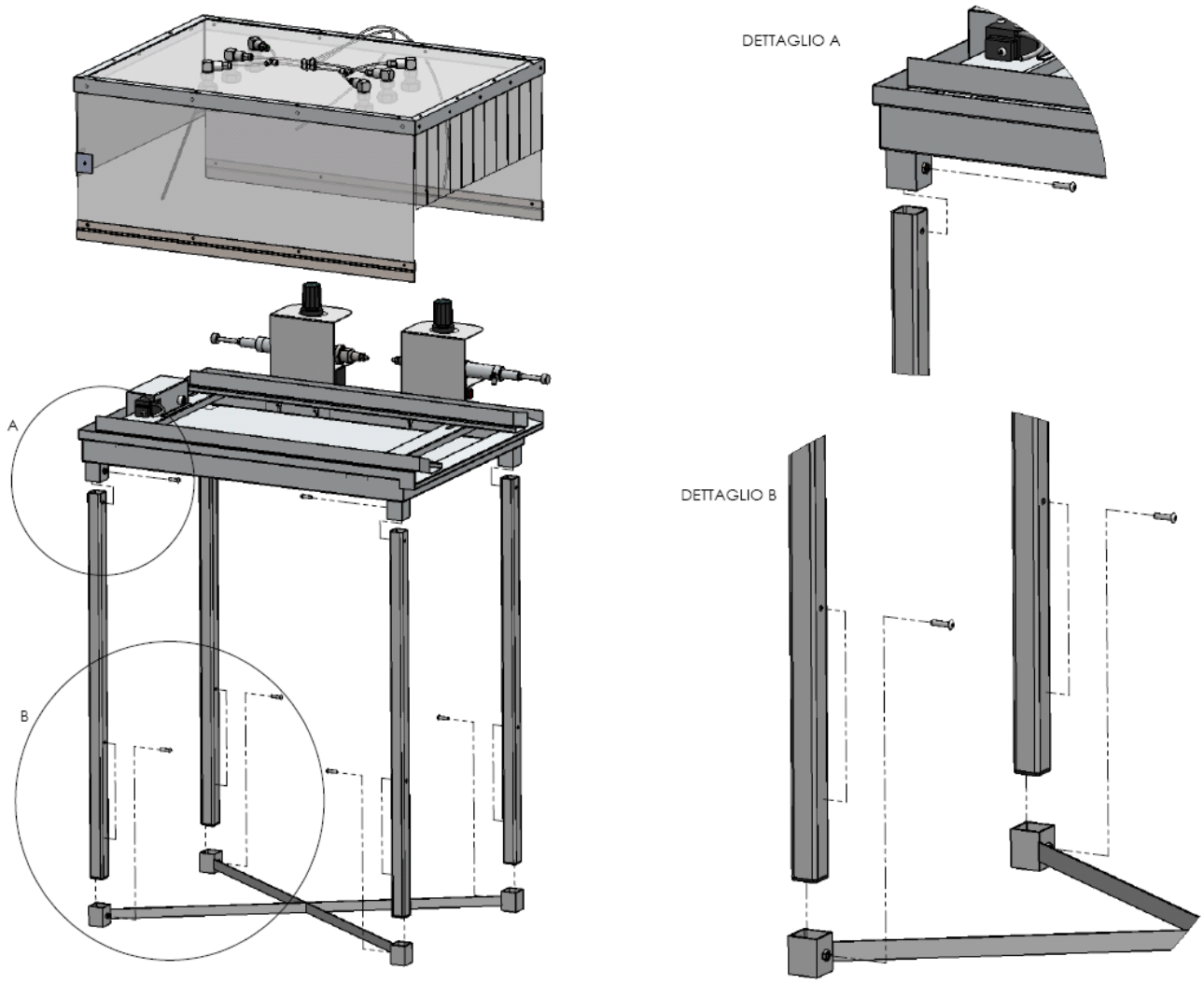


Fig. 4.2 Assembly of support legs

5 FUNCTIONING AND USE

5.1 INTRODUCTION

The purpose of this chapter is to provide all the information necessary for the use of the equipment for the injection of drugs in animals.

Ensure that during the preparation of the vaccination solution any kind of dirt is not introduced into the container. Otherwise beside, contaminating the solution, it should occlude the outlet hole of the nozzles affecting its functioning.
Perform an accurate cleaning at the end of each cycle of use, making sure to rinse the entire circuit with a detergent and then with distilled water. To ensure also the complete emptying and cleaning, the dismantling of the front part of the pumping unit ,can be carried out periodically. This, beside supporting the entire valve body, allows the removal of the room in which the vaccination solution is sucked. The removal is done by turning counterclockwise the body valve having the foresight to maintain the sealing gasket placed between the cylinder and the body, when the body will be relocated in the working position.

