Manual

Pneumatic Vaccinator

Made by Henke-Sass, Wolf GmbH in Germany

Contents

1 Introduction

Congratulations on the purchase of a Pneumatic Vaccinator, manufactured by Henke-Sass, Wolf GmbH. The Pneumatic Vaccinator has been designed to provide a modern, innovative and user-friendly device, which is easy to operate. Henke-Sass, Wolf is a well-known producer of medical equipment for human and for veterinary applications with more than 95 years of experience. Latest R&D methods, a state-of-the-art production plant in Germany and highest quality standards are a lasting guarantee of our clear benefits to our customers' equipment needs.
The aim of this manual is to help you to understand how to install and use your new equipment. Before using the Pneumatic Vaccinator, please read this manual completely. In case you need further information about Henke-Sass, Wolf equipment, please contact us any time.

1.1 About this document

This user manual is part of the Pneumatic Vaccinator and an important part of the security concept.

- Read the user instruction carefully and follow the instructions for use.
- Keep the user instruction available anytime the Pneumatic Vaccinator is in operation.
- Share the user instructions with all users of the Pneumatic Vaccinator.

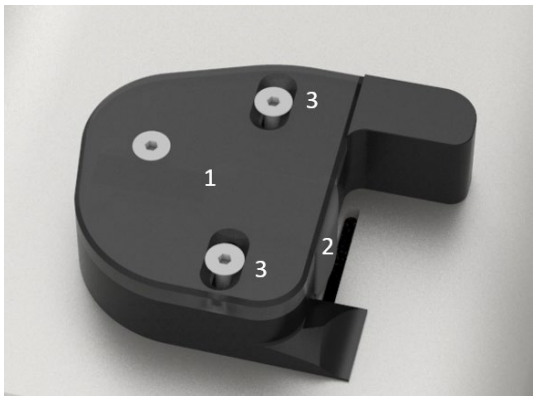
Whilst reading the user instruction, note and observe the warnings on material damage, injury or death.

Warning symbol	Meaning
 Danger	Imminent danger! Non-observance of these warnings can result in death or extremely severe injuries.
 Warning	Possible imminent danger! Non-observance of these warnings can result in severe injuries.
 Caution	Dangerous situation! Non-observance of these warnings can result in minor injuries or material damage.
Note	Dangerous situation! Non-observance of these warnings can result in material damage.

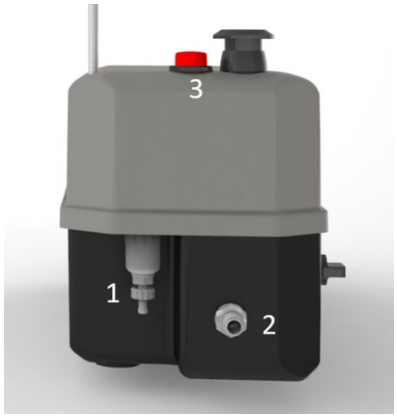
2 General information

2.1 Characterization

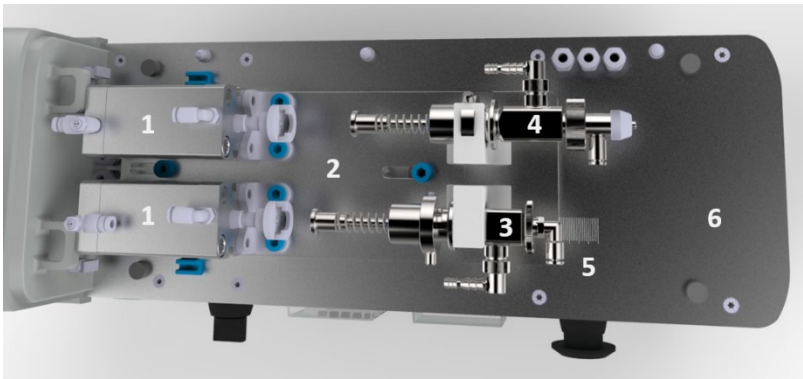
1. Pressure gauge
2. Functional switch
3. Batch counter
4. Day counter / total counter
5. Manual button
6. Reset button



1. Trigger box
2. Trigger element
3. Screws (adjustment purposes)



1. Air filter
2. Compressed air connection
3. Optical signal



1. Double-stroke cylinder
2. Syringe plate
3. Right syringe
4. Left syringe
5. Measuring scale
6. Ground plate

2.2 Intended use

The Pneumatic Vaccinator is intended to be used as a pneumatic vaccinator for day-old chicks. Therefore, the Pneumatic Vaccinator is permitted to be operated only by veterinary practitioners or operators instructed by a veterinary practitioner. The Pneumatic Vaccinator and all its components are intended to be used within the permitted pressure and in accordance with their chemical resistance.

2.3 Unintended use

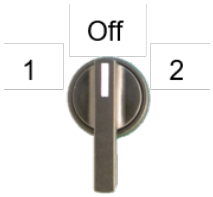
- The device is not intended to be used for vaccinating other animals except chicks.
- The device is not intended to be used for vaccinating chicken older than one-day.

2.4 Safety information

Note — Read this manual completely before using the equipment.
Only well-trained personnel should use the Pneumatic Vaccinator.
Follow the operation and cleaning / maintenance instructions carefully.

Danger — In case of accidental injection of any person using the Pneumatic Vaccinator**,** contact a physician immediately and show the product insert of the injected vaccine.

Danger — For any maintenance activity or needle replacement, switch off the Pneumatic Vaccinator by turning the function switch to the middle position.



1 = ON
2 = Manual function

Warning — Replace defective parts with new parts that have been supplied by Henke-Sass, Wolf GmbH immediately.

Note — Replace needles regularly to guarantee good quality of injections and to reduce the risk of cross contamination. Use new disposable needles of the brand HSW FINE-JECT®.

Warning — Regarding all actions, be aware that you can injure yourself with needles. Due to this it is recommended to handle them extremely careful.

Danger Never place your finger or any other object in front of the syringe.

Note The Pneumatic Vaccinator operates with compressed air with an input pressure from 4 – 8 bar (58 - 116 psi). Please be aware that you may damage the device or you may have bad vaccination results if your input pressure is not in that range.

Note For proper disinfection please boil the syringe before first usage.

Note Do not place the device at an angle steeper than 45° for operation

Note Make sure to dry all parts after cleaning.

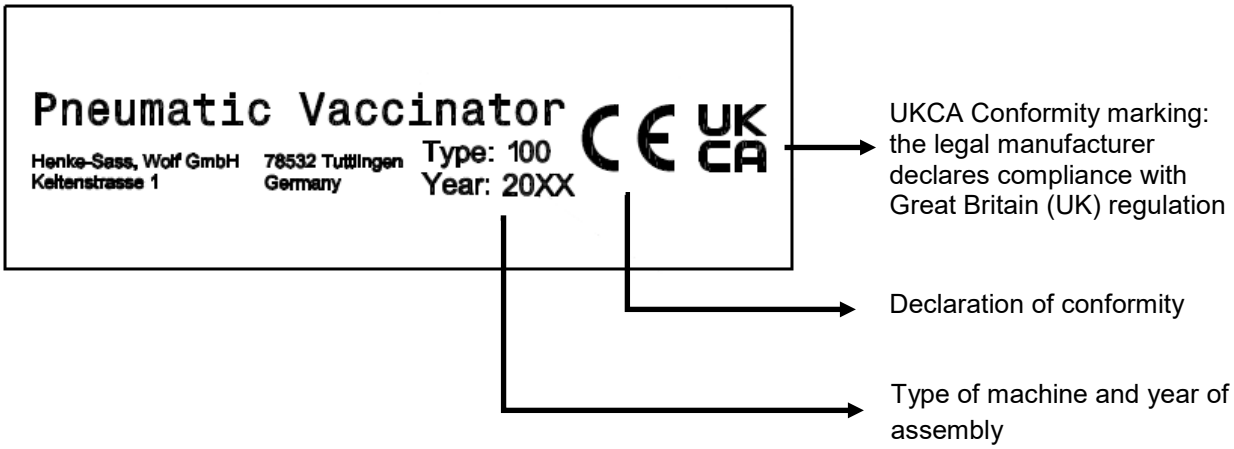
Note Lubricate all moving parts after cleaning with silicone oil.

Note The vaccination speed individually depends on operator and working conditions. It needs to be considered that quality and safety must remain priority.

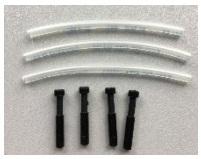
2.5 Transport and storage

- Protect the product against external forces during transport (e.g. impact, stroke).
- Check the device on any damage before first use.
- Store the device at ambient temperatures between 0°C and 45°C.
- Never store the Pneumatic Vaccinator at wet or moist conditions.
- Store the device under conditions where the ambient humidity is lower than 80%.

