Manual

Spray Cabinet

Made by Henke-Sass, Wolf GmbH in Germany

Contents

1 Introduction

Congratulations on the purchase of a Spray Cabinet, manufactured by Henke-Sass Wolf GmbH. The Spray Cabinet 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 Spray Cabinet, 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 Spray Cabinet and an important part of the security concept.

- Read the user instruction carefully and follow the instructions.
- Keep the user instruction available anytime the Spray Cabinet is in operation.
- Share the user instruction with all users of the Spray Cabinet.

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 Safety and Hygiene

2.1 Characteristics

- Perfect droplet size thanks to specially designed spray nozzle
- Pre-set dosage volume of either 16 or 22mL
- Energy-independent application system, operated only by use of physical power
- Suitable for crate depth of 400, 450 and 500 mm (15.7”, 17.1” and 19.7”)
- Large vaccine reservoir
- No sedimentation of vaccine in the reservoir

2.2 Intended use

The Spray Cabinet is intended to be used as a cabinet sprayer for the application of poultry vaccines to day-old chicks by the coarse spray method. The device should only be operated by veterinarians or operators who have been instructed by a veterinarian. The Spray Cabinet and all its components are intended to be used within their chemical resistance.

2.3 Unintended use

- The device is not intended to be used for vaccinating other animals except day-old birds.

2.4 Safety

Note Read this manual completely before using the equipment to understand how to install and use the Spray Cabinet.

Note Only well-trained personnel should use the Spray Cabinet.
Follow the operation and cleaning / maintenance instructions carefully.

Danger Always wear safety goggles and a mask when operating the Spray Cabinet. In case of inhalation of, or exposure of the eyes to the vaccine, contact a physician immediately and show the vaccine package insert to the physician.

Danger Poultry vaccines may irritate eyes and lungs of the user. Always read the vaccine package insert and follow the manufacturer’s recommendations for use.

Danger For any maintenance activity make sure to disconnect the vaccine container.

Danger Never place your finger on the side of the drawer while pushing the drawer in.

Danger For any maintenance activity, make sure the Spray Cabinet is not operated.

Warning Only use new parts that have been supplied by Henke-Sass, Wolf to replace defective parts.

Danger Hold both handles to operate.

Note Only healthy animals should be vaccinated. Use clean, distilled water for vaccination.

Note Place the device on a stable surface to operate.

2.5 Transport and storage

- Protect the product against external forces during transport (e.g. impact).
- Check the Spray Cabinet for damage before use.
- Store the Spray Cabinet at ambient temperatures between 0°C and 45°C.
- Do not store the Spray Cabinet under moist or wet conditions.
- Store the Spray Cabinet under conditions of lower than 80% humidity.

3 Operating instructions / general information

The Spray Cabinet is designed to vaccinate day-old chicks by the coarse spray method. This method is recommended for infectious bronchitis (IB), Newcastle disease (ND), Avian Metapneumovirus (APV) and coccidiosis vaccination. For specific advice and information on vaccine application, contact a veterinarian.

The device's function is based on a manual pneumatic system. The operator has to place a crate of day-old chicks into the drawer of the device. Using two handles mounted on the front of the drawer, pull the drawer out of the device until it stops. This fills the pump cylinder with vaccine. Push the drawer back into the device until it stops. During this process, the selected volume of vaccine (16mL or 22mL) passes through the spray nozzle and sprays down onto the day-old chicks. By pulling the drawer out again, the piston is preloaded to release another dose of vaccine. Before the vaccination process can be repeated, a new crate of non-vaccinated day-old chicks needs to be placed into the drawer of the device.

For coccidiosis vaccine, which is likely to settle out at the bottom of the vaccine bottle, the device is equipped with a bubbling function to maintain constant circulation of the vaccine in the solution.

3.1 Unpacking the Spray Cabinet

The device is delivered in a self-adhesive protective foil covering. Before assembly it is recommended that this foil is removed. This can be done by pulling the foil from the surface and may require a little effort. No tools should be needed to remove the foil!

3.2 Positioning

The Spray Cabinet can be placed on a flat and stable surface of at least 82 cm (32“) wide and 53 cm (21”) in deep. This might be a platform like a table and should be made of durable and water repellent material. It is recommended that the Spray Cabinet gets fixed to the platform using the supplied strap. This will prevent the device from falling down or moving during the operation.

3.3 Power source

The device is operated manually. It does not require an external power supply like pneumatic or electrical energy. This device must not be connected to an external power source!

3.4 Spray nozzle

The Spray Cabinet is designed for coarse spray vaccination of day-old chicks. This vaccination method requires a droplet diameter of 100 microns or more on average. To guarantee a proper droplet size, the Spray Cabinet is delivered with an unique nozzle. This nozzle produces a uniform droplet diameter larger than 150 microns. This droplet size assures, that under all climatic conditions, day-old chicks receive a uniform coarse droplet that does not penetrate deep into the respiratory system. Unlike other spray nozzle systems, the Spray Cabinet does NOT produce small droplets.

3.5 Dosage settings

There are two dosage settings that are preset by the manufacturer. The dosage can be adjusted either to 16 mL or to 22mL. It is not possible to adjust the dosage to other volumes without damaging the device.