IMPORTANT! **For its functioning, the equipment must be connected to an external pneumatic line.**

5.2 PRELIMINARY OPERATIONS

Before starting the installation operations you must check the following conditions:

- Ensure that all equipment is completely clean;
- Connect the appropriate high-pressure hose to a compressed air network connecting the pipe with the tap on the device in the point of quick coupling (see Figure 5.1);
- Connect the bags containing the drug to the pumping (see Figure 5.1);
- Check the connections between the compressor pumps and nozzles.

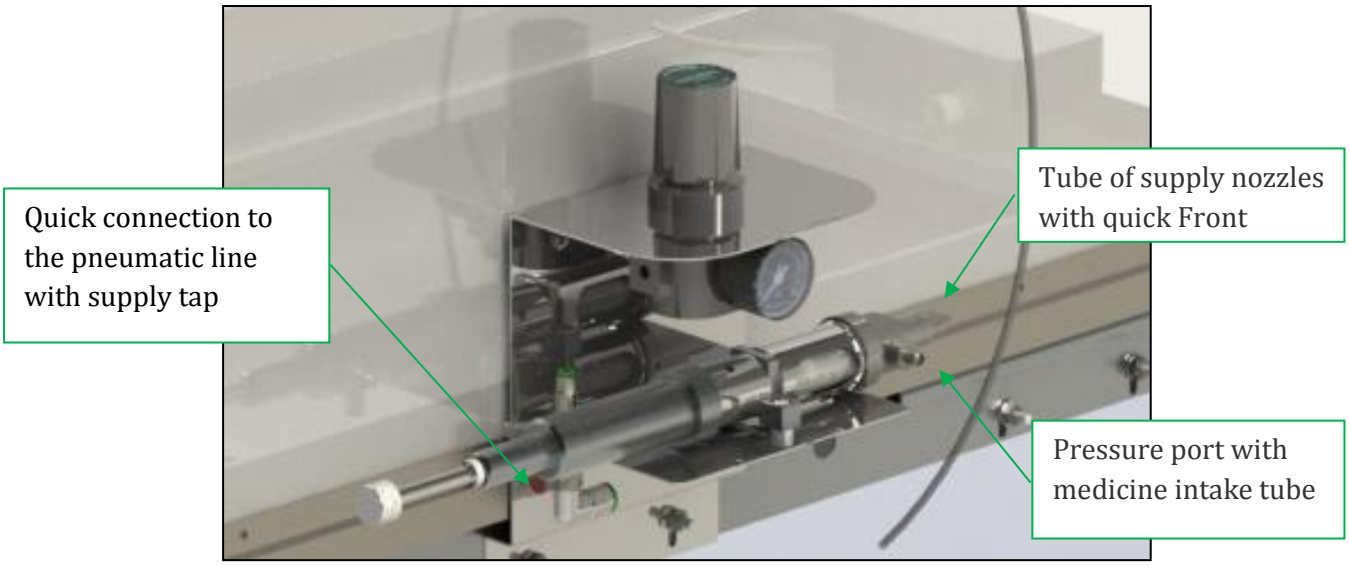


Fig. 5.1: Preliminary Operations

Wear suitable protective equipment (gloves, clothing and goggles).

Intervene on tap air supply to disconnect the machine from the power supply.

IMPORTANT! IT IS FORBIDDEN TO USE A PRESSURE OVER 6 BAR.

IMPORTANT! CALIBRATION OF PRESSURE MUST BE PERFORMED BY MEANS OF INDIVIDUAL PRESSURE REGULATORS

5.3 GROUP WITH FOUR AND SIX NOZZLES

The cabin is sold in the version with single or double pumping.
For the version with a sole pumping element, there are four nozzles in dual body and allow a single type of treatment.

The version with two pumping elements, besides these four nozzles, there are 2 more nozzles in a single body that can dispense another type of medicament in the previous sequence.

The following image shows the two versions.