2.6 Safety symbols and advices on type plate

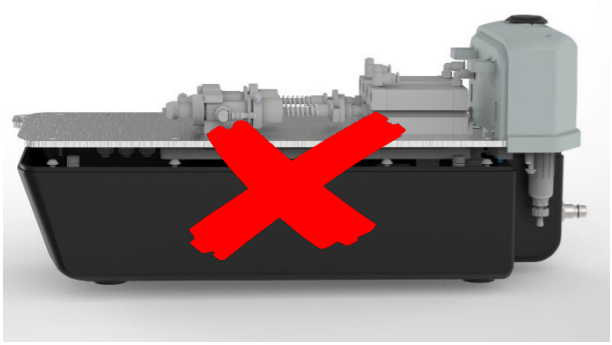


2.7 Scope of delivery

	Pneumatic Vaccinator 1x		Tubing Set (only for double version) 1x
	Vial Holder 1x		- Allen Key *(Size 5)* 1x - Allen Key (Size 2,5) 1x
	Dripping Chamber 3x (single version) 6x (double version)		Ruler 1x
	Syringes 1x (single version) 2 x (double version)		Manual 1x
	Measurement Cup 1x		Adapter compressed air 1x
	Needles *(0,90 x 25mm)* *(20G x 1")* 100x		Spare Part Set 5x

2.8 Basic information

All settings, necessary to operate the device properly such as adjusting the speed or system pressure have been made by Henke-Sass, Wolf. Thus, it is not foreseen that the user has to open the lower part of the device where crucial parts are located. Opening the screws and removing the syringe plate from the lower body of the machine will change functional settings and lead to malfunction or damage of the device. Therefore, we kindly ask you to only adjust settings that are especially described in the user manual and to not open the lower part of the device. Opening the lower part results in a loss of warranty.



3 Preparation

3.1 Connection to compressed air

First, make sure that your compressed air system is in good condition and supplies clean and dry air. If a proper air supply is guaranteed, please connect you air compressor to the device using the Euro connector on the back of the device. If this does not fit, please use the special tube adapter that we have supplied along with the device. This part fits to all compressed air tubes with inner diameters from 6 – 13 mm (0.24 – 0.5 Inch).

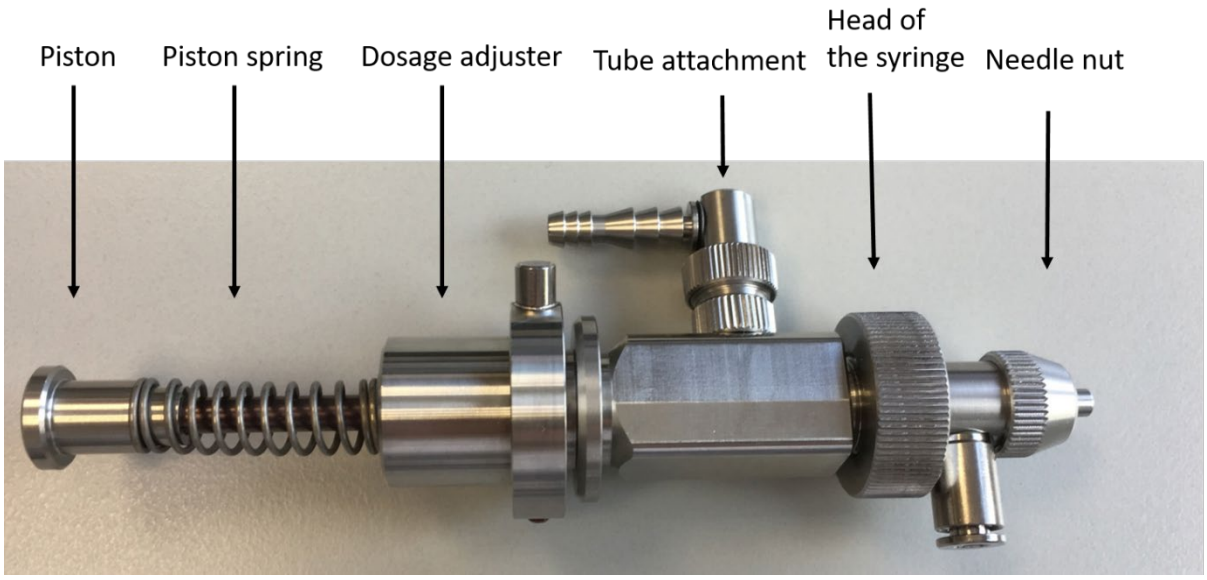
Please note that all pressure settings necessary to operate the device have been made by Henke-Sass, Wolf. Thus, you can connect the device to a compressed air supply which delivers an input pressure in the range of 4 – 8 bar (58 - 116 psi). The Pneumatic Vaccinator has a pressure regulating valve which is adjusted at a range of 5.8 to 6.2 bar (84-90 psi). Due to this predefined settings, the device can regulate the pressure automatically as it is required and no manual adjustment of the pressure on the device (for speed or any other reason) is necessary. This function ensures that the pressure is held on a proper level and will not cause any harm to the device.

3.2 Vaccine vial position

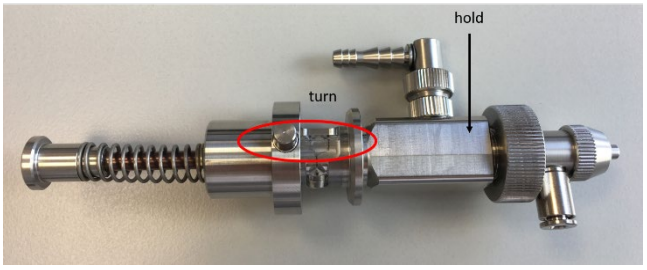
The bottle of vaccine should ideally be positioned on the vaccine vial holder which is supplied with the device or at a location of lower height. Positioning the vaccine vial at a higher level may cause a dripping of vaccine. Thus, loss of vaccine and jammed parts of the device will be the consequence. While taking a break from operating, it is recommended to stop the vaccine supply by closing the dripping chamber.

3.3 Syringe settings

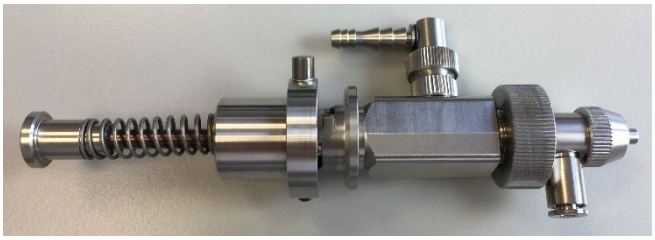
The syringe is equipped with an adjustable dosage volume. Consequently, the dosage can be adjusted in predefined volumes. It is possible to adjust the volume to 0,1 ml, 0,2 ml and 0,25 ml.



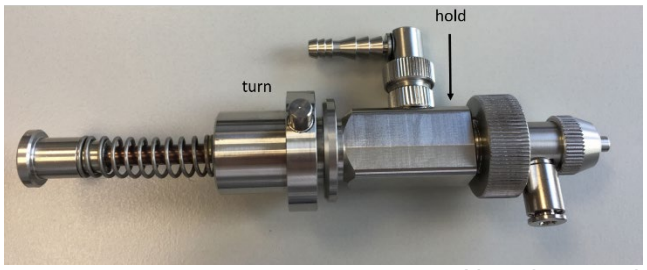
In order to change the preset dosage, please proceed as follows:



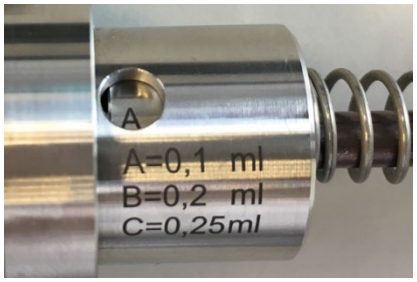
1: For priming purposes, the dosage must be set to 0,25ml.
In order to adjust the dosage, hold the syringe body and turn the dosage adjuster to the middle position as shown on the left.



2: The dosage adjuster has to be moved forwards or backwards (depending on the action) to the desired dosage position.
A = 0,1ml
B = 0,2ml
C = 0,25ml



3: As soon as the desired dosage position has been reached, the syringe body must be hold and the dosage adjuster must be turned till a click can be heard.



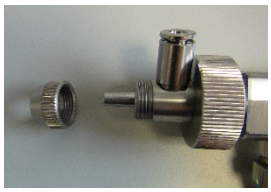
4: Now the new dosage is adjusted. To make sure the right dosage is adjusted, the hole on the dosage adjuster has to be checked. It indicates the chosen dosage.

3.4 Needle Installation

For your comfort and due to safety reasons the device is equipped with a patented needle installation principle. Thus, it is not necessary to remove the safety cap before the needle is installed on the syringe. The following steps will demonstrate how to install the needle.

Note Regarding all actions, it is recommended to handle the needles extremely careful to avoid self-injections.

