Original Operating Manual

HygieneBox/HygieneBox Teat Lock

TA version S 3.07 and higher



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1. Introduction

This operating manual allows you to operate the HygieneBox/HygieneBox Teat Lock safely in the intended manner.

- Please read this operating manual carefully before putting the HygieneBox/HygieneBox Teat Lock into service.
- Keep the operating manual readily available at all times and pass it on to the next user.
- Observe all of the warnings and safety instructions in this operating manual at all times.

1.1 Functional description

The HygieneBox/HygieneBox Teat Lock is an advanced version of a feeding station linked to the automatic feeder.

The teat is mounted so as to be movable. This enables the calf to perform its natural suckling action as it would on a cow, which is an indication of the vitality of the calf.

Your advantages:

- Easy to clean due to its small surfaces.
- Sealed enclosure for optimum protection against dirt, dust and water.
- Teat locking for training young calves.
- Installation support for cables and hoses can be adapted to suit the position of the antenna and the local conditions.
- No tools are required in order to exchange the teat.
- Supports the natural sucking behavior of the calf.
- Automatic hose cleaning ensures a high degree of hygiene.
- Exterior cleaning of the teat after each calf.

1.2 Components

Overview of the HygieneBox



- Housing 1
- 2 Valve for cleaning the teat
- 3 Antenna port 1 for the antenna
- 4 Discharge tray
- 5
- Antenna port 2 for the automatic feeder Front plate (not included in the scope of supply) 6



- 1 Teat holder
- 2 Teat cleaning nozzle
- 3 Teat

Interior view



- 1 Control box
- 2 3/2 way change-over valve
- 3 Suction hose
- 4 Return hose for suction hose cleaning

1.3 Name plate

The HygieneBox/HygieneBox Teat Lock is equipped with its own name plate. The information contained on this varies depending on the destination country. An example of a name plate is illustrated below:



1.4 Manufacturer's contact details

Our contact details:

Förster-Technik GmbH Gerwigstrasse 25 78234 Engen, Germany Phone: +49/ (0)7733/ 9406- 0 Fax: +49/ (0)7733/ 9406- 99 info@foerster-technik.de www.foerster-technik.de

2. Important safety instructions

2.1 Intended use

The purpose of the HygieneBox is to provide feed delivery to calves, provide support of the fully automatic cleaning function, record the movements of the teat during consumption of the feed and control the automatic feed delivery start function.

2.2 Target group

2.2.1 Necessary qualifications of the owner

The owner must be a trained farmer or have good practical experience in farming. He must know the relevant accident prevention regulations and generally accepted safety regulations.

2.2.2 Necessary qualifications of the service technician

Only trained service technicians are authorized to install, commission, maintain and repair the HygieneBox/HygieneBox Teat Lock.

Service technicians are specialists with the appropriate qualifications. Service technicians are able to assess the work assigned to them and detect potential risks on the basis of their technical training as well as their knowledge of the relevant standards. They are familiar with the relevant accident prevention regulations, generally accepted safety regulations and country-specific standards and provisions.

2.3 Residual risks

Hazards to health and life caused by the HygieneBox:

WARNING!

Danger from electric current

The automatic feeder to which the HygieneBox is connected is electrically operated.

- ► You must observe the general precautions for handling electrical equipment.
- Read the operating manual before operating the HygieneBox.
- Keep children away from the HygieneBox.
- Only use genuine spare parts from the manufacturer.
- Turn off the automatic feeders and disconnect the power plug before carrying out any maintenance or cleaning work on the HygieneBox.

- The electrical system of the HygieneBox can present the following special hazards:
 - Electrical discharge. If there is an electrical discharge or voltage breakdown, electric current flows through parts of the HygieneBox that are normally insulated. Touching the unit can cause a fatal electric shock. The HygieneBox must be checked regularly for electrical safety in compliance with national regulations (repeated inspection). Make sure that a 30 mA residual current device (RCD) is installed.
 - Short circuit, indirect contact. If there is a short circuit, current at many times the level of the operating current can flow. Touching the unit can cause a fatal electric shock. Make sure to install fuse protection (provided by the customer) and an earth leakage circuit breaker (ELCB) of 30 mA in compliance with local regulations.
- **Burns**. The solenoid valves can reach temperatures of up to 100°C. Touching them can cause burns. Do not touch the solenoid valves during operation.
- **Poisoning**, **difficulty in breathing**, **suffocation**. Liquids used to clean the teats may contain substances that are hazardous to human health. Avoid direct contact and always wear protective gloves and goggles when handling these liquids.
- **Rough ambient conditions**. The HygieneBox operates in a rough working environment. Damage of any kind can result in hazards. Regularly check the HygieneBox for damage and have any damage rectified as necessary by a service technician.

Material damage caused by the HygieneBox

The following material damage can be caused by the HygieneBox:

• **Infection**. Improper cleaning can result in calves becoming infected by pathogens at the teat. This can lead to medical costs or cause the death of the calves. Observe the specifications issued by the manufacturer of the cleaning agent that is used.

2.4 Your duties

The owner has a duty to:

- Prevent misuse by children.
- Keep children, youths, and people with restricted physical, sensory and mental abilities away from the HygieneBox.
- Carefully read and understand this operating manual before putting the HygieneBox into operation.
- Only allow operating personnel to work with/on the HygieneBox who:
 - Are familiar with the basic operational safety and accident prevention regulations.
 - Have been given instructions on working with/on the HygieneBox.
 - Have read and understood this operating manual.
- Comply with the operational safety and accident prevention regulations.
- When cleaning the HygieneBox, observe the safety instructions stipulated in the safety data sheet for the cleaning agent.
- Wear the safety equipment specified in the safety data sheet for the cleaning agent, such as goggles and chemical-proof protective gloves, when cleaning the HygieneBox.