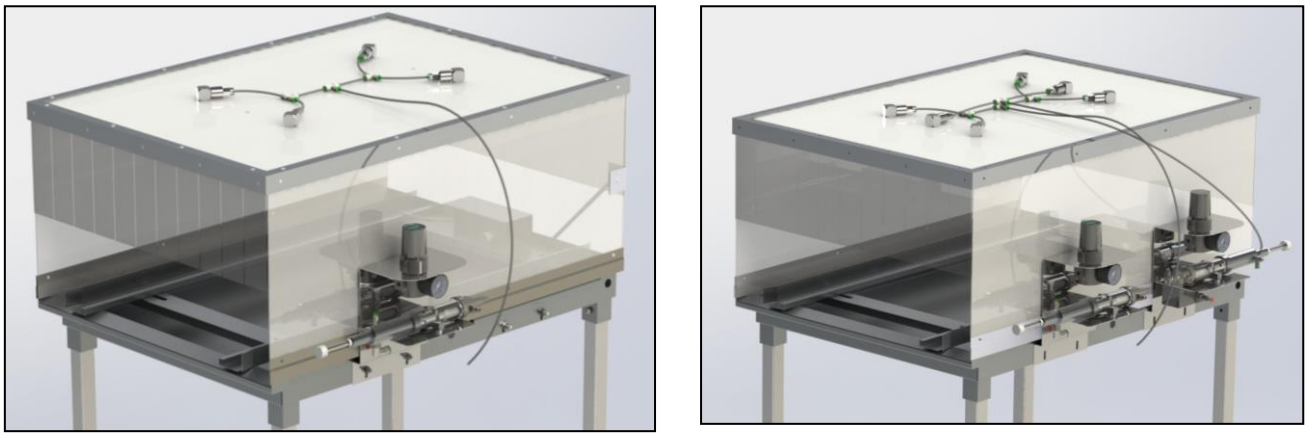


Fig. 5.2: Indication of the cabin of 6 or 4 nozzles

5.4 INSTRUCTIONS FOR USE

1. Adjust the amount of medicine to be administered into animals by acting on the control located above each pump connected to the bag of medical product. Verify the quantity through the graduated scale placed on the cylinder of the bag of medical product

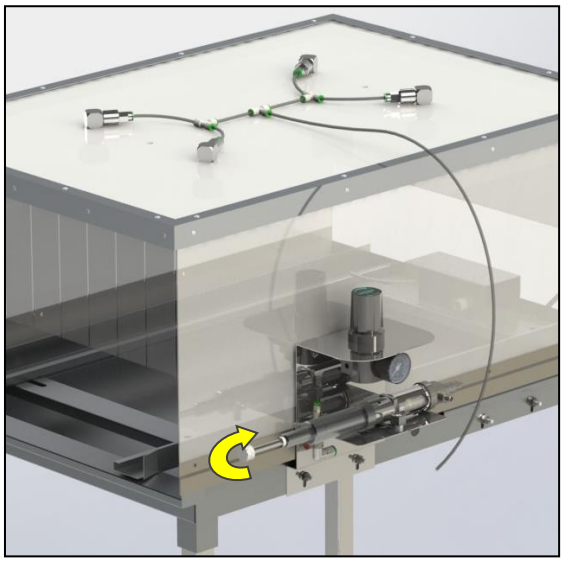


Fig. 5.3: Medication Regulator

2. Adjust the pressure of the atomized liquid that exits from the nozzles for administration. The adjustment is performed by acting on the appropriate regulators associated with the respective pressure gauges for the control of the pressure level. For this adjustment it is necessary to lift the knob upwards and rotate it clockwise or counterclockwise depending on whether you want to increase / decrease the pressure on the pressure gauge detectable. The optimum operating pressure is 6 bar. Upon completion of the adjustment, lower the locking knob to block.

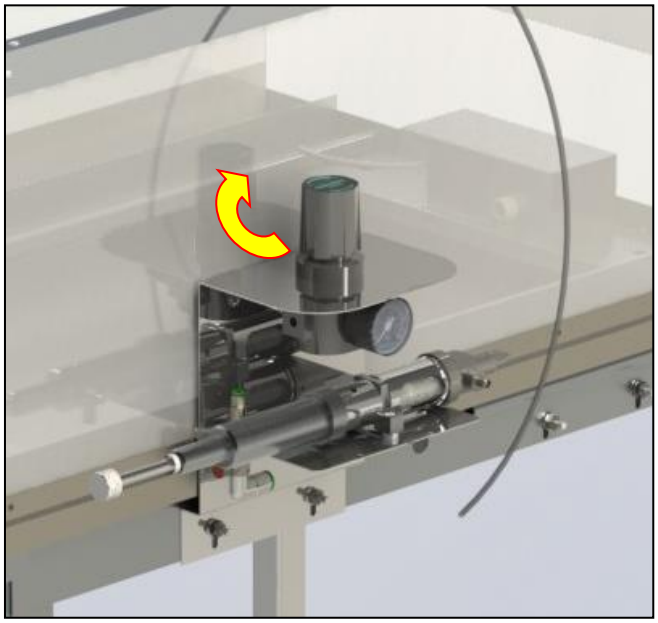


Fig. 5.4: Pressure regulator

The pressure setting is indicated by the pressure gauge on the pump, shown in the picture.