Caution For your own safety and comfort, please do not remove the security cap of the needle until advised.

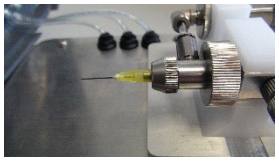


1: Turn off the device.
Lift the cover of the device, see 3.6.3.
Unscrew the needle nut from the syringe.
2: Take a needle.
(recommended HSW FINE-JECT® needle 0,9 x 25 mm / 20G x 1")

3: Place the needle nut in a horizontal position on a flat and stable surface (e.g. a desk). Insert the needle into the needle nut. For easy installation the needle nut is equipped with an oval recess.

Try to angle the needle for easier insertion as shown in the picture on the left. Afterwards, turn the inserted needle about 90° as shown on the right hand side.

4: Take the needle nut with the inserted needle between your thumb and forefinger and screw the needle nut onto the syringe (hand tight). The needle outlet can be adjusted by holding the needle at the hub while the needle outlet is at the desired position.



5: Remove the security cap from the needle.

6: Assemble the cover on the device, see 3.6.4.

Unless user's preferences, it is recommended to position the needle bevel facing to the right side (away from the trigger) to ensure good vaccination results.

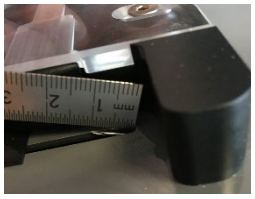
3.4.1 Adjusting the needle length

Warning To adjust the length of the needle please make sure that the device is turned off.

1: Before adjusting the injection depth, make sure the device is turned on (functional switch: position 2) and the needle has been installed as described in chapter 3.4. The cover has to be assembled correctly, see 3.6.4.

2: Push the manual button. The pneumatic cylinders will be supplied with compressed air as long as this button is pressed.

The needle comes out at the front of the device.

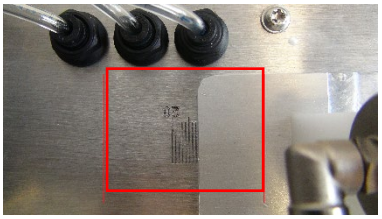


3: Measure the length of the needle, while holding the manual button pressed.

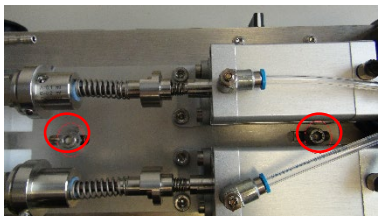
In case of using a different length of needle or needle with different length of needle hub as recommended you may have to adjust accordingly.

Note Different needle lengths will result in different injection depths. After changing the needle, the device should be checked and adjusted to ensure proper injection depth.

4: If needle length is not matching your preferred settings, please release the manual button. The pneumatic cylinders will retract the needle.



5: A scale on the ground plate can be seen. The distance between two lines is 1 mm (.04 inch). The scale will help you to adjust the injection depth / the needle length accordingly.



6: Release the two screws, shown in the picture on the left inside the red circle.

Adjust the needle length according to your needs by moving the syringe plate.

Reducing the needle length / reducing the injection depth
To reduce the length of the needle / to reduce the injection depth move the syringe plate to the back. Tighten the screws after finishing the adjustment.

Enlarging the needle length / enlarging the injection depth
To enlarge the length of the needle / to enlarge the injection depth move the syringe plate to the front. Tighten the screws after finishing the adjustment.

7: Assemble the cover. See 3.6.4.

8: Check again if the correct needle length / injection depth has been achieved by repeating steps 1 to 3 of this chapter. If the needle length / injection depth is still incorrect, repeat steps 4 – 7 until the proper needle length / injection depth has been reached.

3.4.2 Removing the needle

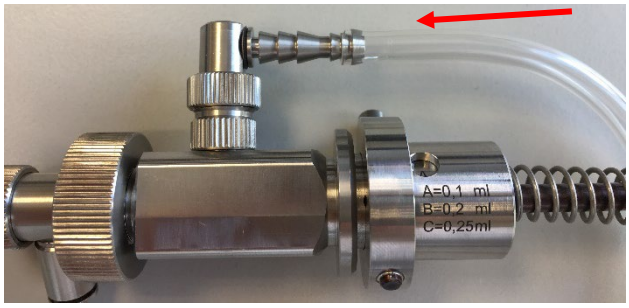
To remove the needle from the syringe, follow the steps described in topic 3.4 in reverse order. Take care to install the security cap on the needle directly after lifting the upper cover.

3.4.3 Recommended needles

In order to achieve the best vaccination results and for your own comfort, we recommend to use a HSW FINE-JECT® needle 0,9 x 25 mm - 20G x 1”.

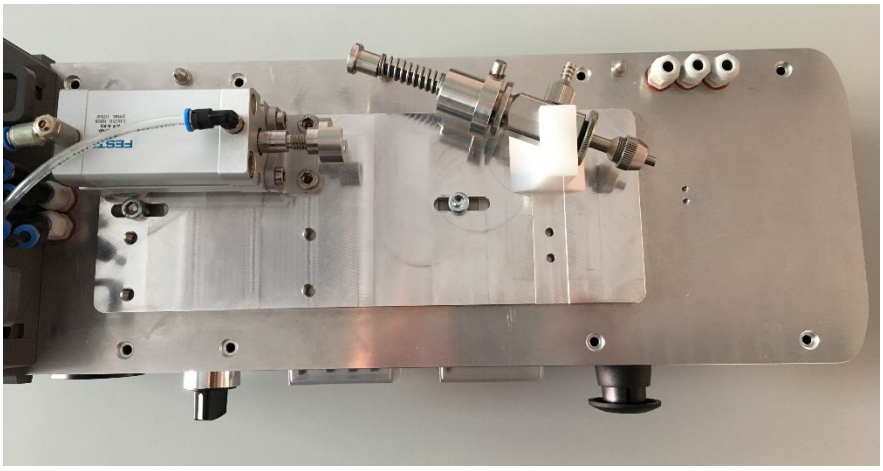
3.5 Priming the syringe

Initially, take a vaccine bottle and pierce it with a sterile needle. After that, place the bottle in the vial holder with bottle outlet hanging downwards and connect a dripping chamber to the vaccine bottle. Open the flow control and let the liquid flow out until the vaccine almost reached the end of the tube. Then, attach the vaccine tube to the syringe.

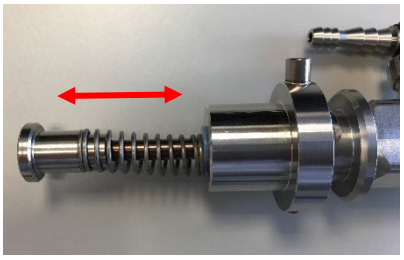


3.5.1 Priming (single injection)

1: Take the end of the syringe which is connected to the pneumatic cylinder and pull it carefully to the left

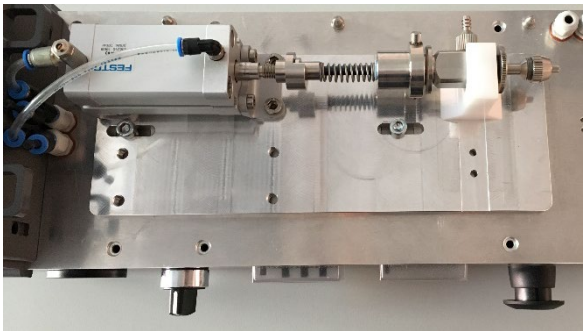


2: Adjust the dosage of the right syringe to “C” (0,25ml).
For dosage adjustment, see 3.3.



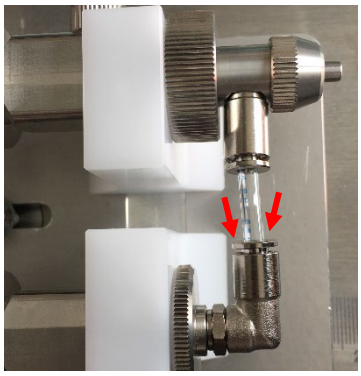
3: Push the piston several times until the syringe is completely filled with vaccine and no air is visible in the tube anymore.

4: Adjust the dosage volume of the right syringe to the proper dose.
For dosage adjustment, see 3.3.



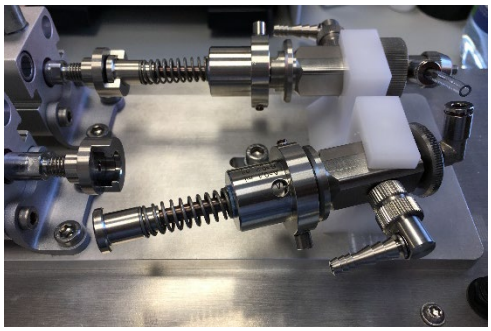
5: Re-insert the syringe into the Pneumatic Vaccinator.