- Provide the required personal protective devices for the operator.
- Operate the HygieneBox only as intended.
- Keep all safety signs on the HygieneBox in legible condition and renew any that become damaged.
- Desist from changing the design or functions of the HygieneBox.
- Operate the HygieneBox only when it is in perfect functional condition.
- Subject the HygieneBox to regular visual inspection for possible damage and have it rectified by a service technician if necessary.
- Check the safety devices applied to the HygieneBox regularly for perfect working order.
- Make sure the HygieneBox is operated only with safety devices installed.
- Make sure that the HygieneBox and all parts which can be manually cleaned or which are needed for cleaning procedures are easy to access at all times.
- Protect the HygieneBox and all corresponding cables from exposure to sunlight.
- Use only original accessories, original spare parts and original wearing parts. These are available from your dealer.
- Keep the working environment of the HygieneBox clean and tidy.
- Deactivate teat cleaning during frost.

2.5 How am I warned of hazards?

Hazards are indicated directly on the HygieneBox by safety labels (warning signs, instruction and prohibition notices), and in the operating manual by specially marked hazard descriptions.

The warnings for hazards that can cause death or injury to people are emphasized more than those for material damage, for example through the colors, hazard words or symbols used.

Safety labels are an important element of the overall HygieneBox safety concept. They provide warnings about hazards and explain how to avoid them.

Make sure that all the specified safety labels are fitted to your HygieneBox and that they are in a legible condition. If the safety labels are difficult to read, replace them immediately. New safety labels are available from Förster-Technik GmbH.

2.5.1 What are the components of a hazard description?

A hazard description always consists of the following elements:

- Hazard word (danger, warning, caution, attention)
- Type of hazard (what can happen?)
- Location of hazard (where can it happen?)
- Actions necessary for preventing the hazard (what should I do?).

2.5.2 Potentially fatal hazards or health hazards

Depending on their severity and the probability of them occurring, hazards that can cause death or injury to people are indicated by a hazard symbol \triangle (warning triangle with exclamation mark) and the following hazard words:

DANGER!

The word DANGER indicates an imminent hazard that will lead to death or serious injury.

Warning signs in the operating manual: DANGER (white text on red background).

WARNING!

The word WARNING indicates a potentially hazardous situation that could lead to death or serious injury.

Warning signs in the operating manual: WARNING (black text on orange background).

The word CAUTION indicates a potentially hazardous situation that could lead to minor injury.

Warning signs in the operating manual: CAUTION (black text on yellow background).

2.5.3 Material damage

NOTICE!

The word ATTENTION indicates possible material damage. The HygieneBox or anything in its vicinity, such as a calf, may be damaged or injured.

Prohibition notice on the HygieneBox: a pictogram crossed out in red in a white circle with a red border indicates something you are not allowed to do.

Operating manual: white text on blue background

2.5.4 Safety signs

Different safety labels are attached at the hazardous points on the HygieneBox. Warning signs, prohibition and instruction notices.

What are warning signs?

Warning signs consist of:

• A pictogram in a yellow triangle illustrating the potential hazard.

What are prohibitory signs?



Prohibitory signs have a pictogram of the prohibited action in a red circle with a line through it. See the adjacent example. They graphically depict the prohibited action. In this example, the hose with a line through it means that you may not use high-pressure cleaners.

What are instruction notices?



Instruction notices show a pictogram of what you are being instructed to do in a blue circle. They illustrate what you have to do. In the example, the pictogram means that you must always disconnect the plug first.

2.5.4.1 Warning signs on the machine

Danger of death by electric shock



Burning/scalding



Warning about injuries to the hand



No spraying



Other labels



This symbol means that the device contains recyclable electrical and electronic parts and must therefore be disposed of separately from household waste at the end of its service life.

2.6 Safety devices

The safety devices at the machine are an important part of the safety concept and help prevent accidents.

- Do not remove or change the safety devices unless the corresponding safety instructions have been complied with.
- Put the machine into service only once all safety devices have been fitted and are in the guard position!

2.7 Structural alterations

The HygieneBox must not be subjected to any unauthorized alterations at any time.

Only genuine spare parts, wearing parts and accessories may be used, since any warranty claims will otherwise be void.

3. Scope of delivery

HygieneBox 3.1



- Discharge tray
 Discharge tray extra items
 Water hose
- 4 Valve with bracket for teat cleaning5 Hoses for teat cleaning
- 6 Screws
- 7 HygieneBox extra items8 HygieneBox

HygieneBox Teat Lock 3.2



- Discharge tray 1
- 2
- Discharge tray extra items HygieneBox Teat Lock extra items HygieneBox Teat Lock 3
- 4
- 5 Water hose
- Antenna cable 6
- 7 Hoses for teat cleaning
- 8 Screws
- 9 Valve with bracket for teat cleaning

4. Commissioning

This chapter tells you how to commission the HygieneBox/HygieneBox Teat Lock.

The HygieneBox/HygieneBox Teat Lock may be commissioned only by a service technician.

When installing a HygieneBox, please refer to the Installation chapter 4.1.1 "HygieneBox" - 16.

When installing a HygieneBox Teat Lock, please refer to the Installation chapter 4.1.2 "Hygiene-Box Teat Lock" - 18.

The end user must provide you with the operating manual for the automatic feeder and the safety data sheets for cleaning agent.

The appendix contains a checklist with all points you have to observe during commissioning or recommissioning. (see 10.1 "Checklist for commissioning and recommissioning").