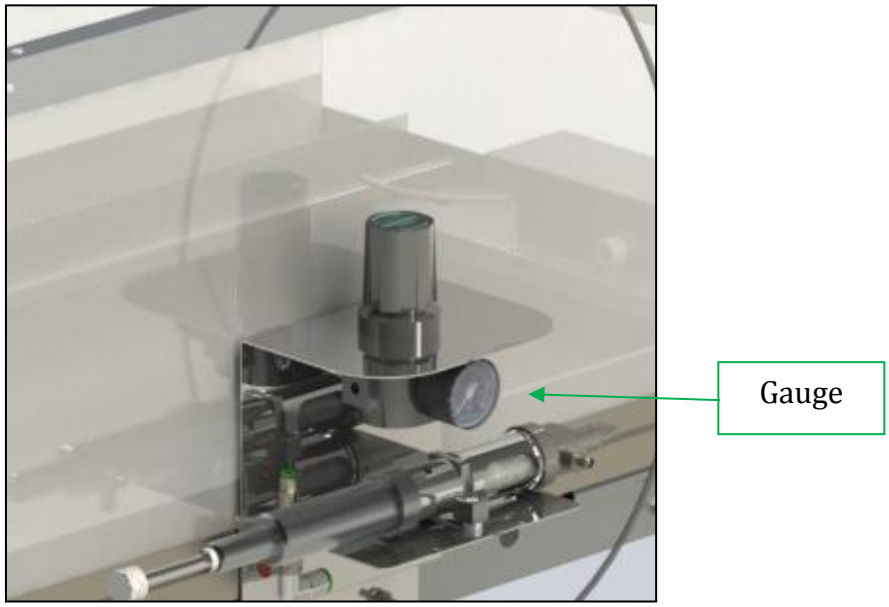


Fig. 5.5: Gauge

3. Insert the cage with the animals to be subjected to medical treatment and push until it stops. The position sensor (micro) installed on the table will detect the presence of the animals and will control the release of the medical substances sprayed.

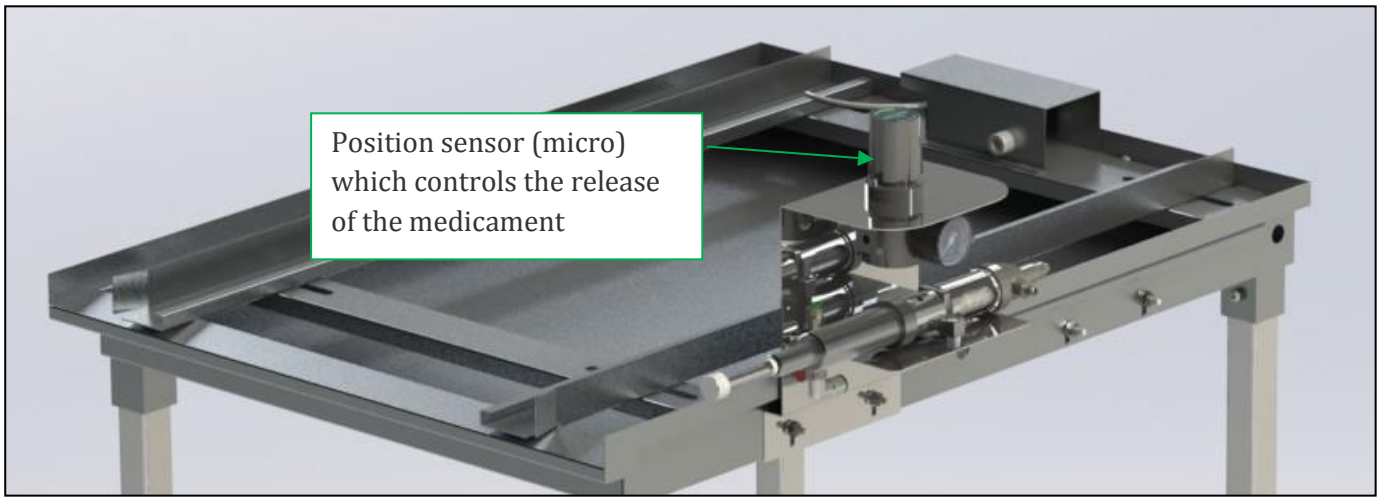


Fig. 5.6: Position Sensor

4. Wait 5 to 10 seconds after the spray and remove the cage with the animals.

5.5 RECOMMENDATIONS FOR USING NOZZLES

A different type of nozzle is recommended depending on the vaccination product and illness destined for.

NOZZLE COLOUR	MODEL	PRESS. BAR	DROP MICRON	RECOMMENDED USE
GREEN	CONE	6	146	IB
		5	151	IB
ORANGE	CONE	6	122	IB
		5	127	IB
YELLOW	CONE	6	167	Newcastle
		5	173	Newcastle
BLUE	CONE	6	188	Coccidiosis Pneumovirus
		5	195	Coccidiosis Pneumovirus

Example: If we want to vaccinate against IB, we can use a green cone nozzle at 6 bars of pressure, so we will get a droplet size of 146 microns or we can apply 5 bars of pressure, obtaining then a droplet size of 151 microns.

IMPORTANT!

Droplet size used during vaccination is essential to assure good vaccines results. It is recommended to follow up HIPRA's instructions.