3.5.2 Priming (double injection)



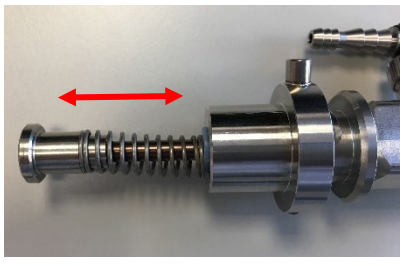
1: Before taking out the syringes, the connection tube has to be disconnected.

Press the metal lever downwards and pull out the tube, while holding the lever pressed.



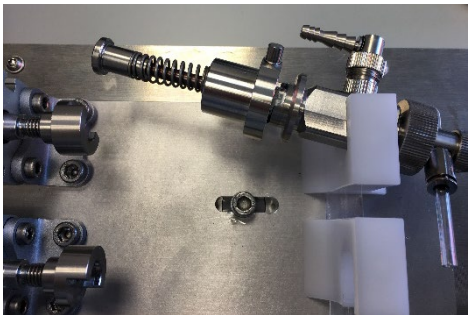
2: Take the end of the right syringe which is connected to the pneumatic cylinder and pull it carefully to the right.

3: Adjust the dosage of the right syringe to “C” (0,25ml).
For dosage adjustment, see 3.3.



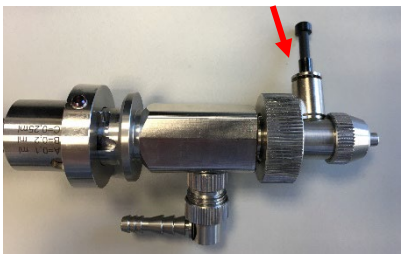
4: Push the piston several times until the syringe is completely filled with vaccine and no air is visible in the tube anymore. The right syringe is now primed with vaccine.

5: Adjust the dosage volume of the right syringe to the proper dose.
For dosage adjustment, see 3.3.

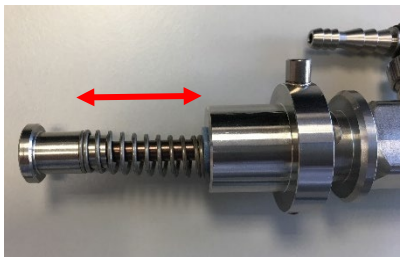


6: Take out the left syringe.

7: Adjust the dosage of the left syringe to “C” (0,25ml).
For dosage adjustment, see 3.3.

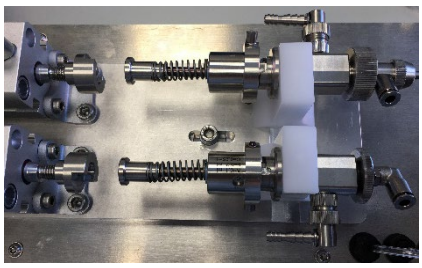


8: Insert the blind plug into the outlet which will later on be connected to the right syringe. To insert the blind plug, push it completely into the connector, without pressing the metal lever.



9: Press the piston of the left syringe manually until vaccine comes out at the front of the syringe. Keep on pumping until no air bubbles are visible in the tube anymore.

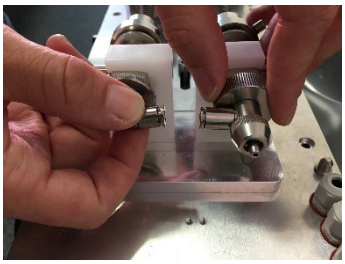
10: Adjust the dosage volume to the proper dose.
For dosage adjustment, see 3.3.



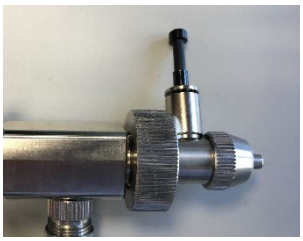
11: Insert both syringes into the fixture and connect the back part of the syringes with the pneumatic cylinders as follows:

Turn both connection parts of the cylinder with their open side facing towards the outside of the device.
[1] Pull the back part of the syringe towards the outside.
[2] Pull the cylinders to the front.
[3] Push the back part of the syringe into the connection part of the pneumatic cylinder.

12: Adjust the direction of the tube connection at the left syringe. Therefore, unscrew the syringe head until the connection can be moved easily. Now hold the syringe head and turn the tube connection to the desired position.



13: Hold the tube connection at the desired position and screw the syringe head hand tight.



14: Remove the blind plug from the connection at the left syringe by pressing down the lever and pulling the blind plug at the same time.

15: Connect the two syringes by using the provided tube. To connect the syringes, press the tube completely into the connector.

Note Do not damage the tube.

16: Assemble the cover on the Pneumatic Vaccinator, see 3.6.4.

3.6 The cover

The Pneumatic Vaccinator is equipped with an erectable cover. Depending on users preferences for maintenance activities, needle replacement, needle adjustment or cleaning activities, the cover can either be hinged up or removed completely.

3.6.1 Cover types

In general, the Pneumatic Vaccinator is equipped with the cover shown on the left hand side. This cover may be used for subcutaneous injections, which means that vaccination takes place by injecting the chick into the neck.

A different trigger element for intramuscular injections (into the leg) is available upon request.

3.6.2 Removing the cover

1: For removing the cover please use both hands. Put your thumbs on the fixed back part of the device.

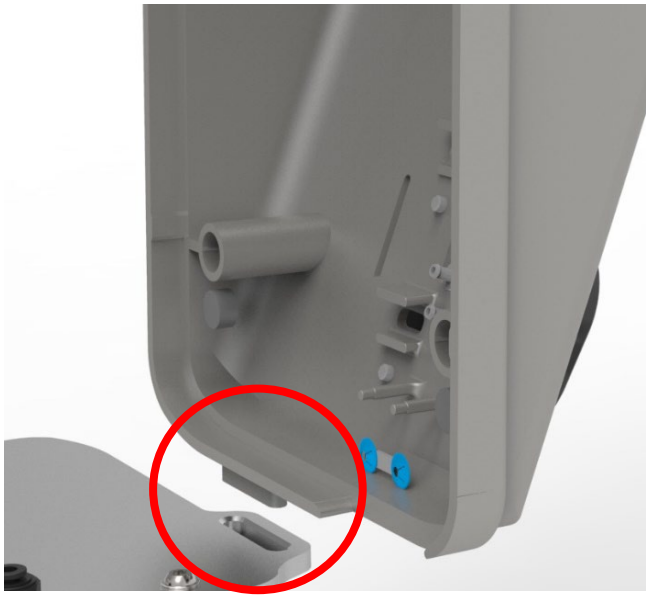
Place your thumbs as shown on the left.

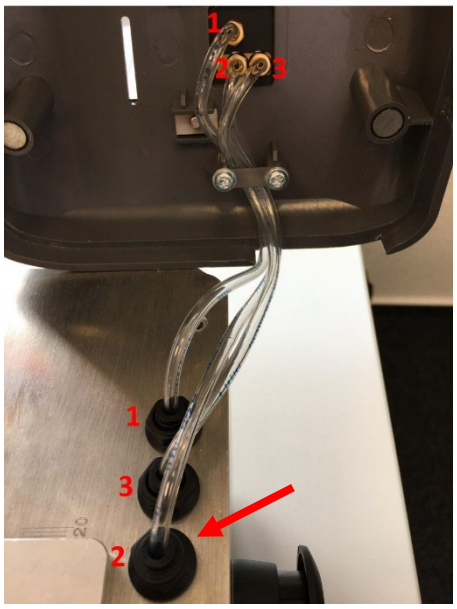
2: Place the other fingers at the back and bottom side of the upper cover as shown in the picture on the left and try to lift up the cover.

Note Please lift the cover with caution.

3.6.3 Lining up the cover

In order to line up the cover insert the pin on the front side of the cover into the lug on the front side of the ground plate





Alternatively the cover can be removed completely by disconnecting the three tubes. In order to do so, press down the black lever (see red arrow) where the tube is connected into the base of the device. Please take care that all three tubes are installed correctly afterwards (see image on the left).

Caution If the cover is removed completely you have to insert three blind plugs in order to prevent that dirt or humidity enters the lower part of the device!

3.6.4 Closing the cover

In order to close the cover, please put it in a straight position over the device and push it downwards.

Note Take care that the gap of the tubing is in the correct position before closing the device by pressing the cover down carefully.

Note Take care that the tubes at the front are not jammed by closing the cover in a slight angle (side wards).