NOTICE!

In order to use the HygieneBox with all its functions, the automatic feeder must be updated to the latest program version.

4.1 Installation

4.1.1 HygieneBox

Note: If a HygieneBox Teat Lock is installed, this chapter can be skipped

This is how you attach the discharge tray, teat cleaner and HygieneBox:

1. Using the screws supplied, fasten the discharge tray to the front plate for the HygieneBox.



2. Fit the short hose to the top of the cleaning valve and the long hose to the back of the cleaning valve.



- 1 Short hose
- 2 Long hose
- 3 Cleaning valve
- 3. Screw the cleaning valve to the front plate and connect the long hose to the left socket, the short hose to the right socket.



- 1 Insert
- 4. Using the screws supplied, fasten the HygieneBox to the front plate.
 Note: The necessary attachment holes are already provided in the front plate.
 Note: The HygieneBox can be turned depending on the antennae position.



- 5. Plug the power supply cable into the cleaning valve.
- 6. Screw the teat onto the HygieneBox.

4.1.2 HygieneBox Teat Lock

This is how you attach the discharge tray, teat cleaner and HygieneBox Teat Lock:

1. Using the screws supplied, fasten the discharge tray to the front plate with teat lock.



Note: Screw the discharge tray to the front panel using the large screws first and then the small screws.

2. If there are no holes for the teat block HygieneBox Teat Lock on the front plate, use the special drilling template to pre-drill the required holes.



3. Fit the short hose to the top of the cleaning valve and the long hose to the back of the cleaning valve.



- 1 Short hose
- 2 Long hose
- 3 Cleaning valve
- 4. Screw the cleaning valve to the front panel and connect the long hose to the left cleaning nozzle, the short hose to the right cleaning nozzle.



- 1 Cleaning nozzle
- 5. Using the screws supplied, fasten the HygieneBox Teat Lock to the front plate.

Note: The HygieneBox can be rotated if the pipe bend needs to be positioned on the opposite side.



- 6. Plug the power supply cable into the cleaning valve.
- 7. Screw the teat onto the HygieneBox.

4.2 Connecting hoses

This is how you connect the hoses to the HygieneBox:

- 1. Open the HygieneBox.
- 2. Connect the suction hose and the return hose to the connectors within the housing.



- 1 Connection for the suction hose
- 2 Connection for the return hose
- 3 Pipe elbow
- 3. Feed the hoses out of the enclosure through the pipe elbow and run them to the automatic feeder.
- 4. Connect the hoses to the connectors on the automatic feeder.



- 1 Connectors for the suction hose
- 2 Connectors for the return hose

Note: If more than two automatic feeders are connected, appropriate connection pieces must be connected to the hoses.

5. Close the housing of the HygieneBox.

Note: An additional heater for the suction hose can be connected.

NOTICE!

Damage caused by frost

Frozen water expands and can destroy hoses.

- Deactivate the teat cleaning system and drain the hoses and the valve (see 7.1 "Shut down teat cleaning" 33).
- 6. Connect the pressure-reducing valve to an external water tap.



7. Connect the water hose included in the scope of delivery to the connector on the retaining plate.



- 1 Retaining plate
- 2 Water hose connector
- 8. Route the water hose to the pressure-reducing valve.
- 9. Connect the water hose to the pressure-reducing valve.
- 10. To connect the antenna, please refer to chapter 4.3 "Connecting the antennas" 22.

4.3 Connecting the antennas

The MultiReader antenna is mounted either on the stall partition or on the front plate.

NOTICE!

To prevent it being damaged, make sure the antenna cable is installed outside the area occupied by the animal.

4.3.1 Stall partition without swing frame.

Connect the antennas as follows:

1. Lead the plug of the antenna cable through the hole in the front panel and connect it to the socket of the HygieneBox/HygieneBox Teat Lock cable.

Note: If there is no plug on the antenna cable, connect the antenna cable directly to the circuit board of the HygieneBox/HygieneBox Teat Lock.

Note: If there is no hole in the front panel, it must be drilled with a diameter of 20 mm.



1 Hole for the antenna cable

Note: Make sure the cable is not under tension, and that the HygieneBox/HygieneBox Teat Lock can still pivot.

- 2. Connect the other antenna cable to the cable tail of the automatic feeder.
- 3. If an IFS feeding station is connected, connect the antenna cable to the cable tail of the IFS unit.

4.3.2 Stall partition with swing frame.

Connect the antennas as follows:

1. Connect the clamp to the front plate and feed the cable sleeve through the swing frame to the antenna. Both these items are included in the scope of supply of the swing frame.



- 1 Cable sleeve
- 2 Clamp for the cable sleeve
- 3 Antenna cable
- 2. Lead the plug of the antenna cable through the cable protection and connect the plug to the socket of the HygieneBox/HygieneBox Teat Lock cable.

Note: If there is no plug on the antenna cable, connect the antenna cable directly to the circuit board of the HygieneBox/HygieneBox Teat Lock.

Note: Make sure the cable is not under tension, and that the feeding box and HygieneBox/ HygieneBox Teat Lock can still pivot.

- 3. Connect the other antenna cable to the cable tail of the automatic feeder.
- 4. If an IFS feeding station is connected, connect the antenna cable to the cable tail of the IFS unit.

4.4 Software updates

When using the HygieneBox/HygieneBox Teat Lock, the automatic feeder must always be kept updated to the current program version.

The options available for your equipment can be seen in the dealer area of Förster-Technik's web site **www.foerster-technik.de**.

4.5 Activation in the setup

The HygieneBox must be activated in the setup of the automatic feeder.