3.6 Test vaccination

Before using Spray Cabinet in day-to-day operations, it is recommended to do a trial vaccination. At first, set up a test run with clean, demineralized water. Adding dye to the water helps to check the coverage of the day-old chicks after spraying. A test run will help the operator to get used to the proper function of the device, to verify coverage and wetness of the day-old chicks, after spraying.

3.7 Test of vaccination result

Adding a dye to the vaccine solution helps to check the preening activity of the chicks after vaccination. If dye is mixed with the vaccine solution, the vaccination process can be confirmed about 5 minutes after spraying the chicks. Correct vaccination can be confirmed, when color can be seen on the tongues of at least 95% of the day-old chicks. Checking the vaccination result earlier than 5 minutes after vaccination might show a lower percentage of vaccinated day-old chicks. Testing results over a period of more than 5 minutes after vaccination might show less color stain on the tongues as the dye is depleted due to salivation of the day-old chicks.

3.8 Water for vaccine application

Only use clean, distilled or demineralized water for vaccine solution preparation.
Make sure the water does not contain any chlorides, disinfectants, metals or other contaminants. It is further recommended to use water that has been decalcified as this will improve the durability of the device. Do not use disinfectants or lubricants on parts of the equipment that will be in direct contact with the vaccine (vaccine tubes, vaccine bottle) and do not disinfect hands before preparing vaccine solution.

3.9 Vaccine preparation for application

Please refer to the package insert accompanying the vaccine or consult your veterinarian for further information.

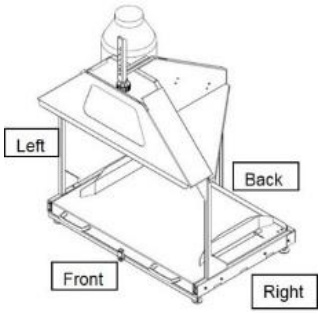
3.10 Agitating coccidiosis vaccine (bubbling)

Coccidiosis vaccines do not remain completely in solution. This type of vaccine has to be agitated during vaccination. The Spray Cabinet is equipped with a system that supplies air into the bottom of the vaccine reservoir. The air gets delivered with every piston stroke, made with the vaccinator. The airflow prevents sedimentation of the vaccine and ensures an even distribution of the coccidiosis vaccine onto the day-old chicks.

3.11 Handling crates after vaccination

After vaccination, the day-old chicks may be wet. It is advised to leave the recently vaccinated day-old chicks in crates in a well-lit environment before placing them on trucks for transportation. This gives the day-old chicks time to start preening and optimizes the results of vaccination.

4 Assembly

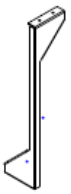
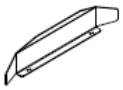
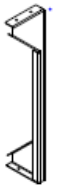
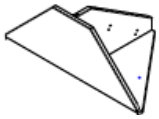
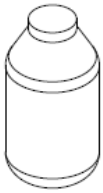
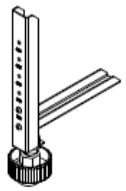
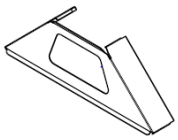
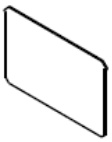


The following steps provide guidance on assembling the Spray Cabinet for use.

All of the explanations provided in this manual refer to the directions shown in the diagram on the left.

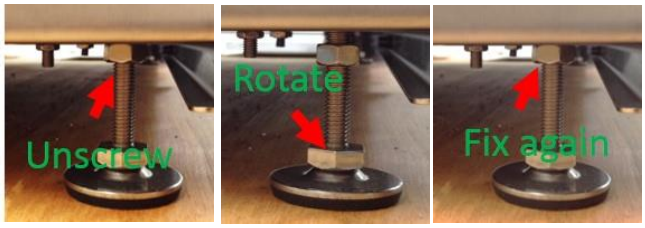
4.1 Delivery components

All of the parts needed to assemble the device are listed below. It is advised to check that all parts have been included and are in a suitable condition before assembly.

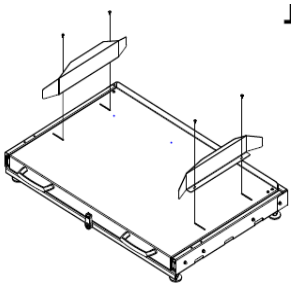
1x Drawer 	1x Pillar for the left side 
2x Guides 	
20x Screws M4x8 (2 additional pcs.) 20x Washers (2 additional pcs.) 6x Cap-nuts (2 addditional pcs.) 	2x Pillars; one for the right and one for the back 
1x Cover 	
1x Vaccine reservoir 	Spray nozzle (pre-assembled on holder) 
1x Splash guard 	1x Viewing window 
1x Pressure reducing valve	1x Allen Key
1x Open-end-wrench 7 mm (0.28”)	

4.2 Positioning the Spray Cabinet

Position the main casing, containing the drawer, on a surface which has a minimum size of 82 cm (32”) wide and 53 cm (21”) deep. For precision positioning the device can be levelled by turning the foot of the device until the proper level has been reached.