3.7 Trigger element settings

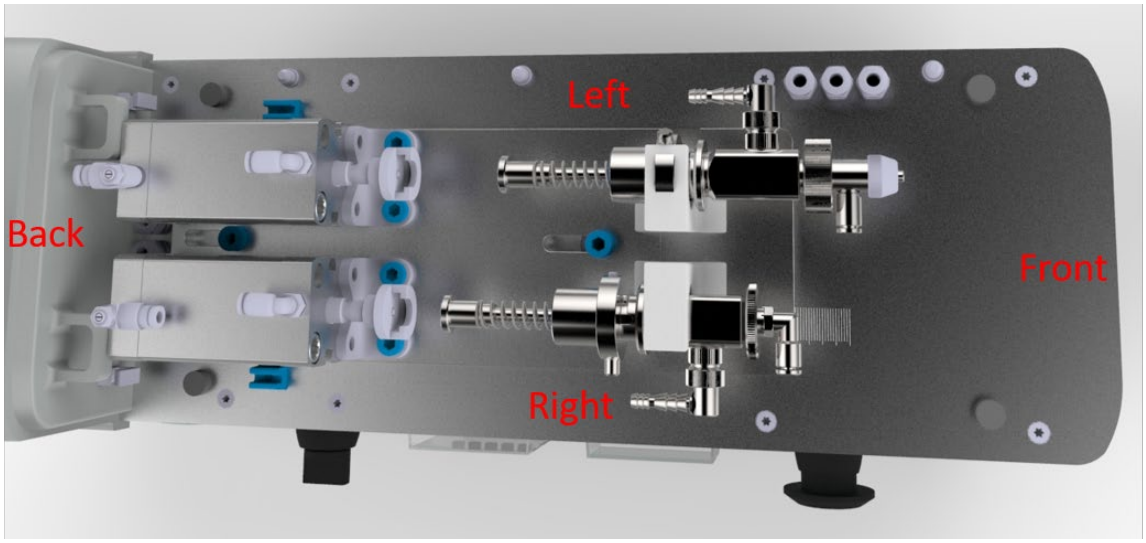
Due to its ingenious design the trigger box can be adjusted according to the users' preferences. In order to set up the trigger box according to your needs please proceed as follows:

1: Open the two screws highlighted in green.
2: Adjust the position of the trigger box vertically, horizontally and diagonally until preferred position is reached.
3: Then fix the preferred position by turning the screws clockwise (handtight).

4 Mode of operation

4.1 Point of view for operations

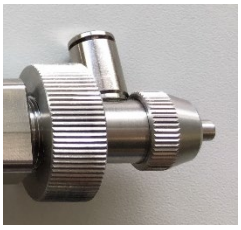
All actions explained in this manual are based on a defined point of view. Thus, the syringe plate of the Pneumatic Vaccinator with indicated directions can be seen in the picture below.



Distinguishing the syringes (only double injector)

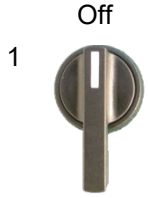
The **right** syringe has a L-Connector at the front to connect the two syringes using a tube.

The **left** syringe can be equipped with a needle due to the needle nut at the front. Furthermore the **left** syringe has a metal connector located behind the needle nut where the tubing can be inserted.



4.2 Operating functions

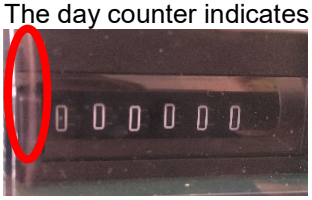
4.2.1 Functional switch



If the functional switch is turned to position 1, the device is ready to operate. Pressing a chick against the trigger in front of the upper cover releases an impulse to the system which activates the pneumatic cylinders. In doing so, the syringe piston moves forward and a needle protrudes out of the device which penetrates the chick. After completion the cylinder and syringe will return to their start position. If the functional switch is turned to position 2, the device only releases an injection by pushing the manual button. This setting can be used to adjust the needle length or to measure the dosing accuracy.

4.2.2 Total counter / Day counter

The day counter indicates the number of vaccinations completed in total. Due to a pneumatic impulse, released during the vaccination process, this counter counts one step upwards. The total counter is a good indicator for required maintenance activities at the system and syringe. To reset the total counter, press the rectangular button next to the display.



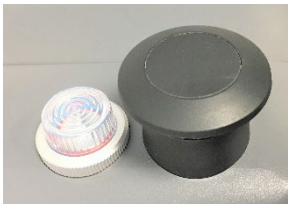
4.2.3 Batch counter

The batch counter may be used to vaccinate a required number of chicks per batch. Thus, it can be preset to a number between 1 and 999. Due to a pneumatic impulse the counter counts one step downwards every injection, starting from the adjusted quantity. If the batch counter reaches zero, the system will give an acoustic and optical signal. In addition, the system remains in a locked position until the batch counter is reset.

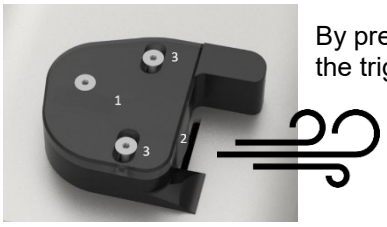
4.2.3.1 Setting the batch counter

To set the batch counter press and hold the rectangular button in the upper left corner and type in the desired number sequence individually with one of the three buttons below each digit.

4.2.3.2 Resetting the batch counter



To reset the batch counter press the reset button on top of the back part of the device.



By pressing the reset button, compressed air is simultaneously blown out of the trigger element in order to clean this part from contamination.

4.2.4 Optical signal

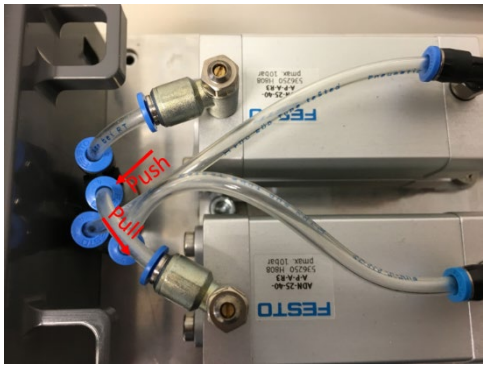
In addition to the acoustic signal, there is an optical signal in form of a lamp indicating that the batch is full. The signal lamp turns red once the batch is full and remains until the reset button is pressed.

4.2.5 Manual function

The manual button on the side of the device helps to measure the length of the needle coming out of the cover for vaccination to ensure the injection depth is configured correctly. By pressing and holding the manual button, the system is supplied with constant pressure and the needle will protrude out of the device shell for measurement purposes. For needle adjustment see 3.4.

5 Using the double injector as a single

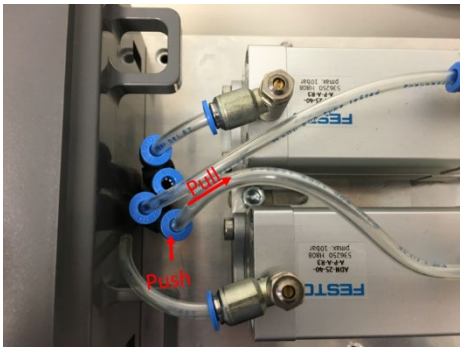
It is possible to use the Pneumatic Vaccinator double as a single injector. The modification requires the following changes:

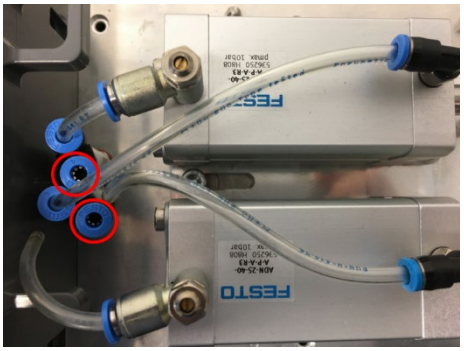


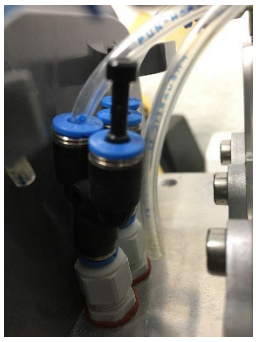
1: Between the two syringes, the compressed air supply for the right syringe can be seen as shown in the pictures below.

In order to disconnect the right cylinder from the compressed-air supply, press the blue lever downwards and pull the pneumatic tubing out with care.

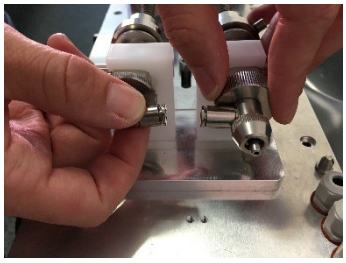
2: Repeat the first step with second connection:





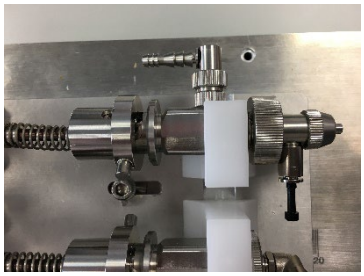


3: Take the blind plug and push it into the hole where the pneumatic tubing was in.



4: Disconnect the tubing at the front of the two syringes.

Press the metal lever downwards and pull out the tube while holding the lever pressed until the tube has been released from its connection.