- 1. Switch the automatic feeder off.
- 2. Press and keep the button pressed while you switch the automatic feeder back on. After a short time, the **Setup menu** will appear in the display.
- 3. In the setup menu, choose the Stations > Feed menu item.
- Select internal (device) if the HygieneBox is connected to the internal station.
 If the HygieneBox is connected to an IFS feeding station, select IFS station single or IFS station quadruple.
- 5. Choose $|\langle | \rangle|$, to select the desired feeding box.
- 6. In **HygieneBox**, set the value to **yes**.
- 7. To exit the setup, repeatedly press Esc, until the message **Exit setup?** appears. Confirm with Enter.

Note: You can find out how to activate the **teat cleaning system** in Chapter 4.7.3 "Teat cleaning" - 28.

4.6 Activating the auto teaching

To help the calves feed during the first few days, the training function can be activated in the menu. If the HygieneBox is moved back and forth briefly, a small amount of feed will be dispensed and the calf can begin to suck.

You activate the training function as follows:

- 1. Choose \square > Feeding > Plans > Feed in the auto teaching sub-menu.
- 2. To activate the training function, set the value in the **active** line to **yes**.
- 3. In the **Training duration** line, set the number of seconds for which the manual feeding pump will run once a calf has found the feeding box and started to suck at the teat.
- 4. In the **until feeding day** line, set the number of the feeding day until which the training function remains effective.

4.7 Cleaning

For reasons of hygiene you must completely remove any coolant and lubricant residues from the system before commissioning it. To do this, perform a suction tube cleaning cycle (see 4.7 "Cleaning" - 25).

MARNING!

Beware of chemical burns from cleaning agents.

The cleaning agent can cause chemical burns to your eyes or hands.

Always wear goggles and chemical-proof protective gloves when using cleaning agents. Follow all the safety instructions listed in the safety data sheet for the cleaning agent and wear the specified safety equipment.

Every day you must clean all parts of the **suction tube** that come into contact with liquid or powder animal feed.

The type of feed you are using also plays a role here. For example, raw milk contains more germs than pasteurized milk. Therefore, if you are feeding raw milk, you must clean the feeder more often than if you are using pasteurized milk.

NOTICE!

► For more information about cleaning, see the operating manual for your automatic feeder.

Remember:

- The cleaning agents must be suitable for use within a temperature range of 40°C to 58°C.
- You must follow all safety instructions in the safety data sheet for the cleaning agent you are using.
- You must always wear the protective gear, such as protective goggles and gloves, specified in the safety data sheet for the cleaning agent you are using.
- Undiluted cleaning agent may not be drained into the ground water or sewage system. Observe the recommendations in the safety data sheet for your cleaning agent and contact your water utility company and your sewage disposal company to find out which regulations apply to you.
- Observe the cleaning intervals recommended by the manufacturer of the cleaning agent as well as those recommended in this operating manual (see 6. "Maintenance/servicing" 31).
- Never mix alkaline and acid cleaning agents.
- Make sure that the vapors of alkaline and acid cleaning agents can never mix.
- Observe the manufacturer's guidelines regarding the amount, temperature and concentration of cleaning agent used.
- Do all of the cleaning recommended in this operating manual.

NOTICE!

Never use cleaning agents containing chlorine, as they can attack the materials of the HygieneBox and impair its function.

If this happens, your calves may not receive enough feed. This can lead to malnutrition, which can cause impaired growth and development, increased susceptibility to illness or even the death of your calves.

4.7.1 Cleaning agents

WARNING!

Chemical burns due to the cleaning agents used.

The cleaning agent can cause chemical burns to your eyes or hands.

Always wear safety glasses and protective gloves when using cleaning agents. Follow all the safety instructions listed in the safety data sheet for the cleaning agent and wear the specified safety equipment.

4.7.2 Automatic cleaning of the suction tubes

The suction tube and the 3/2-way valve are automatically cleaned with the cleaning agent.

Cleaning agent is added automatically. You must check each day to ensure that the cleaning agent containers are full and that the cleaning agents are being dispensed into the mixer of the automatic feeder.

Note: When feeding fresh milk from an external milk tank, the connecting hose from the milk tank to the Combi feeder is not cleaned during automatic suction hose cleaning. These components must be cleaned separately via the manual circuit cleaning. Information on frequency and procedure can be found in the *operating instructions for the automatic feeder*. If a Smart-Tank is connected to your Combi feeder, the connecting hose from the SmartTank to the calf feeder is cleaned automatically.

WARNING!

Chemical burns due to the cleaning agents used.

The cleaning agent can cause chemical burns to your eyes or hands.

Always wear safety glasses and protective gloves when using cleaning agents. Follow all the safety instructions listed in the safety data sheet for the cleaning agent and wear the specified safety equipment.

The are 2 pre-set automatic suction tube cleaning cycles.

You set up automatic suction tube cleaning as follows:

- 1. Choose \square > Cleaning in the auto circuit clean sub-menu.
- 2. In the **Cleaning/day** menu, you enter the required number of cleaning cycles. You can set a maximum of 4 cleaning cycles.

Note: You should define at least 1 cleaning cycle per day in order to prevent unhygienic conditions.

3. In **det 2 change a.** (option), enter if necessary the number of cleaning cycles after which the automatic feeder should switch to the second cleaning agent. The default setting is 3 cleaning cycles.

The lines below show the current count det 2 in x cleaning cycles.

- 4. For **Cleaning 1**, enter the desired time of day.
- 5. For Cleaning 2 (option), enter if necessary the desired time of day.

Note: Start the cleaning at a time when there is minimal entitlement to feed so that your calves do not have to wait too long for feed.