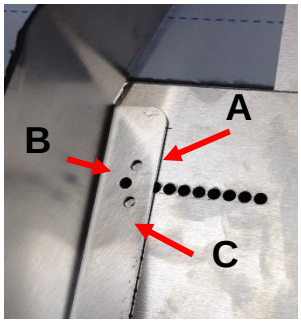


4.3 Mounting the guidance



♩ Take the two guides, one for each side of the Spray Cabinet. Assemble the guides as shown on the left. The screws have to be on the outside of each guide. Four screws type M4x8 are needed to mount the guides. Place a washer under each screw. To fix the guides, pull the drawer out until it stops. Screw a cap-nut using the open-end wrench of size 7 mm (0.28”) onto each screw end under the drawer.

Adjusting the guides according to the crate width

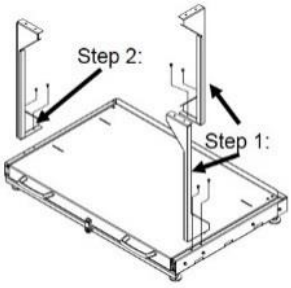


Three holes can be seen on each side of the guides. These holes should be used to finely adjust the guides to fit the crate width.

Depending on the hole (middle = B to A or C), it is possible to adjust the guides in steps of 2.5 mm (0.1”) to the left or right. Make sure, when using hole A e.g. on the guide on the right side, to use hole C on the opposite guide. This ensures that the guides are aligned. In addition, use the same hole on the front and back end of the same guide, e.g. two times A on the right guide and two times C on the left guide, or vice versa. Otherwise, the crate will not be centered and the vaccine may not be administered correctly to all of the day-old chicks!

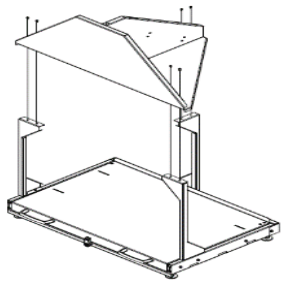
4.4 Mounting the pillars

This step is essential prior to installing the upper cover of the device.



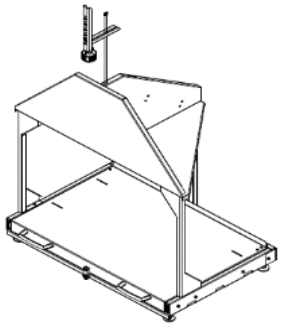
1: Take the two pillars that are designed to be mounted on the right and at the back of the device. Fix them as shown in the picture using four M4x8 screws. Place a washer under each screw.
2: Take the third pillar which is designed to be positioned on the left of the device. Mount it using two additional M4x8 screws by inserting the screws into the holes provided. Place a washer under each screw. Always use an Allen key to screw and unscrew. Tighten and loosen screws with care.

4.5 Mounting the cover



Take the cover as shown on the left and place it on the pillars that have already been mounted to the main casing. Take care to place it onto all three pillars to prevent it from falling prior to fixing in place with screws.
Use six screws type M4x8 to assemble the cover on the pillars as shown. Place a washer under each screw. Use an Allen key to insert and tighten the screws. **Note:** It is more convenient to mount the cover while someone holds it in place.

4.6 Installing the spray nozzle



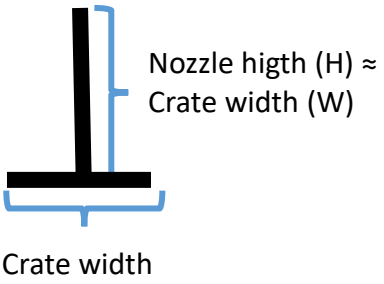
After the upper cover has been installed on top of the three pillars, install the spray nozzle onto the front of the cover using two M4x8 screws. Place a washer under each screw.

Place the pre-assembled spray nozzle into position on the front and insert the two fixing screws in the pre-drilled holes.

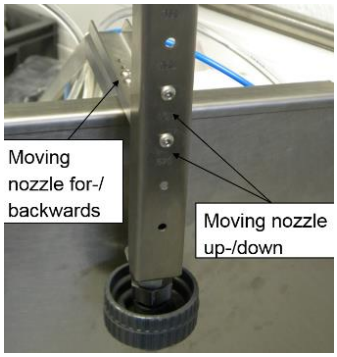
Nozzle adjustment for proper spray administration

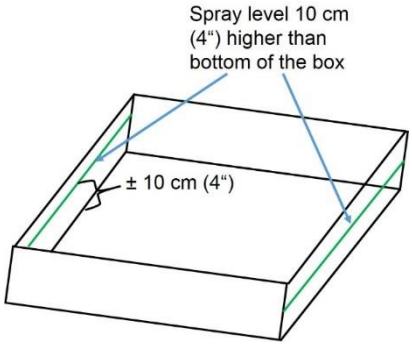
The nozzle has to be in a certain distance to the base of the crate to ensure a unique spray pattern all over the chicks. This distance is related to the crate width. The nozzle should always be positioned as close as possible to the front of the upper cover.

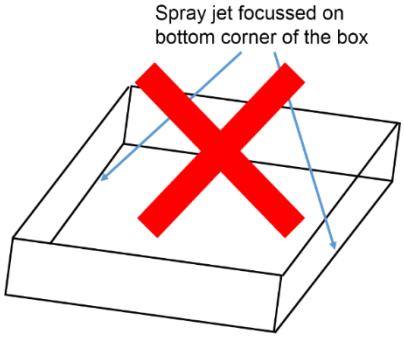
The different crate widths are etched into the vertical metal part of the nozzle holder. This means that the nozzle can be adjusted according to the crate width, shown on the nozzle holder.