5: Take another blind plug and push it into the connection of the left syringe without pressing the metal lever.

Now it is possible to operate the Pneumatic Vaccinator as a single injector, using only one syringe and one cylinder.

6 Maintenance of the air filter

It is recommended to use a top-quality compressor, a coalescing filter at the compressor, and an air drier. This will increase the durability of all pneumatic parts.

6.1 Daily maintenance of the air filter

The dripping chamber of the filter should be checked every day. If necessary, release the drain water by opening the valve at the bottom of the filter. Turn the valve clockwise until the drain water begins to flow out. Close the valve properly after draining.

6.2 Monthly maintenance of the air filter

The filter should be checked every month to be sure the filter cartridge is in good condition.

Warning To open the filter always make sure that the compressed air supply is disconnected from the device.

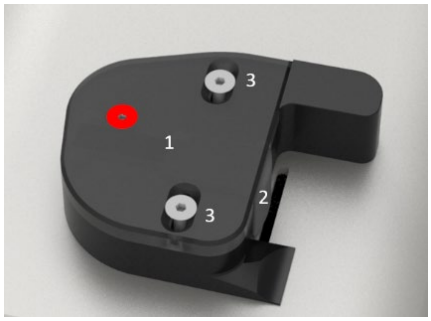
Carry out the following steps:

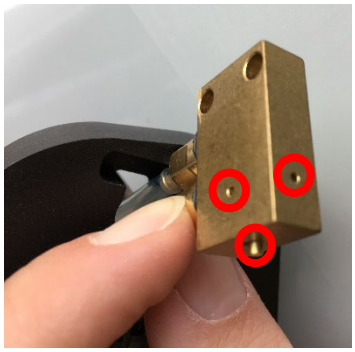
- Turn the filter housing clockwise and pull it away from the unit
- Replace the filter cartridge if the pores are dirty. Grasp the filter cartridge only at the lower end when it is new.
- Reassemble the individual parts again in the reverse sequence.

Note Cleaning: Use only **water or soap suds** (max. +60 °C; free of aromatic compounds)

6.3 Daily cleaning and maintenance of the micro valve

It is advised to clean the micro valve which is located in the trigger box if necessary (e.g. trigger element is sluggish).
Therefore please open the cover (loosen all screws) and take out the micro valve by disconnecting the tubes.





The micro valve can be submerged into water (incl. mild detergent). Afterwards the valve needs to be dried with compressed air. Before reassembling the trigger element please lubricate the three positions on the micro valve with silicone oil.

7 Daily cleaning of the Pneumatic Vaccinator

To enable best possible disinfection results, the process should take place under sterile environmental conditions. In addition, operators, responsible for cleaning and disinfecting the device and its components must wear single use gloves, disposable overall, safety goggles and a disposable mask.

Note Do not autoclave the device, only the syringe if required.

Note The device should not be immersed in any liquid as this will damage pneumatic parts.

Note Don't use any aggressive mediums like carbon tetracholoride, tri-chlorethylene, thinner, acetone or similar solvents to clean the device as this will cause irreparable damage.

Note **Make sure to dry all parts after cleaning and to lubricate moving parts after cleaning**.

7.1 Cover and bottom part cleaning

The cover of the device can be cleaned with mild soap or detergent. The **Pneumatic Vaccinator** is specifically constructed to ensure that no water will permeate the lower half of the system where crucial components are located if used according to the recommendations.

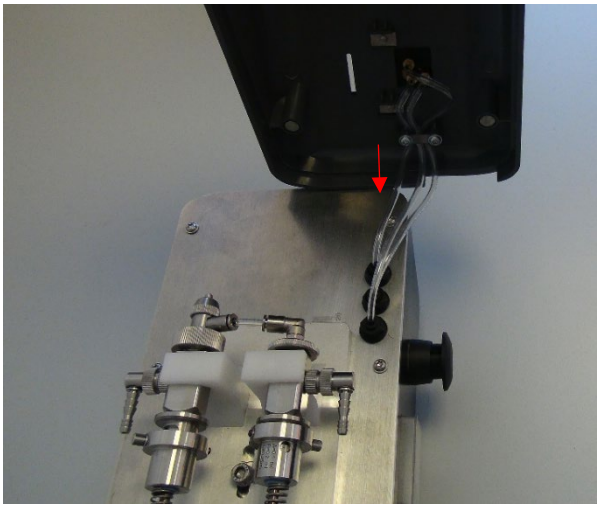
1: Disconnect the device from the compressed air supply and open up the cover.
2: Clean the cover by wiping it with clean water to remove gross contaminations.
3: Clean the base of the device by wiping it with clean water to remove gross contaminations.
Furthermore the device needs to be in an inclined position (see pictures below) and you always have to spray from the backside of the device (see arrows) so that the water can run off.

4: Use compressed air to dry the base. Please adhere a safety distance of 20 cm (8 inch).

7.2 Disinfecting the cover and bottom part (without syringe)

This process should be done at minimum after each vaccination session, when moving the device or its components to different locations and whenever a threat due to potential contamination has to be prevented.

1: Turn off the **Pneumatic Vaccinator.**
2: Open up the cover from the **Pneumatic Vaccinator** and insert it into the intended fixture at the front of the device.



3: Remove the syringe(s).
4: Clean the device as described in 1. (cover and bottom part cleaning).
5: Depending on the disinfectant, spray the device thoroughly e.g. with Gigasept® FF
Make sure all surface parts e.g. syringe plate, pneumatic cylinder(s), housing are covered by disinfectant.
! Do not spray disinfectant into the air filter!
! Do not open the lower part of the device for cleaning or disinfection!
The manufacturer of the individual product provides you with the disinfectant exposure time.
6: Rinse the device and all its components with distilled water.
7: Dry all parts of the **Pneumatic Vaccinator** with compressed air or with a soft towel.
8: Allow all parts to dry completely.

Recommended detergents for cleaning the device:

- Drinking water
- Distilled water
- Mild disinfectants
- Commercial disinfectants at recommended concentrations e.g.
    - Meliseptol®,
    - Meliseptol® Foam pure,
    - Gigasept® FF

7.3 Cleaning of the connection tube (only for double injector)

If the **Pneumatic Vaccinator** is used as double injector, the connection tube between the syringes has to be cleaned after each usage of the device or in case of changing the vaccine type during the vaccination session.

1: Press the steel lever carefully and pull out the tube while holding the lever pressed.
2: Clean the tube with hot water. Dry it with compressed air.

7.4 Cleaning of the syringe

Note In case the needle has not been removed from the syringe yet, please do this before cleaning the syringe.

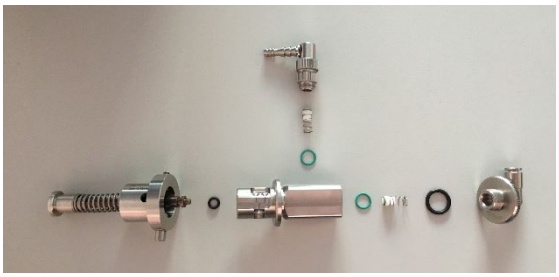
Note Do not use high acid or alkali content to wash the different parts, as this will lead to corrosion.

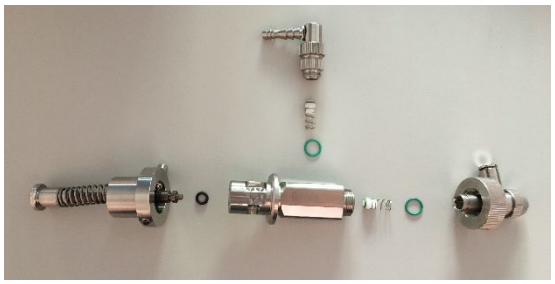
Note Do not use sharp objects to remove debris from parts of the syringe. This could lead to malfunction or damage. Valve components are of particular importance as some vaccines can leave a sticky residue which will impact valve performance negatively.

Note Make sure that all parts are free of debris. **After each cleaning process, apply silicon oil onto the O-rings.**

1: Flush the syringe with warm water immediately after use by taking the syringe out of the guidance mount. At first, disconnect the tube coming from the vaccine bottle.

2: Disassemble the syringe as shown in the picture below.
Pay close attention that small parts do not get lost during the cleaning process.





3: Each component should be washed in a solution of mild detergent (i.e. rinsing fluid; pH value >5<8). Take care to properly clean the seats of the intake and exhaust gasket seals. For this purpose also a nylon brush can be used.

4: Rinse all components with warm water and dry them afterwards with compressed air or with a soft towel. **Moisture within an assembled syringe leads to corrosion.**

7.5 Disinfecting the syringe

The procedure described as follows can be seen as a best practice recommendation to clean and disinfect the Pneumatic Vaccinator syringe. In general, this process has to be done at minimum after each vaccination session, when moving the device or its components to different locations and whenever a threat due to potential contamination has to be prevented.