Note: If there is still feed in the mixer beaker at the set cleaning time, automatic cleaning will be postponed by a maximum of one hour. After that, any remaining feed will be pumped out if necessary via the mixer drain valve, and the cleaning cycle will be started.

4.7.3 Teat cleaning

After each visit of a calf to the feeding box, the tat is automatically cleaned with water from outside.

You set the teat cleaning as follows:

- 1. Choose \square > Cleaning in the Settings sub-menu.
- 2. Set for teat cleaning, how long the teat should be sprayed with water.

You can enter a value between 1 and 9.0 means that teat cleaning is deactivated.

Note: Depending on the desired cleaning effect, the water pressure can be reduced via the pressure reducer.

4.7.4 Manually starting tube cleaning

You can also start the cleaning of the tubes manually.

To start the cleaning of the tubes manually, proceed as follows:

- 1. Choose -> Cleaning in the auto. sub-menu. Tube cleaning.
- In the start flushing agent 1? menu, press to perform an alkaline cleaning cycle, or in the start flushing agent 2? menu, press Enter to perform an acid cleaning cycle, if a second cleaning agent pump is available.
 - 2.1. If necessary confirm **Exit automatic mode?** by pressing Enter
 - 2.2. Enter the required amount of cleaning agent and confirm by pressing Enter.

Note: Start the cleaning at a time when there is minimal entitlement to feed so that your calves do not have to wait too long for feed.

4.7.5 Cleaning the HygieneBox manually

When necessary, clean the inside and the outside of the housing, together with the mounting of the HygieneBox.

To clean the HygieneBox, proceed as follows:

- 1. Exit automatic mode for the automatic feeder.
- 2. Spray the outside of the HygieneBox housing and the HygieneBox mounting with water from a hose, and rub the parts down with a cloth.

NOTICE!

Never use a high-pressure cleaner or similar equipment for cleaning, since the Hygiene-Box may otherwise become damaged.

- 3. Open the HygieneBox housing.
- 4. Using a damp cloth, clean the inside of the housing.
- 5. Close the HygieneBox housing.
- 6. Start automatic mode for the automatic feeder.

4.7.6 Cleaning the discharge tray

The discharge tray can be cleaned as required.

To clean the discharge tray, proceed as follows:

- 1. Exit automatic mode for the automatic feeder.
- 2. Spray the discharge tray with water from a hose, and rub the parts down with a cloth.
- 3. Start automatic mode for the automatic feeder.

5. Hygiene

As a farmer with experience in calf rearing, you understand how unhygienic conditions affect the health of your calves. Diarrhea and respiratory infections are frequently occurring infectious diseases in calves.

Every sick calf involves additional costs, for example for veterinarians and medication, and requires extra time for care.

The younger the calf, the weaker its immune system, and the more prone to infection it will be.

The possibility of infection can never be completely eliminated, but it can be minimized by taking measures to ensure good hygiene.

Maintaining cleanliness is one important and easy measure that helps prevent infectious diseases.

Through proper cleaning at regular intervals, every calf-rearing business can reduce the risk of infection for its calves and save money as a result.

Measures to ensure hygienic conditions save time and money.

What are infections? An infection occurs when germs invade and multiply in a host.

Germs are all around us. However, they are not dangerous until they multiply in great numbers. The risk of infection increases with the number of germs.

When germs get into your animal feed, such as milk, they can spoil the feed and make it inedible.

When germs get into your calves, for example from infected feed or other infected calves, your calves can become sick and die.

Both situations result in costs that you can minimize by taking measures to ensure hygienic conditions.

As a farmer, it is your job to identify sources of infection and bring them under control.

So how do you prevent infections? By keeping animals in good conditions, with good drinking water and feed quality and, most importantly, through cleanliness.

Proper cleaning is an important way of ensuring hygienic conditions and also prevents infections.

If the automatic feeder is not cleaned or is cleaned improperly, germs, which are abundant in the environment, can enter the nutrient-rich feed and multiply. When they drink the feed, calves can become infected, sick and even die.

Proper cleaning of the automatic feeder reduces the number of germs and therefore the risk of infection.

The cleaning chapter (see 4.7 "Cleaning" - 25) explains how to clean the automatic feeder properly. The appendix contains a table of suggestions of how to clean the different parts of the automatic feeder (see 10.3 "Care and maintenance schedule/routine tasks" - 41).

6. Maintenance/servicing

This chapter covers the regular maintenance work and functional inspection of the HygieneBox, so as to ensure that the required standards of hygiene are maintained. Maintenance includes scheduled replacement of wearing parts, for example.

Visual and functional testing of components as well as replacement of simple wearing parts, such as the teat, can be carried out by the owner/operator.

Repair work as well as the replacement of wearing parts at or in the HygieneBox may be performed only by a service technician.

Note: For a quicker overview, see the care and maintenance schedule in the appendix (see 10.3 "Care and maintenance schedule/routine tasks" - 41).

6.1 Safety instructions

DANGER!

Fatal electric shock.

The electrical components of the automatic feeder are live.

 Always disconnect the mains plug of the automatic feeder before carrying out any work on the HygieneBox.

WARNING!

Risk of burns due to hot surfaces.

The 3/2-way valve and the solenoid valves can reach temperatures of up to 100°C during operation or malfunctions. This can cause severe burns.

► Never touch the valves when they might be hot.

WARNING!

There is a risk of injury due to automatic start-up.

Reaching into places which are marked as danger of crushing areas can lead to hand injuries.

Make sure no calf is suckling from the teat whilst you are performing work on the Hygiene-Box.

6.2 Maintenance intervals and activities

Note: If you detect any faults or damage to the HygieneBox between the maintenance intervals recommended below, you must make sure they are rectified immediately by a service technician as required.