5.6 CONTROL OF THE FLOW VALVE (ONLY VERSION WITH TWO PUMPING)

If the spray booth is equipped with two pumping units, it is necessary to make the adjustment of the time interval between the two treatments. As previously mentioned, the dose and the pressure is adjusted directly from the pump and the pressure gauge.
With this further adjustment it is possible to determine the alternating start of the two pistons.
In order to determine the delay of the second pumping from the first it is necessary to act on the flow valve shown in the picture. It's just sufficient to turn it clockwise / counterclockwise to slow / shorten the waiting time between a treatment and the other, establishing the position through the nut.

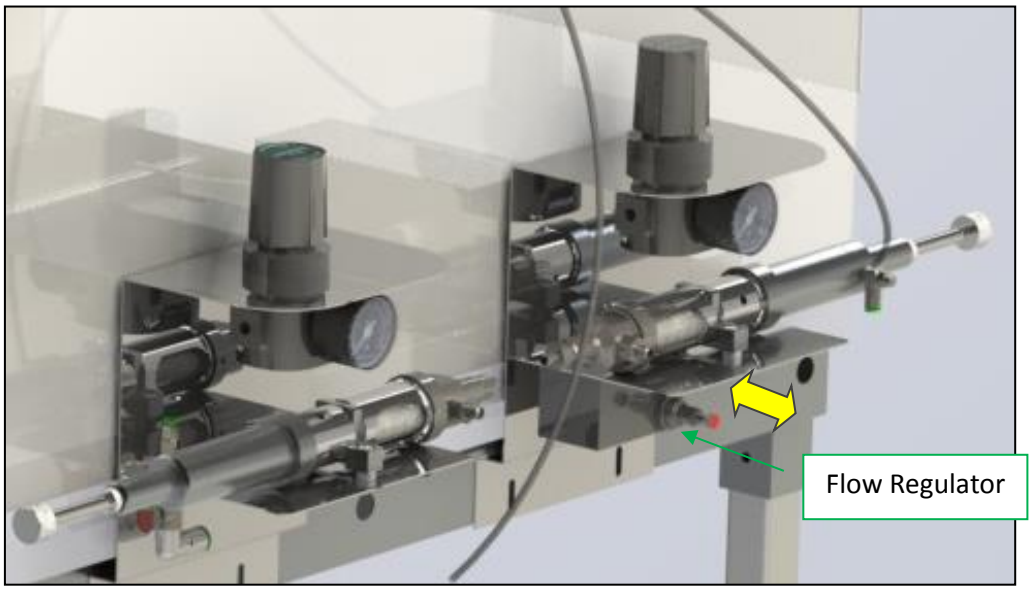


Fig. 5.7: Spray booth with two pumps

5.7 ADJUSTING GUIDES

Two guides adjustable in width, allow you to adapt any kind of box to spray booth. To change the centering ,the two screws located at the two ends of each guide must be loosen until the required distance, taking care to respect on both sides the same displacement so as to always ensure a perfect centering of the box with respect to the nozzles above. The guides equipped with raised edge also allow the use of cardboard boxes.

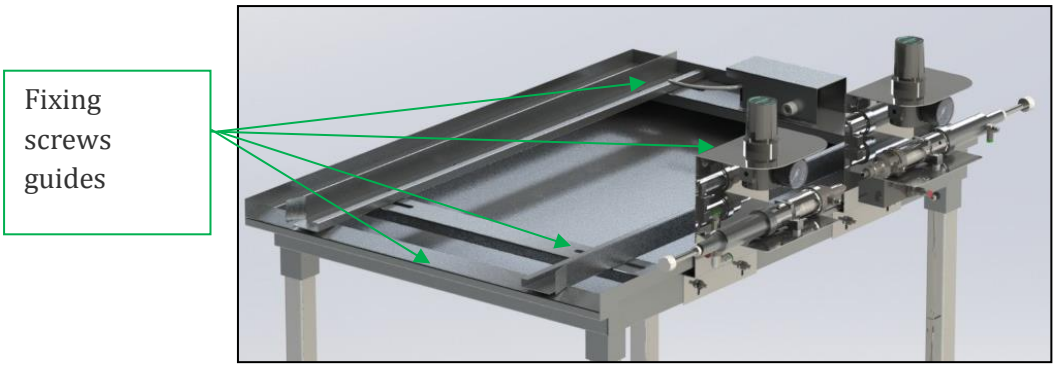


Fig. 5.8: Spray booth with two pumps

6 ROUTINE MAINTENANCE

IMPORTANT! Cleaning the equipment must be carried out after each use.

Perform all maintenance work on the hood, taking care to disconnect the compressor in order to avoid accidental activation

Wear suitable protective equipment (gloves, clothing and goggles)

6.1 CLEANING THE CABIN

The elements which need an accurate cleaning are:

- The pumping body, made by stainless steel plunger, graduated glass cylinder, valve inlet and outlet liquid.
- The spray nozzles placed on the top of the table cover.