1: Turn off the Pneumatic Vaccinator.
2: Open up the cover of the Pneumatic Vaccinator.
3: Close the dripping chamber.
4: Remove the vaccine supply coming from the vaccine bottle.
5: Remove the needle from the syringe and dispose it.
6: In case of having a Pneumatic Vaccinator double, remove the tube connection between the
syringes and dispose the tube.
7: Take the syringe(s) out of the device.
8: Remove all gross contamination or organic material by rinsing the syringe with drinking / distilled water.
9: Disassemble the syringe completely.

10: Dispose all spare parts e.g. O-rings or valves.
11: Rinse all syringe parts separately with clear water and/or Ethanol or a disinfectant.
12: Lay all parts in a pot with boiling water and boil it for 20 min.
Take care that no washer or O-Ring will touch the bottom of the pot, because the bottom of the pot can be much hotter than 120° and may destroy these parts.
13: After boiling, rinse the syringe again at best with distilled water.
14: Dry all parts of the syringe with compressed air or with a soft towel.
Moisture within an assembled syringe leads to corrosion!
15: Replace the spare parts by new ones.
16: Apply a drop of silicon oil to the O-ring positioned on the plunger.
17: Reassemble the syringe as described below.

Recommended detergents for cleaning the syringe:

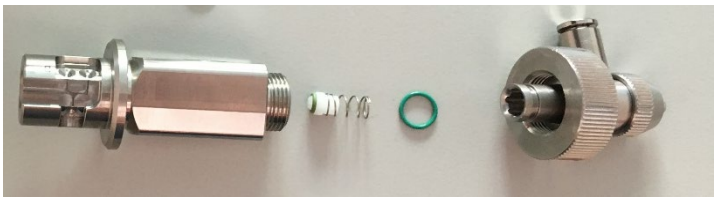
- Boiling drinking or distilled water
- Distilled water
- Ethanol at a concentration lower than 30%.
- Commercial disinfectants at recommended concentrations e.g.
    - Meliseptol® Foam pure
    - Gigasept® FF

7.6 Reassembly of the syringe

After boiling or disinfecting the syringe, reassemble it as follows:
1: Check all parts visually to see if they are in good condition. If not, please replace them.
2: Insert the following parts in chronological order into the inlet valve.

Screw the tubing attachment only hand tight.

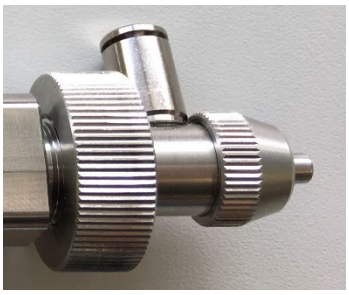
3: Insert the following parts in chronological order into the outlet valve.

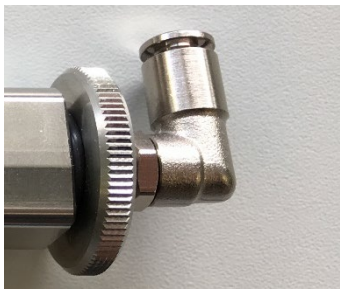


4: Assemble the outlet valve by screwing the syringe head in.

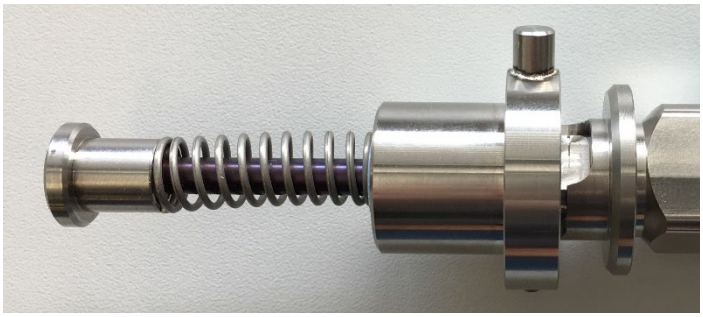
Screw on the syringe head hand tight.

Note Never use a wrench to tighten the screw connection.





5: Assemble the piston with the cylinder by pushing it into the cylinder part of the syringe. Additionally it is recommended to lubricate the piston and piston washer.



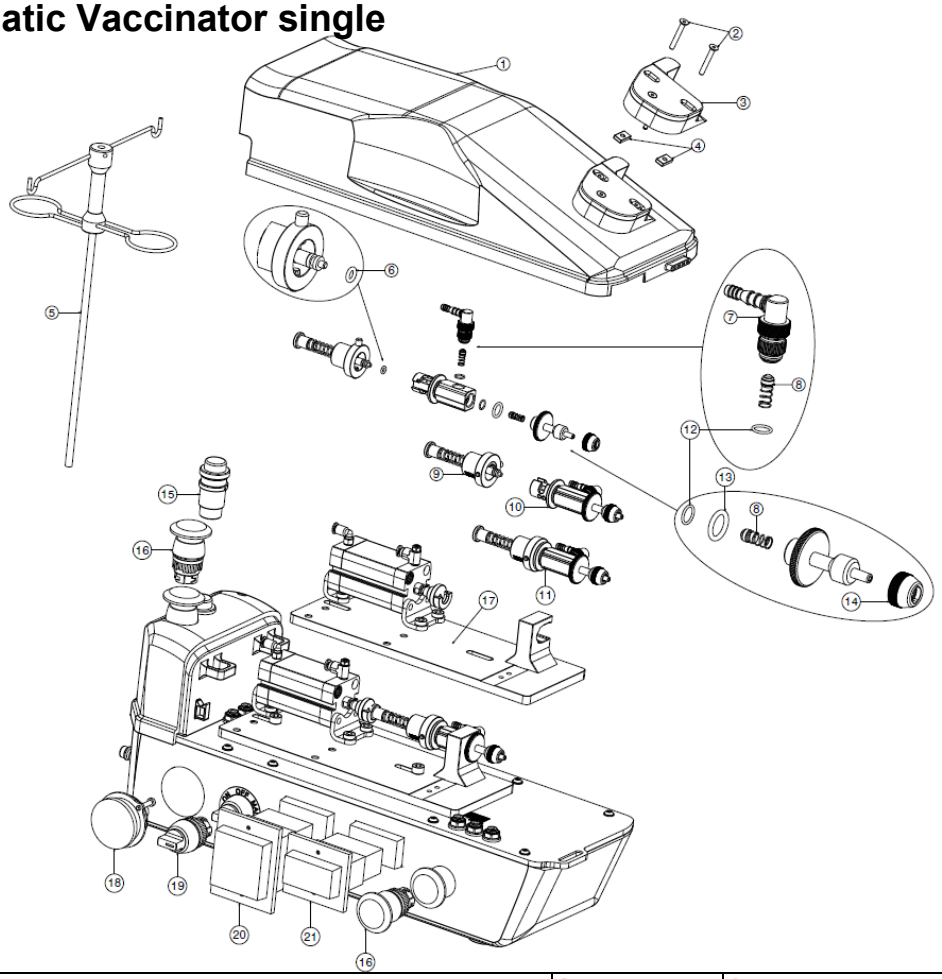
8 Service recommendations

The syringe spare parts have to be exchanged after a number of injections, which is defined in the service plan below:

Description	Content	pcs / set	Replacement after	
Spare Part Set double				
	O-Ring 7 x 1mm	6	100.000	shots
	O-Ring 4 x 1,5mm	2	100.000	shots
	O-Ring 12 x 1,5mm	1	100.000	shots
	Cone valve incl. Spring and O-Ring	4	100.000	shots
Spare Part Set single	O-Ring 7 x 1mm	3	100.000	shots
	O-Ring 4 x 1,5mm	1	100.000	shots
	Cone valve incl. Spring and O-Ring	2	100.000	shots
HSW ECO® FINE-JECT 20G x 1” (0,9 x 25mm)		100	1.000	shots
Dripping Chamber		1	Every Day	