6.2.1 Daily

Visual inspection of the components

- The teats, the suction hose and the return hose must be checked on a daily basis for damage, leaks and wear. If any damage or wear is detected during the visual inspection, the faulty components must be replaced by a service technician before operation of the HygieneBox is resumed.
- The plastic housing must be checked on a daily basis for damage and wear. If any damage or wear is detected during the visual inspection, the faulty components must be replaced before operation of the HygieneBox is resumed.
- The 3/2-way valve must be checked on a daily basis for leaks and damage. If any damage or wear is detected during the visual inspection, the valve must be replaced before operation of the HygieneBox is resumed.
- The discharge tray and the stops incorporated in it must be checked on a daily basis for damage and wear. If any damage or wear is detected during the visual inspection, the faulty components must be replaced before operation of the HygieneBox is resumed.
- The hoses of the teat cleaning system must be checked on a daily basis for damage, leaks and wear. If any damage or wear is detected during the visual inspection, the teat cleaning system must be deactivated before the faulty components are replaced by a service technician.

6.2.2 Every 3 months

All the teats must be replaced every 3 months. This reduces the risk of infection.

6.2.3 Annually

Every 12 months the suction hose and the return hose must be replaced by a service technician.

7. Shutdown

You can shut down the HygieneBox temporarily or permanently.

To make the procedure easier and ensure that you do not miss any points, there is a **Shutdown checklist** (see 10.4 "Shutdown checklist" - 42) in the appendix.

7.1 Shut down teat cleaning

To shut down teat cleaning, proceed as follows:

- 1. Turn the water tap for teat cleaning off and pull out the hose to the pressure reducer.
- 2. Pull out the hose at the connection piece and empty the hose, for example with pressurized air.
- 3. Drain the water for teat cleaning from the short hoses next to the discharge tray.
 - 3.1. Choose \square_{a} > Diagnostics > Stations in the Feed sub-menu.
 - 3.2. Select < > the desired station and press HygieneBox Enter.
 - 3.3. Press Water teat cleaning until Enter, there is no more water in the hose system.
- 4. Place the long hose back onto the connection piece and the pressure reducer.
- 5. If several HygieneBoxes are connected, repeat these steps for all stations.
- 6. Choose \square > Cleaning in the Settings sub-menu.
- 7. Set the value to **0** in **teat cleaning** to deactivate teat cleaning.

NOTICE!

Make sure that there is no longer any more water in the system in order to prevent frost damage.

7.2 Temporary shutdown

To shut down the HygieneBox temporarily, proceed as follows:

- 1. Thoroughly clean the suction tube (see chapter 4.7 "Cleaning" 25).
- 2. Shut down teat cleaning as described in Chapter 7.1 "Shut down teat cleaning" 33.
- 3. Cancel the registration of the HygieneBox in the setup of your automatic feeder:
 - 3.1. Switch off the automatic feeder at the main switch.
 - 3.2. Press a on the hand terminal of your automatic feeder and hold down this key when you switch on the device.

After a short time, the Setup menu will appear in the display.

- 3.3. In the setup menu, choose the **Stations > Feed > Internal (automatic)** option.
- 3.4. If the HygieneBox is connected to an IFS feeding station, select **Stations > Feed > IFS station single** or **IFS station quadruple > pump x**.

- 3.5. Select the value **no** in the **HygieneBox** menu.
- 3.6. If necessary, cancel the registration of all of the HygieneBoxes the same way.
- 3.7. To exit the setup, repeatedly press Esc, until the message **Exit setup?** appears. Confirm with Enter.
- 4. Remove the teat and dispose of it.

NOTICE!

Risk of infection

- ▶ To avoid infections, use a new teat when recommissioning the unit.
- 5. Open the HygieneBox housing.
- 6. Pull the suction hose and the return hose off the connectors within the housing.
- 7. Pull the suction hose and the return hose off the automatic feeder.
- 8. Dispose the hoses.

NOTICE!

Risk of infection

- ▶ To prevent infections, use a new hoses when recommissioning the unit.
- 9. Pull off the antenna cables from the automatic feeder or from the IFS feeding station and plug the antenna connections with a terminating plug.
- 10. Spray the discharge tray, the outside of the HygieneBox housing and the HygieneBox mounting with water from a hose, and rub the parts down with a cloth.

7.3 Permanent shutdown

If you want to permanently shut down the HygieneBox, you must dispose of it in accordance with the statutory regulations. To find out which regulations apply to you, contact your waste disposal company or a waste disposal center listed in the yellow pages.

In the appendix of the operating manual, you can find a list of the materials used to make the HygieneBox (see 10.2 "Materials list" - 40).

- 1. Perform steps 2 to 9 of the shutdown (see 7.2 "Temporary shutdown" 33). You do not have to perform steps 1 and 10 (cleaning)).
- 2. Remove the HygieneBox and the discharge tray from the front plate of the feeding box.
- 3. Dispose of the HygieneBox as described in the disposal chapter (see 8. "Disposal" 35).

8. Disposal

8.1 Disposing of cleaning agent residues.

Dispose of the cleaning agent residue. For information about disposal of cleaning agents, see the data sheet for the cleaning agent.

WARNING!

Beware of chemical burns from cleaning agents.

The cleaning agent can burn your eyes or hands.

Always wear safety glasses and chemical-proof gloves when disposing of cleaning agents. Follow the safety instructions in the safety data sheet of the cleaning agent and wear the safety equipment required by the instructions.

8.2 Disposing of hoses

Dispose of the hoses in the residual waste.