IMPORTANT! For proper cleaning we recommend the use of products such as hot water and not-caustic solutions in order to avoid unnecessary and harmful attacks on individual components of the equipment.

IMPORTANT! The equipment washing must be followed by a completely dry of all parts before its replacement.

The pneumatic cylinders should never be washed, if necessary, use a damp cloth to clean the exterior.

Once completed use, in order to perform the disassembly of the equipment, you must act according to the following procedure:

1. Unhook the bags (or vials), containing medicaments to be atomized, from the pumping for dosing installed on the cab. Proceed with the cleaning of pumping to remove the medical product residue. The cleaning will be done through a damp cloth.
2. Unhook the air line outside the machine by turning the tap installed on the cab.

Perform an accurate cleaning at the end of each cycle of use, making sure to rinse the entire circuit with a detergent and then with distilled water. To ensure also the complete emptying and cleaning, the dismantling of the front part of the pumping unit, can be carried out periodically. This, beside supporting the entire valve body, allows the removal of the room in which the vaccination solution is sucked. The removal is done by turning counterclockwise the body valve having the foresight to maintain the sealing gasket placed between the cylinder and the body, when the body will be relocated in the working position.

6.2 LUBRIFICATION OF THE PUMPS

Each pumping element is provided by a silicone seal ring that slides on the transparent graduated cylinder. This component is subject to wear and tear and it is important to keep it efficient.

To ensure a slip fit and a low wear and tear, it is prescribed to perform the lubrication of the pump by means of oil or vaseline, At least once a week, and also washing inside and outside.

The absence of cleaning and lubrication could compromise the seal of the silicone gasket and its sliding inside the graduated cylinder.

It is important in the case of disassembly and reassembly to observe the correct order.

6.3 CLEANING THE NOZZLES

In case of abnormal drip, remove the drip-drip and clean it with a jet of air.

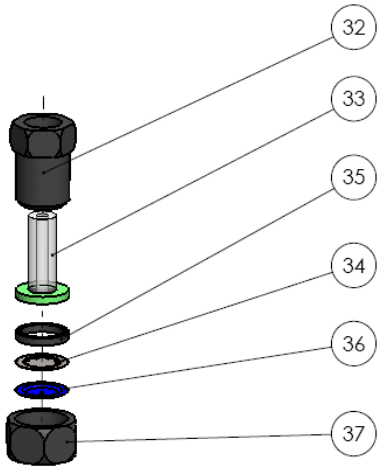
It is important, in case of disassembly and reassembly, to observe the correct order

The two nozzle elements are interposed anti-drip by a rubber seal. The fixing ring must be tightened so as to avoid improper drips.

The nozzles can be replaced in relation to different characteristics of the vaccine used.

Cleaning should be carried out using only a jet of water and compressed air.

Below there is a picture of the correct installation of the four nozzles in the single pump.



32	Nozzle Holder
33	Drip
34	Vane
35	Gasket
36	Perforated plate
37	Ferrule

Fig. 6.1: Nozzle assembly for single pump

Here is the image of the two nozzles added for the version with two pumps.

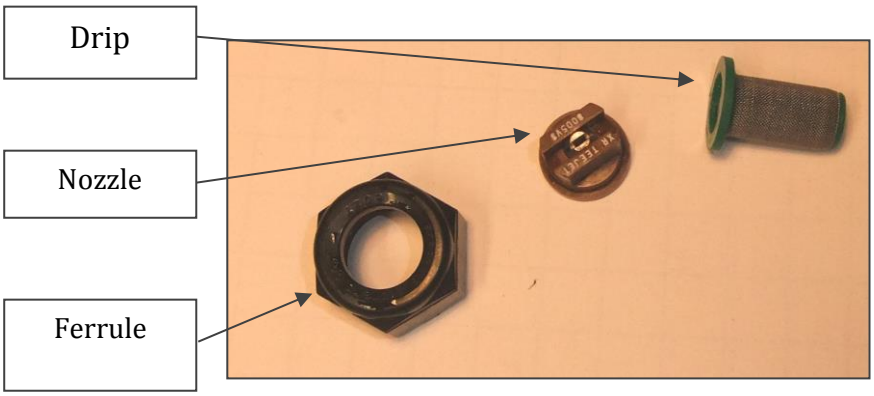


Fig. 6.2: Nozzle assembly for second pump

7 DEMOLITION AND DISPOSAL

7.1 DEMOLITION AND DISPOSAL

At the end of the cycle of real life, the user firm has to proceed to the alienation of the machine in compliance with the regulations by providing the general cleaning of the various elements and the separation of the pieces that make up the machine. After disassembling the machine it is necessary to separate the various materials in accordance with the law requirements of the country in which the machine must be eliminated. The machine does not contain dangerous substances or components that require special procedures for removal.
To dismantle the machine, proceed according to the following general procedure for removal:

- Disconnect the mechanical parts.