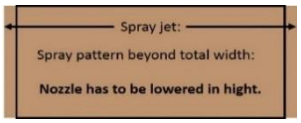


Please remember that day-old chicks have a height of about 10 cm (4”). Thus, to ensure that all day-old chicks are sprayed properly, even at edge of the crate, the spray jet should reach the inner side of the crate at a distance of about 10 cm (4”) above the base of the crate.

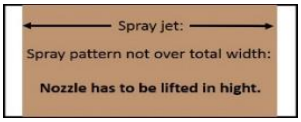






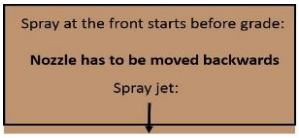


The spray jet reaches beyond the side of the crate, lower the nozzle height.

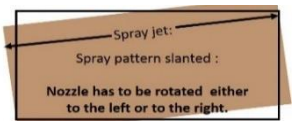


If the spray jet is too narrow, raise the nozzle.

If the spray jet starts inside the crate, move the nozzle forwards.

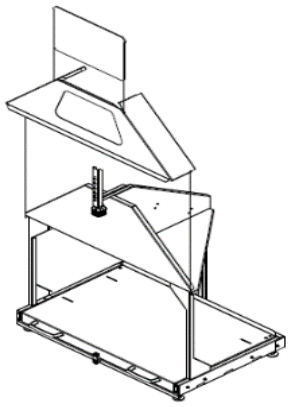


If the spray jet starts before the crate, move the nozzle backwards.



If the spray jet is slanted, rotate the spray nozzle to the left or right. Loosen the threaded joint, using the open-end wrench and rotate the nozzle to the proper position.

4.7 Splash guard and viewing window installation

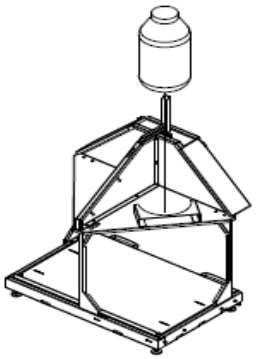


The stainless steel splash guard, has to be installed in front of the upper cover. This utilizes a tongue-and-groove joint. A lug which is positioned at the upper end of the groove will fit into an appropriate opening on the tongue and fix the splash guard in the right position.

To install the splash guard, it is necessary to hold it in a slightly higher position than the upper cover and overlapping the front of the cover. While resting the splash guard, clip into the front of the upper cover. The groove of the splash guard has to slide over the tongue of the upper cover. When the lug on the splash guard groove fits is hooked into the opening on the upper cover, it will be held in place without the need for any additional fixation.

After the splash guard is installed, insert the viewing window into the opening of the splash guard. Position it as shown on the picture centered above the opening in the middle of the splash guard. Then, slide it in into the guiding groove until it reaches a stop.

4.8 Positioning the vaccine reservoir

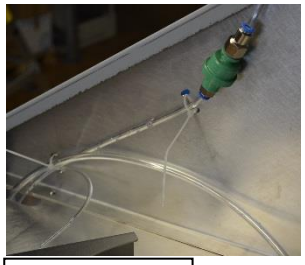


The vaccine reservoir can be placed in a holder at the back of the upper cover as shown on the left. If using the delivered reservoir, it will perfectly hold in place.

4.9 Tubing

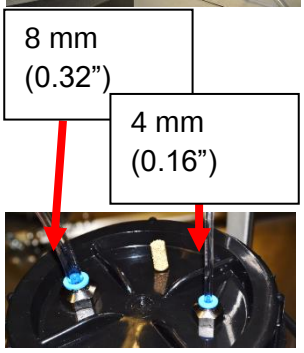
The Spray Cabinet is delivered with the tube connections on the lower part pre-assembled. This means, that all connections that are required for agitating and vaccine transportation have already been mounted to the pump cylinder. Before the Spray Cabinet can be used, the tubes need to be connected to the vaccine reservoir and the spray nozzle. The tubes that have to be connected are placed below the drawer. Pull the drawer out of the device and follow the steps described below.

First, guide the tubes along the edge of the back of the device as shown on the left. The tubes have to be fed from underneath the drawer, through the hole provided, into the pillar at the back of Spray Cabinet.



Guide the tubes along the pillar until it appears through the hole in the upper cover. The tubes have to be guided along the middle brace. It is recommended that the tubes are fixed to the middle brace e.g. using a cable tie, as shown on the left.

Connect the 6 mm (0.24”) diameter tube to the pressure reducing valve, shown on the picture.



If the short tube that has been pre-installed on the outlet of the pressure reducing valve is not connected to the spray nozzle, take care to connect this now. Connect the tubing to the spray nozzle.

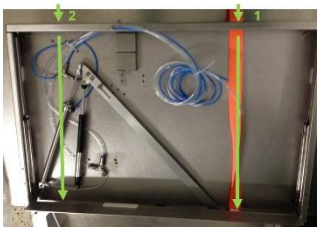
Connect the 4 mm (0.16”) diameter tube to the connector on top of the container.
Connect the 8 mm (0.32”) diameter tube to the connector on top of the container.

The lid should be screwed onto the reservoir before connecting the tubes.