8.3 Disposing of cables

Cables still contain numerous raw materials that can be recycled. We recommend that you take the old cables to a scrap dealer. These also generally accept old cables and dispose of them properly. Alternatively, you can also dispose of the cables at your local building yard. The building yard is obliged to accept electrical scrap.

8.4 Disposal of the HygieneBox

After the components to be disposed of separately have been removed from the HygieneBox, dispose of the HygieneBox via the local building yard.

Since the HygieneBox consists of raw materials that can be recycled, you can also take it to a scrap dealer.

9. Faults and warnings

If a **Fault** occurs, the automatic mode of the automatic feeder will be interrupted. A corresponding fault message will appear on the hand terminal display, and the green LED on the hand terminal will flash.

Warnings indicate problems that do not interrupt the automatic mode of the automatic feeder. Warnings are also indicated by the flashing of the LED on the hand terminal.

Note: If the warning messages are deleted or hidden by pressing ^{Esc} then these will automatically reappear in the event of a new warning, or in any case within ten minutes.

Some warning messages and fault messages are automatically deleted once the fault has been rectified. Some are only deleted by pressing \Box_{a} or by confirming **Delete fault?** or **Delete warning?** by pressing Enter.

9.1 Faults

9.1.1 HygieneBox valve

The text **Fault Valve HygieneBox** will appear in the display if the limit switch does not trip or if its position does not match the setting of the 3/2-way valve.

NOTICE!

An interruption in feeding operation means that your calves will not receive any feed.

This can lead to malnutrition. Malnutrition can cause impaired growth and development, increased susceptibility to illness or even the death of your calves.

You must use an alternative method to supply your calves with feed as long as the automatic feeder is out of service.

You can correct the fault as follows:

1. Acknowledge a Fault Valve HygieneBox message by pressing Enter.

The display switches to Valve pos. unknown, and to Valve status: Fault.

- 2. Check all the cable connections and antenna connections.
- 3. Set the valve to the **valve setting Teat** or **retract**. The setting is displayed in the **Valve pos.** field.

9.1.2 Hoses circuit clean

The text **Fault Hoses circuit clean** will appear in the display if when cleaning all the pipework a blockage is detected.

NOTICE!

An interruption in feeding operation means that your calves will not receive any feed.

This can lead to malnutrition. Malnutrition can cause impaired growth and development, increased susceptibility to illness or even the death of your calves.

You must use an alternative method to supply your calves with feed as long as the automatic feeder is out of service.

You can correct the fault as follows:

- 1. Acknowledge a Fault Hoses circuit clean message by pressing Enter.
- 2. Check all hoses to determine if they are blocked, kinked or frozen up.
- 3. Choose \square > **Diagnostics** > **Stations** in the **Feed** sub-menu.
- 4. Select < > the desired feeding box and press **HygieneBox** Enter.
- 5. Confirm **Valve set** ^{Enter} and choose **back**. Confirm with ^{Enter}.
- 6. In water to drain or water to mixer shows the check (✓) behind the selected line the last position to which the valve was switched.
- 7. Press water bo.: open? until Enter the mixer is filled with water.
- 8. Confirm **pumping water** E^{Inter} to pump the water in the circuit or into the gully. The direction can be detected at \checkmark .
- 9. Replace the hoses if necessary.
- 10. Respond to **Delete fault?** by pressing ^{Enter}, once you have rectified the fault.

9.1.3 Flushing circuit leaking.

You will see the text **Fault rinsing circuit leak** in the display if when cleaning all the pipework a leakage point or a leaky valve is detected.

NOTICE!

An interruption in feeding operation means that your calves will not receive any feed.

This can lead to malnutrition. Malnutrition can cause impaired growth and development, increased susceptibility to illness or even the death of your calves.

You must use an alternative method to supply your calves with feed as long as the automatic feeder is out of service.

You can correct the fault as follows:

- 1. Acknowledge a Fault rinsing circuit leak message by pressing Enter.
- 2. Choose \square > **Diagnostics** > **Stations** in the **Feeds** sub-menu.

- 3. Select < > the desired feeding box and press HygieneBox Enter.
- 4. Confirm **Valve set** Enter and choose **back**. Confirm with Enter.
- 5. In water to drain or water to mixer shows the check (✓) behind the selected line the last position to which the valve was switched.
- 6. Press water bo.: open? until Enter the mixer is filled with water.
- 7. Confirm **pumping water** Enter to pump the water in the circuit or into the gully. The direction can be detected at ✓.
- 8. Check whether the 3/2-way valve in the HygieneBox housing is leaking.

If it is leaking it must be replaced by a service technician.

- 9. Check whether the hoses are leaking and replace them if needed.
- 10. Check whether the drain valves in the automatic feeder are leaking. For this, refer to the operating manual of your automatic feeder.
- 11. Respond to **Delete fault?** by pressing ^{Enter}, once you have rectified the fault.

9.2 Warnings

9.2.1 HygieneBox

You will see the text **Warning HygieneBox** in the display, if the automatic feeder fails to receive regular feedback from the HygieneBox.

You rectify the warning as follows:

- 1. Confirm HygieneBox warning with Enter.
- 2. If applicable, select with < > the desired feeding box in which **no connection** is displayed.
- 3. Check all the cable connections.

9.3 Diagnosis

The HygieneBox and its functions can be checked via the **Diagnostics** menu of the automatic feeder. This menu facilitates troubleshooting in the event of a technical problem with the HygieneBox.

9.3.1 Checking stations

In this menu, you check the feeding box.

- 1. Use 2 > Diagnostics > Stations to navigate to the Feeds submenu.
- 2. Use \leq > to select the desired station to which a HygieneBox is connected.
- 3. In **HygieneBox**, press E^{Inter} to check the HygieneBox values.