ATTENTION: When handling waste it is necessary the use of appropriate personal protective equipment.

7.2 DISPOSAL OF THE MACHINE

The disposal of waste arising from the demolition of the machine must be done with the respect of environment, avoiding pollution of soil, air and water.
In each case local laws in force must be respected.
It should be noted that waste means any substance or object which the holder discards or intends to discard or it is required to discard (Legislative Decree 152/2006).
The waste resulting from the demolition of the machine is classified as special waste.

7.3 DEMOLITION MATERIALS

Waste is considered non-hazardous if it that can be recovered pursuant to Legislative Decree 152/2006. As regards to the elimination, you must keep in mind that the materials of which the machine is made is not dangerous in nature.

7.4 INDICATIONS FOR APPROPRIATE TREATMENT OF THE WASTE

The proper management of hazardous waste includes:

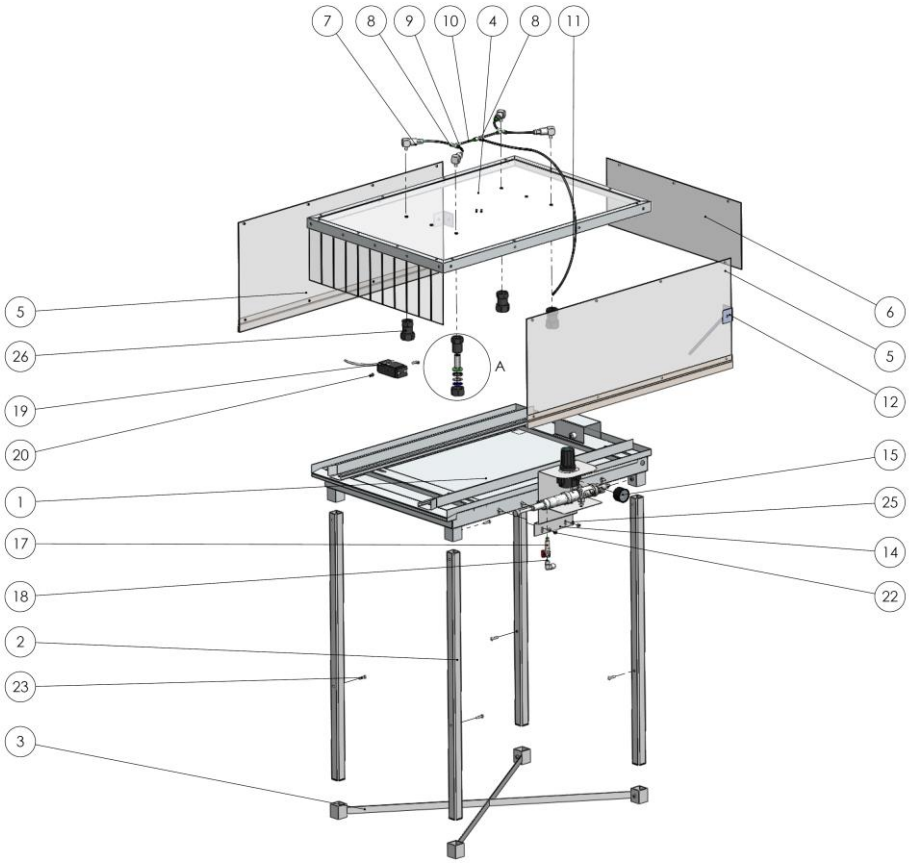
• Storage in suitable places avoiding the mixing of hazardous waste with non-hazardous waste.

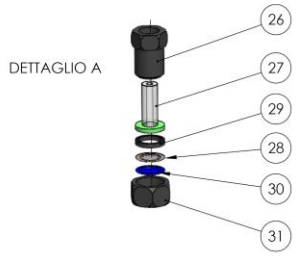
• Ensure that the transportation and disposal / recovery of the waste is done by carriers and authorized recipients.

Transport of personal waste to authorized collection centers is only permitted if you are enrolled to the title of “Environmental Managers”.