Make sure the tubes inside the container reach the bottom of the reservoir. Otherwise air may be sucked into the system leading to incorrect vaccine application. If the thin tube does not reach the bottom of the reservoir, proper agitation of the liquid cannot be guaranteed.

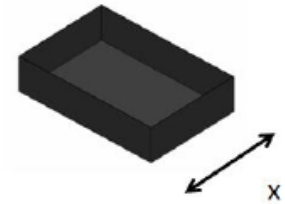
4.10 Fixing the Spray Cabinet to a platform

In order to prevent the Spray Cabinet from moving around due to the drawer movement or falling off the platform, fix the device to a platform using the lashing strap provided.



Pull out the drawer on the front of the device. Then, step behind the device and take the end of the lashing strap without the ratchet. Insert this end, coming from the back of the device through slot No. 1. Guide it along the lower surface of the device and throughout the gap between the drawer and the lower casing. Connect the end with the ratchet and tie it with care. Repeat this procedure with the second strap and guide it through slot No. 2. Take care that the lashing strap does not cross or restrict the movement of any of the moving parts mounted on the lower surface, e.g. cylinder or lever arm. Overtightening the strap may damage the device.

4.11 Stroke adjustment according to crate depth



There is a need to adjust the drawer stroke of the Spray Cabinet in accordance with the crate depths.

Upon arrival, the drawer stroke is pre-set to the crate depth 500 mm (19.7”) and 16mL dosage.

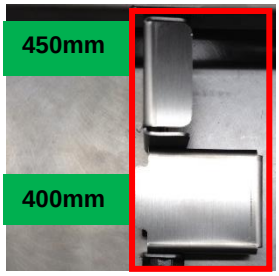
If using a different crate size, the settings have to be changed as follows:

Crate depth 500 mm (19.7”)

Pull the drawer out of the device until two metal flaps are visible and can be moved.

When using a crate with 500 mm (19.7”) depth, both flaps have to be hinged down as shown on the left.

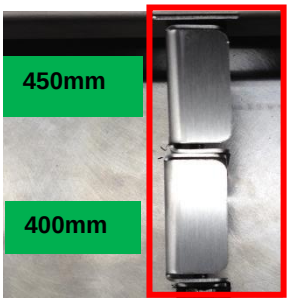
It is only possible to push the drawer all the way into the device for storage in the 500 mm (19.7”) configuration!



Crate depth 450 mm ≤ X < 500 mm (17.1” ≤ X < 19.7”)

When using a crate larger than 450 mm (17.1”) and smaller than 500 mm (19.1”) in depth, one flap, marked as 450 mm (17.1”), has to be in an upright position. The second one, marked as 400 mm (15.7”) has to be hinged down. The positions are shown on the left.

To hinge a flap down from upright position, lift it vertically until you can move it to the right.



Crate depth 400 mm ≤ X < 450 mm (15.7” ≤ X < 17.1”)

When using a crate of size 400 mm (15.7”) and smaller than 450 mm (17.1”) in depth, both flaps, marked as 450 mm (17.1”) and 400 mm (15.7”), have to be in an upright position as shown on the left.

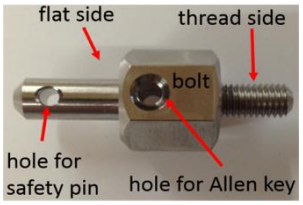
To hinge a flap down from an upright position, lift it vertically until you can move it to the right.

NOTE: For storage, the Cylinder-piston to lever-arm connection must be disconnected as described in section 4.13 if working with a crate size, smaller than 500 mm (19.7”)!

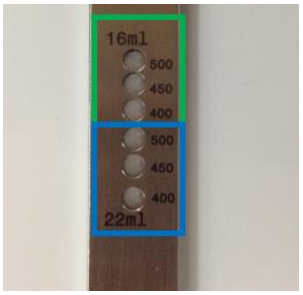
4.12 Piston stroke adjustment – reference to crate depth

It is also necessary to adjust the piston stroke to the desired dosage volume in accordance to the crate width.

As shown on the left, there are three adjustment holes for each possible spray volume.
1: Choose the desired spray volume.
2: Choose the crate size according to the crate that will be in use.



3: Insert the threaded end of the bolt into the desired hole under the base of the surface. Insert the Allen key into the hole in the middle of the bolt. Use the Allen key carefully to tighten the bolt.



4: Choose the desired hole at the lever arm in accordance with the proper spray volume and the crate size in use.
4: Take the lever arm of the cylinder-piston construction. Hold it at the upper end and pull it towards you until it is possible to fit the flat side of the bolt into the chosen hole.
5: Insert the safety pin through the hole and secure it.

Adjustment example for 22 mL dosage volume and crate width of 500 mm (19.7”).

Choose the hole in the 22 mL line, which is marked with 500 mm (19.7”). Insert the threaded end of the bolt into the hole, hand tight (max. 4 Nm).
Choose the corresponding hole at the lever arm in accordance to the proper spray volume and the crate size.

Pull the upper end of the cylinder piston construction towards you until it is possible to insert the upper end of the bolt into the chosen hole. (In this case, it is the fourth hole of the lever arm, seen from its upper end). Make sure the lever is positioned onto the lower end of the bolt. Insert the safety pin into the hole at the upper end of the bolt and secure it.

4.13 Cylinder-piston to lever-arm connection

On delivery, the pump-cylinder which is located below the drawer has to be connected with the lever-arm before the device can be used.