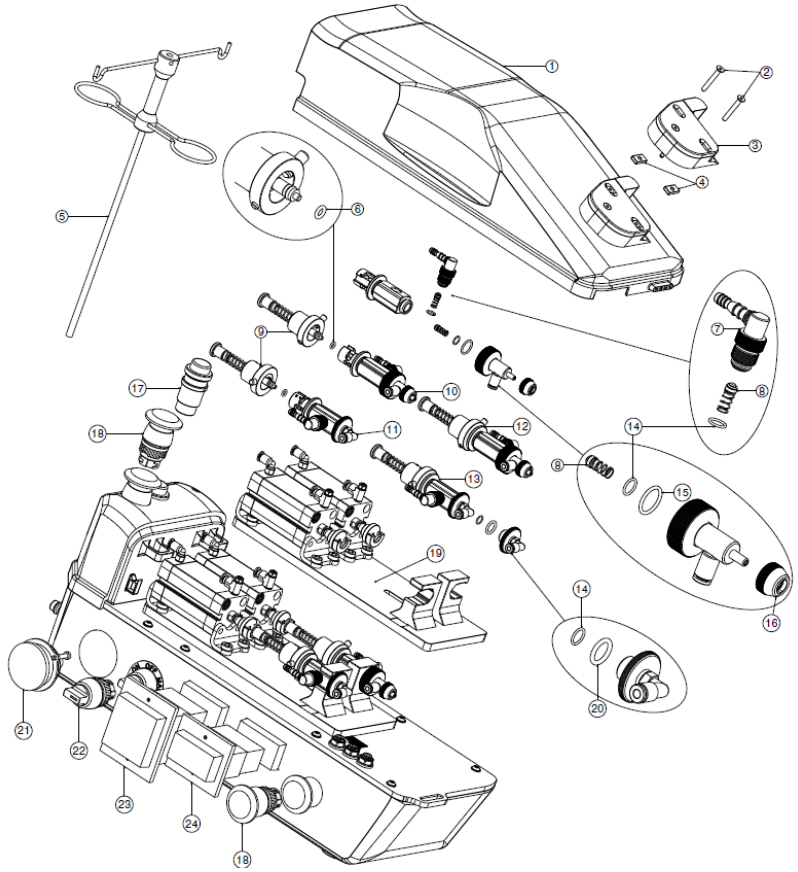
9 Spare parts

9.1 Pneumatic Vaccinator single



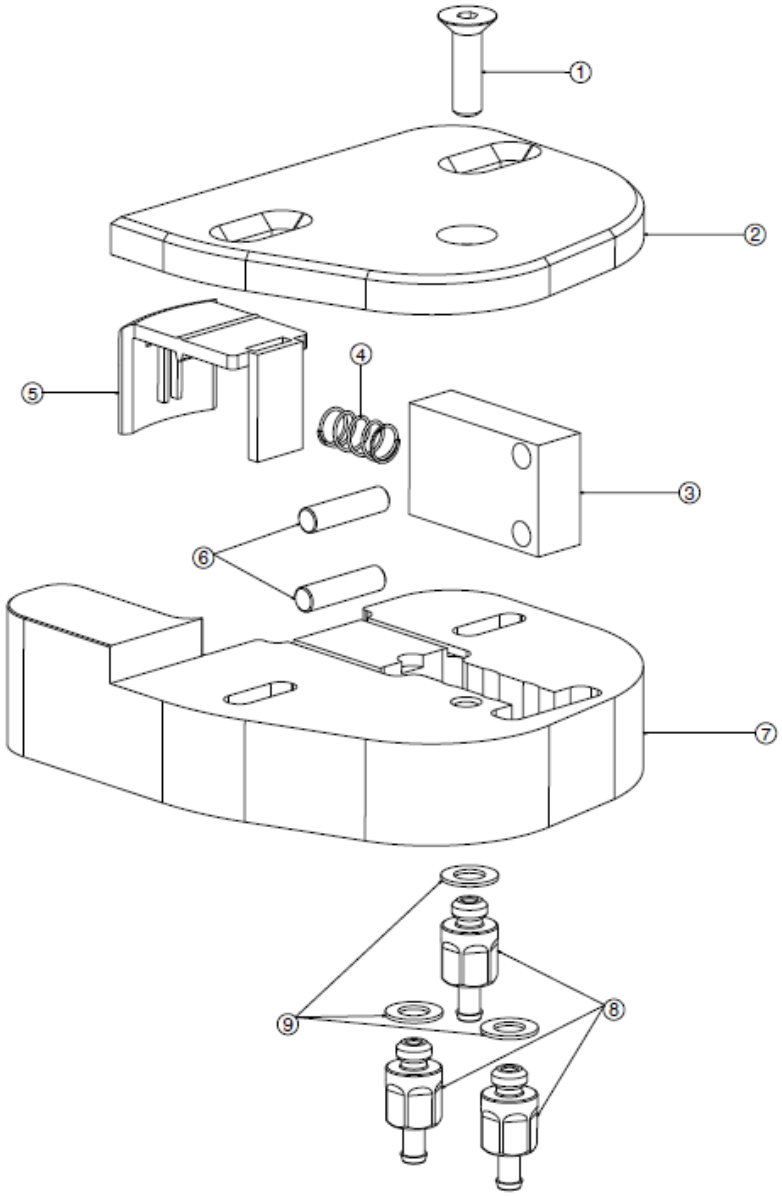
No.	Description	Item no.	in spare part set
1	Cover incl. trigger element	8300048428	
2	Countersunk screw DIN 7991 M4x30 A2	8300039633	
3	Trigger element	8300039628	
4	Slot nut 15x8x3	8300039635	
5	Vial holder	8300023934	
6	O-Ring 4,00x1,50 Viton 70SH	8300023907	1 pcs.
7	Tubing attachment rotatable	8300042433	
8	Cone valve	8300039751	2 pcs.
9	Syringe back part (piston)	8300039654	
10	Syringe front part	8300048275	
11	Syringe complete	8300048277	
12	O-RING 7,00x1,00 Viton 70SH	3610002526	3 pcs.
13	O-RING 10,00x2,00 Viton 75SH	8300027214	
14	Needle nut	8300039666	
15	Optical signal	8300023901	
16	Manual button / reset button	8300029637	
17	Syringe plate incl. cylinder and syringe holder	8300048272	
18	Manometer	8300023894	
19	Functional switch	8300029634	
20	Batch counter	8300023899	
21	Total counter / day counter	8300023900	
-	Compressed air coupler with hose adapter	8300031226	
-	Dripping chamber	8300025431	
-	HSW FINE-JECT needle 0,9 x 25 mm / 20G x 1"	4710009025	
-	Micro filter	8300049483	
-	**Spare part set – single version**	8300042994	

9.2 Pneumatic Vaccinator double



Nr.	Description	Item No.	in spare part set
1	Cover incl. trigger element	8300048428	
2	Countersunk screw DIN 7991 M4x30 A2	8300039633	
3	Trigger element	8300039628	
4	Slot nut 15x8x3	8300039635	
5	Vial holder	8300023934	
6	O-Ring 4,00x1,50 Viton 70SH	8300023907	2 pcs.
7	Tubing attachment rotatable	8300042433	
8	Cone valve	8300039751	4 pcs.
9	Syringe back part (piston)	8300039654	
10	Double syringe right front part	8300039661	
11	Double syringe left front part	8300039649	
12	Double syringe right	8300039660	
13	Double syringe left	8300039648	
14	O-RING 7,00x1,00 Viton 70SH	3610002526	6 pcs.
15	O-Ring_12x1,5	85391499	1 pcs.
16	Needle nut	8300039666	
17	Optical signal	8300023901	
18	Manual button / reset button	8300029637	
19	Syringe plate incl. cylinder and syringe holder	8300039641	
20	O-RING 10,00x2,00 Viton 75SH	8300027214	
21	Manometer	8300023894	
22	Functional switch	8300029634	
23	Batch counter	8300023899	
24	Total counter / day counter	8300023900	
-	Compressed air coupler with hose adapter	8300031226	
-	Dripping chamber	8300025431	
-	HSW FINE-JECT needle 0,9 x 25 mm / 20G x 1"	4710009025	
-	Micro filter	8300049483	
-	Tubing set	8300030544	
-	**Spare part set - double version**	8300042993	

9.3 Trigger element



No.	Description	Item no.	in spare part set
1	Countersunk screw DIN 7991 M4x14 A2	8300039634	
2	Cover trigger element	8300039632	
3	Valve micro limit	8300023906	
4	Spring 5.00x0.40x10.50	8300039752	
5	Slide button	8300039630	
6	Pin	8300039631	
7	Main frame trigger element	8300039629	
8	Tubing attachment	8300027651	
9	Washer M5	8300029034	

10 Declaration of Conformity

	2006/42/EG Konformitätserklärung Declaration of Conformity Déclaration de Conformité	Seite / Page: 1 von 1 Produktgruppe / Product group: Pneumatic Vaccinator Revisionsstand / Revision status: -- Revisions-Datum / Revision date: 10.07.2014

Der Hersteller / the manufacturer / le fabricant

Henke-Sass, Wolf GmbH

Keltenstrasse 1

78532 Tuttlingen

erklärt die Konformität für nachfolgende Produkte mit der Maschinenrichtlinie 2006/42/EG:

declares to achieve the compliance with the Machine Directive 2006/42/EC:

déclare la conformité selon la directive Machines 2006/42/CE:

HSW Pneumatic Vaccinator

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Tuttlingen, 11.06.2018	Peter Decker	
Ort und Datum der Ausstellung Place and Date of issue Lieu et Date de délivrance	**Geschäftsleitung** Chief Executive Officer Gérant	**Firmenstempel** Company Stamp Tampon de la firme

Please contact your local partner or Henke-Sass, Wolf GmbH directly in case you need assistance or spare parts.

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