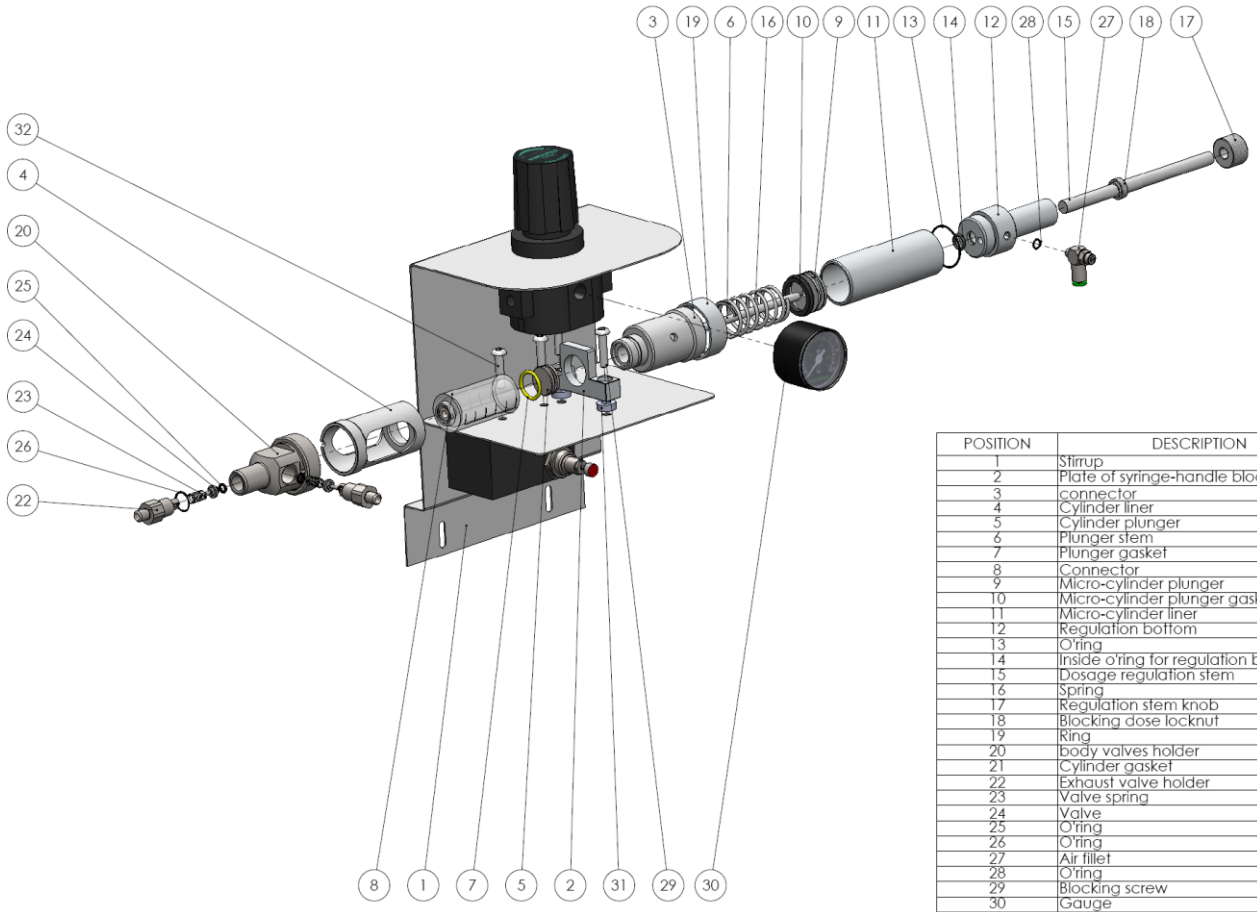
For the waste of vaccine bags and bottles , follow the instructions on the relative packaging.

LIST OF SPARE PARTS





POSIZIONE	DESCRIZIONE
1	Tavolo
2	Gamba
3	Supporto gambe
4	Base coperchio
5	Parete coperchio 800mm
6	Parete coperchio 575mm
7	Porta ugello
8	Sdoppiatore
9	Tubo
10	Tubo
11	Tubo dm.4
12	Staffa angolare
13	Staffa di sicurezza
14	Staffa siringa
15	Manometro
16	Rondella spessore
17	Rubinetto
18	Innesto a gomito
19	Micro
20	Innesto a gomito
21	Vite TBEI
22	Dado M5
23	Vite TBEI
24	Vite TBEI
25	Rondella
26	Ugello
27	Antigoccia
28	Vorticatore
29	Guarnizione
30	Piastra forata
31	Ghiera



POSITION	DESCRIPTION
1	Stirrup
2	Plate of syringe-handle blocking
3	connector
4	Cylinder liner
5	Cylinder plunger
6	Plunger stem
7	Plunger gasket
8	Connector
9	Micro-cylinder plunger
10	Micro-cylinder plunger gasket
11	Micro-cylinder liner
12	Regulation bottom
13	O'ring
14	Inside o'ring for regulation bottom
15	Dosage regulation stem
16	Spring
17	Regulation stem knob
18	Blocking dose locknut
19	Ring
20	body valves holder
21	Cylinder gasket
22	Exhaust valve holder
23	Valve spring
24	Valve
25	O'ring
26	O'ring
27	Air fillet
28	O'ring
29	Blocking screw
30	Gauge
31	Washer
32	Screw TBEI M5