As shown on the left, the cylinder is separate from the lever-arm on delivery.
To connect both parts, pull the drawer out until it stops.
Slide the cylinder to the right and angle it until the end of the cylinder overlaps the end of the lever-arm construction.

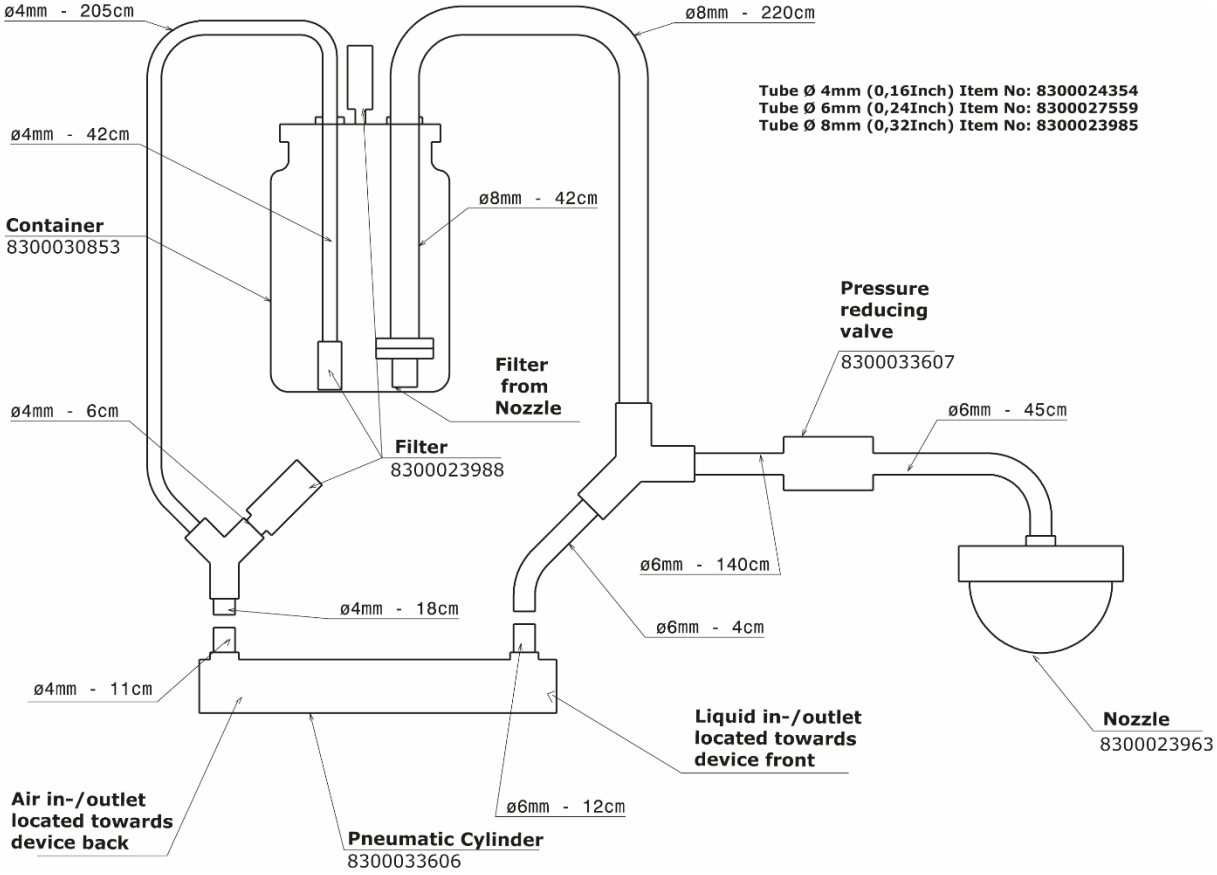
The two parts are in the correct position when it is possible to see through the hole.

Now take the locking pin and insert it into the hole to connect the cylinder to the lever arm.

Thereafter, slide the locking pin to the right until it is locked to the head of the cylinder as shown on the left. There may be some resistance to overcome until the pin is fastened in the correct position.

NOTE: For storage, the Cylinder-piston to lever-arm connection must be disconnected as described above if working with a crate width smaller than 500 mm (19.7”)!
Storing the device at a crate width setting of 450 mm (17.1”) or 400 mm (15.7”) without disconnecting the piston from the lever arm will damage the cylinder!

4.14 Tube replacement



If a tube has to be replaced or has been damaged, the different tube connections are shown in the picture above. Take care about different tube lengths and diameters.
In general, the system can be divided into an air tube system and a liquid transportation system.
Tubes for agitating / air transportation have the smallest outer diameter of about 4 mm (0.16”). These tubes should not be used for liquid transportation.
Tubes for liquid transportation have a diameter of either 6 mm (0.24”) or 8 mm (0.32”).

5 Priming the system

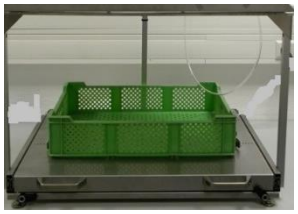
Once the Spray Cabinet has been assembled correctly and the vaccine reservoir is filled, it is necessary to pump 10 to 15 times until liquid comes out of the spray nozzle.