- 4. Confirm Valve set ^{Enter} and choose back. Confirm with ^{Enter}.
 - 4.1. In **water to drain** or **water to mixer** shows the check (✓) behind the selected line the last position to which the valve was switched.
 - 4.2. In **Water bo. open?**, press <u>Enter</u> until the mixer is filled with water.
 - 4.3. Confirm **Circulate water** with to pump the water around the circuit or into the gully. The direction is indicated by \checkmark .
- 5. For example, in **Teat cleaning**, press Enter to actuate the teat cleaning valve.

9.3.2 Version

In the Version menu, you can check version numbers.

Check the version as follows:

- 1. Choose \square > **Diagnostics** in the **Version** sub-menu.
- 2. Press **HygieneBox** ^{Enter} and read the version number.

10. Appendix

10.1 Checklist for commissioning and recommissioning

Note: You must carefully read the instructions in the operating manual, in particular the safety instructions, and observe them before putting the HygieneBox into service.

Commissioning	OK?
Inform the end users that the HygieneBox is to be installed so that it is protected against rain and moisture.	
Inform the end users that the feeder and cables must be protected against exposure to sunlight.	
Install the discharge tray.	
Connect the hoses to the cleaning valve.	
Mount the cleaning valve and connect the hoses.	
Mount the HygieneBox/HygieneBox Teat Lock.	
Connect the power cable to the cleaning valve.	
Attach the teats.	
Connect the suction hose and return hose.	
Connect the pressure reducer.	
Connect the water hose.	
Connect the antennas.	
Create the registration of the stations in the setup for the automatic feeder.	
Activate the training function	
Activate teat cleaning.	
Perform cleaning.	

10.2 Materials list

The materials used in the HygieneBox include:

- Nickel-plated brass
- Brass
- Vulcanized fiber, graphite-loaded
- V2A, V4A
- Plastics: PTFE (Teflon), TPE, PVC, NR (natural rubber)
- Silicone
- Rubber: NBR

10.3 Care and maintenance schedule/routine tasks

Note: If you detect any faults or damage to the HygieneBox between the maintenance intervals recommended below, you must make sure they are rectified immediately by a service technician as required.

Care/mai		/mainten	aintenance interval		
				4	12
			months	months	months
Ins	spection of the calves	✓			
Ну	/gieneBox				
•	Visually inspect the plastic housing for damage and wear,	\checkmark			
	and have it repaired by a service technician if necessary.				
Ho	ose package and teat				
•	Visually check the suction hose, return hose and teat for	\checkmark			
	damage, leakage and wear and replace them if necessary.				
•	Replace the teats.		\checkmark		
•	Have the suction hose and return hose replaced by a service				
	technician.				¥
3/2	2-way valve				
•	Visually inspect the valve for damage and wear, and have it	\checkmark			
	replaced by a service technician if necessary.				
Discharge tray					
•	Visually inspect the discharge tray together with the stops for	\checkmark			
	damage and wear, and have it repaired by a service techni-				
	cian if necessary.				
Те	at cleaning				
•	Visually inspect the hoses for damage, leaks and wear, and	\checkmark			
	have them replaced by a service technician if necessary.				

10.4 Shutdown checklist

Shutdown	OK?
Clean the suction hose.	
Shut down teat cleaning.	
The registration of the HygieneBox must be canceled in the setup for the automatic feeder.	
Disconnect and dispose of the teat.	
Open the housing of the HygieneBox.	
Remove the suction hose and return hose and dispose of them.	
Close the housing.	
Pull off the antenna cables and cap the connections with plugs.	
Clean the discharge tray.	
Externally clean the HygieneBox.	

10.5 Checking components for compliance with national regulations

All electrical components must be checked regularly for electrical safety in accordance with the intervals and test methods defined in the national regulations.

If any faults or damage are detected during the inspection, the faulty components have to be replaced before the automatic feeder can be used again.

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EC declaration of conformity

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.A

Manufacturer:

Förster-Technik GmbH Gerwigstr. 25 78234 Engen

Person residing within the Community authorised to compile the relevant technical documentation:

Müller Barbara Förster-Technik GmbH Gerwigstr. 25 78234 Engen

Description and identification of the machinery:

Product:	Peripheral Devices / Accessories
Туре:	Concentrate feeder: KFA3-MA3 CalfProtect ; Dispenser for powder additives: DDP4-AT2-00 ; Fresh milk tank Extension 1 feeding station SynchroFeed, IFS V* ; Extension 4 feeding stations, IFS V* VEW1-30-2, VEW1-50-2, VEW1-50-2 ; Front plate with teat slider HygieneBox, HygieneBox Basic, HygieneBox for teat slider ; SmartTank

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives

2006/42/EG	Directive 2006/42/EG of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EG (recast)
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)
2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Reference to the harmonised standards used, as referred to in Article 7(2):

EN ISO 12100:2010-11	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (ISO 12100:2010)
EN 60335-1:2012/A11:2014	Household and similar electrical appliances - Safety - Part 1: General requirements IEC 60335- 1:2010 (modified)
EN 60335-1:2012/AC:2014	Household and similar electrical appliances - Safety - Part 1: General requirements IEC 60335- 1:2010 (Modified)
EN 60335-1:2012/A13:2017	Household and similar electrical appliances - Safety - Part 1: General requirements; German version EN 60335-1:2012/A13:2017
EN 61000-6-2:2005/AC:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-3:2007/A1:2011/ AC:2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

Engen, 14.08.2020

Place, dale

Signature Markus Förster CEO