To prime the Spray Cabinet, push and pull the drawer. The longer the stroke while pumping, the faster the air inside the tubes is replaced by liquid. When the device is primed for the first time, it is advised to remove the nozzle and to flush the tubes without the nozzle. This ensures that coarse particles are rinsed out of the tubing system and cannot block the spray inlet of the nozzle.

It is possible to see if vaccine is pumped through the tube that is connected to the nozzle, by frequently checking the tube that leads to the nozzle while pumping. When liquid is leaving the spray nozzle, the system is primed.
After the system has been primed, it is recommended to do a trial vaccination (see section 3.6 of this manual) to ensure uniform administration of the liquid all over the day-old chicks.

6 Operation

- Fix the Spray Cabinet with the enclosed lashing strap to a stable platform e.g. a table.
- If the Spray Cabinet is not fixed and secured to a table or equivalent surface, it is likely to move due to push and pull actions while operating the device. Thus, it may fall, get damaged or injure the operator.



After all settings are properly adjusted the device is ready to use.

Place a crate of day-old chicks in the drawer and push the drawer into the device.

When the drawer is pushed completely into the Spray Cabinet, the birds are vaccinated. Move the drawer back and replace the crate with a new crate of day-old chicks to vaccinate them.

If vaccinating large numbers of day-old chicks, it is necessary to refill the vaccine reservoir frequently. It is recommended to do this before the reservoir is empty. This avoids aspiration of air into the tubes and cylinders of the system. While refilling the reservoir, stop operating.

For refilling the vaccine reservoir, unscrew its closure. Lift the vaccine container down to a lower position to refill it with vaccine. Afterwards place it on top of the Spray Cabinet and screw the closure back on.

7 Cleaning

Internal cleaning

Once the vaccination procedure has been finished, empty the vaccine bottle from remaining vaccine quantity and rinse the vaccine container thoroughly using lukewarm, clean and demineralized water. Afterwards, add a volume (at least 1 liter) of lukewarm, clean and demineralized water to the vaccine container. Then, to clean the inside of the tubes and nozzle, simulate at least 15 spray vaccinations, using an empty crate. In addition, it is recommended that the tubing system be disinfected after every vaccination session using 70% Isopropanol. Therefore, add Isopropanol according to recommended concentrations to the cleaning procedure described above. After disinfection, rinse the Spray Cabinet well with clean, demineralized water to avoid vaccine inactivation by the Isopropanol.

Filter cleaning

There are four filters connected to the tubing system.
- one filter is below the main casing
- one filter is in the closure of the vaccine reservoir
- two filters are located inside the vaccine reservoir

All of the filters should be checked after each vaccination session to make sure that they are free of debris. If a filter shows any damage or has clogged up pores, e.g. with lime scale, replace the filter or try to clean it using liquid descaler.

Nozzle cleaning

The nozzle should be disassembled, cleaned and descaled frequently. If the spray pattern is not uniform, replace the metal nozzle plate with a new one.

To replace or clean the inside of the spray nozzle, unscrew the spray nozzle from the Spray Cabinet.

Unscrew the cap-nut from the spray nozzle as shown on the left.

Separate the spray inlet from its casing. Take out the inlet.

Turn it around and remove the black seal that holds the spray screen in place.

Replace the spray screen with a new one or clean it with demineralized water. Descale and clean it again with demineralized water. Dry it with pressured air. Afterwards, replace the spray screen in the nozzle and assemble all of the parts in reverse order.

External cleaning

The Spray Cabinet can be cleaned with a solution of mild detergent in clean, demineralized water to rinse the whole device.

It is also possible to use a pressure washer at a minimum distance of 1 m (40”) to clean the device. Using a pressure washer closer to the device can damage or break it.
In addition, it is recommended that the outside of the device be disinfected after every vaccination session using 70% Isopropanol or commercial disinfectants at recommended concentrations.

After cleaning the Spray Cabinet, dry it completely by using compressed air. Pay particular attention to bearings on the left and right side of the drawer as well as the absorber and the cylinder-piston construction. Residual water can reduce the durability and lifespan of the device or cause damage, e.g. corrosion.

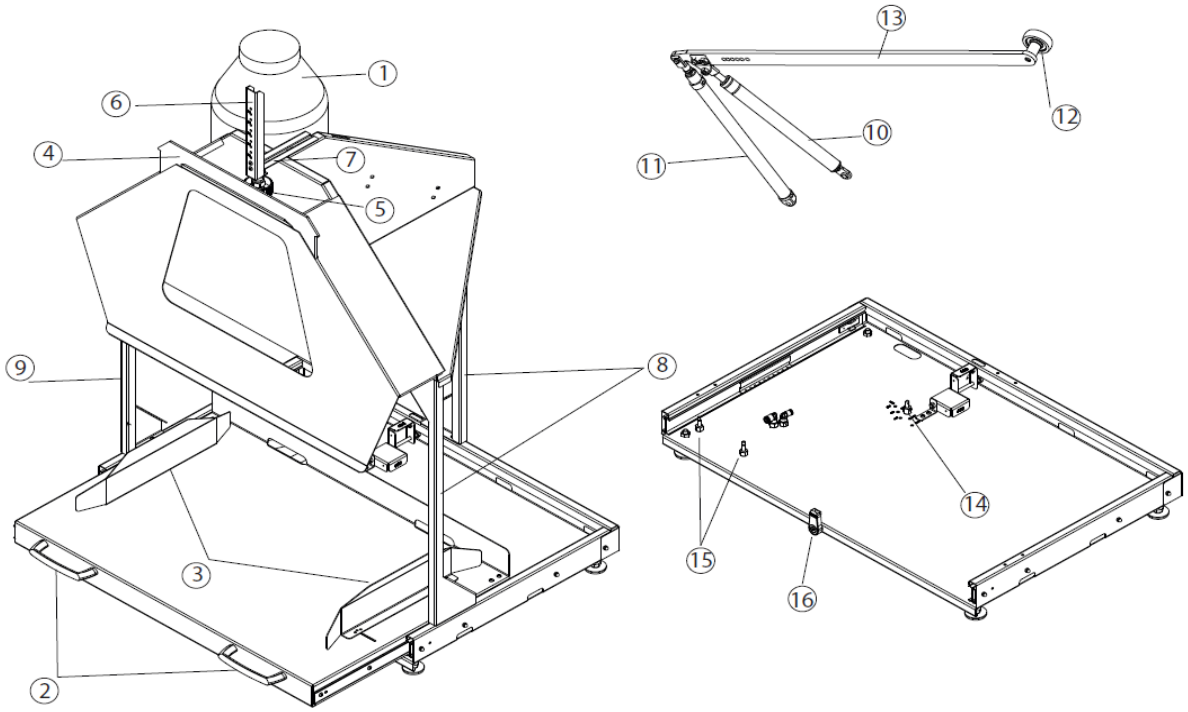
All moving parts e.g. cylinder-piston construction, absorbers and bearings have to be lubricated with silicone or food safe oil.

8 Storage / Transportation

Never store the Spray Cabinet directly after cleaning as it may be wet or contain water. All moving parts e.g. links, cylinder-piston construction, absorbers and bearings have to be lubricated with silicone or food safe oil. Disassemble the device as explained in section 4, but in reverse order. Place all parts in a protective package. To store the ground system of the device, it is necessary to move the drawer fully into the device. Therefore, take care that both flaps at the end of the drawer are hinged down as shown in section 5. Slide the drawer into the device until it stops and fasten the drawer in this positon using the clasp, which is mounted between the two handles.

NOTE: For storage, the Cylinder-piston to lever-arm connection must be disconnected as described in 4.13, if working with a crate width smaller than 500 mm (19.7”)! Storing the device at a crate width setting at 450 mm (17.1”) or 400 mm (15.7”) without disconnecting the piston from the lever arm will damage the cylinder!

9 Spare parts



	Description	Item Number
1	Canister incl. closure, connections, internal tubings and one Nozzle	8300048766
2	Handle	8300023968
3	Guidance left / right side	8300023959
4	View window	8300023952
5	Nozzle	8300023963
6	Nozzle attachement vertical metal plate	8300023954
7	Nozzle attachement horizontal metal plate	8300023946
8	Right / Back pillar	8300027519
9	Left pillar	8300027518
10	Absorber incl. fixation	8300033586
11	Pump cylinder incl. connections	8300033606
12	Guiding roll for lever arm	8300033590
13	Lever arm	8300023960
14	Bolt for dosage adjustment	8300023949
15	Thread bolt for cylinder / absorber fixation	8300023950
16	Locking bar	8300023967
	Tubing 4mm/0.16"	8300024354
	Tubing 6mm/0.24"	8300027559
	Tubing 8mm/0.32"	8300023985
	Pressure reducing valve incl. connections	8300033607
	Air filter	8300023988
	Allen key	8300030156
	Open end wrench (7mm/0,28")	8300030157
	Lashing strap	8300030829
	Tube guiding clip	8300031713
	R-Clip	8300030935
	Dosage Measuring Cup	8300033483

10 Troubleshooting

 Use the following checklist for troubleshooting of the Spray Cabinet.

 Take care to use only distilled water or descaled drinking water for trial vaccination, cleaning the tube system and preparing the vaccine mixture for operation.

 If the spray pattern of the nozzle is not as it should be, replace the spray nozzle insert by a new one or descale the nozzle in total.

 Check the spray nozzles for clogs and overall cleanliness. If the spray pattern is not uniform, replace the spray nozzle insert or descale the nozzle.

 If the spray pattern is weak or erratic, check that the tubing is connected properly and not crimped, pinched or damaged.

 If problems occur when completely inserting the drawer, check if the flaps at the back are hinged down.

 If problems occur when hinging a flap down from an upright position, lift it vertically until you can move it to the right.

 If problems occur when the drawer is completely inserted, check if the pump cylinder has been disconnected from the lever-arm construction.

 After each vaccination session, clean the device with demineralized water and dry it with compressed air.

 Apply some food safe oil to the bearings on the left and right sides of the drawer.

 Apply some food safe oil to absorber (black part of the lever-arm construction).

Apply some food safe oil to pump cylinder

 Apply an adequate lubricant to all moving parts of the device

11 Declaration of conformity

	2006/42/EG Konformitätserklärung Declaration of Conformity Déclaration de Conformité	Seite / Page: 1 von 1 Produktgruppe / Product group: Spray Cabinet 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 Spray Cabinet

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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 Henke-Sass, Wolf GmbH if you need any assistance or spare parts.

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