22. February 2018

Original operating manual

Powder dosing device

Version H 8.15 / S 2.00

Table of contents

1. Introduction

This operating manual enables you to operate the powder dosing device safely and as intended.

- Please read the operating manual carefully before putting the dosing device into service.
- Keep this operating manual ready and 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.
- The dosing device is connected to an automatic feeder. You must also observe the separate operating manuals and the safety warnings and safety instructions for the automatic feeder.

1.1 Disposal

All components, liquids and solids must be disposed of in compliance with the applicable official regulations for proper waste recycling and disposal in your country. Also comply with the corresponding safety data sheets.

1.2 Technical data

The dosing device can be connected up to all automatic feeders equipped with an H or S program.

Height:	410 mm
Width:	300 mm
Depth:	280 mm
Weight:	6,6 kg

230V / 50Hz / 0,7A

Fused at customer with: 6,3A

Customer's residual current device (RCD): 30mA

1.3 Materials list

The materials used in the dosing device include:

- Brass, Enzidor®
- Silicon carbide
- Coal
- V2A, V4A
- Plastics: PET, TPE, silicone, PVC, NBR, ABS, PURr
- Viton
- Vulcanized fiber, graphite-loaded
- Rubber
- Bronze

Note that the ingredients of the additives used do not affect the materials used by Förster-Technik.

1.4 Manufacturer's contact details

Please get in touch with us if you have any questions about our products or require technical support!

Please note down the item number stated on your device to have it ready and available whenever you make a call.

Item no.:

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

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2. Important safety instructions

This chapter outlines:

- The hazards caused by your dosing device and how to avoid them.
- The safety labels attached to the dosing device and what they mean.
- How to operate the dosing device safely.

The dosing device is state of the art and has been designed in accordance with approved safety-related rules. Hazards and adverse effects may nevertheless arise when using the dosing device. Both warning signs directly on the dosing device and warning notices in this manual provide warning of these hazards.

2.1 Intended use

Only use the dosing device for storing (during use) and dosage of powdered animal feed for automatic calf feeders. The powdered animal feed can be, for example, medicines, electrolytes or feed additives.

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 the dosing device, put it into service and subject it to maintenance and repairs.

Service technicians are specialists with appropriate qualifications. They 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 have knowledge of relevant accident prevention regulations, generally accepted safety regulations and country-specific standards and provisions.

2.3 Residual risks

Hazards to life and health caused by the dosing device:

⚠ WARNING!

Hazards due to electrical power

The automatic feeder to which the dosing device is connected is electrically operated.

► You must observe the general precautions for handling electrical equipment:

- Read the operating manual before commissioning the dosing device.
- Keep children away from the dosing device.
- Only use genuine spare parts from the manufacturer.

- Turn off the automatic feeder and disconnect the mains plug before carrying out any maintenance or cleaning work on the dosing device.
- The following specific hazards are associated with the dosing device's electrical system:
  - **Electrical breakdown**. If there is an electrical or voltage breakdown, electric current flows through parts of the dosing device that are normally insulated. Touching the unit can cause a fatal electric shock. The dosing device must be checked regularly for electrical safety in compliance with national regulations (periodic 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.
- **Crushing**. The dosing device may start up unexpectedly if a calf which is entitled to feed approaches the unit. This can crush or cut off fingers or hands. Never reach into the area of the agitator blade while the automatic feeder is in operation. Only use the scraper supplied to clean the powder discharge opening.
- **Poisoning**. Additives that are fed to the calves may contain substances that are hazardous to human health. Avoid direct contact and always wear protective gloves and goggles when handling these substances.
- **Infection**. To avoid infection, do not use the dosing device for food intended for human consumption.

Material damage caused by the dosing device

The dosing device can cause the following types of material damage:

- **Infection**. Calves can become infected by pathogens. This can lead to medical costs or to the death of the calves. Pay attention to manufacturer's information and national regulations regarding the storage and use of the additive and ensure that the feed is microbiologically safe.

2.4 Your duties

The owner is obliged to:

- Eliminate any possibility of misuse by children.
- Carefully read and understand this operating manual before putting the dosing device into service.
- Allow only those operating personnel to work with/on the dosing device who:
  - Are familiar with the basic operational safety and accident prevention regulations.
  - Have been trained to work with/on the dosing device.
  - Have read and understood this operating manual.
- Operate the dosing device only as intended.
- Keep all safety signs on the dosing device in legible condition and renew damaged ones.
- Do not change the design or functions of the dosing device.

- Operate the dosing device only when it is in perfect operational condition.
- Subject the dosing device to regular visual inspection for possible damage and have it repaired by a service technician if necessary.
- Regularly check the safety devices fitted to the dosing device to ensure they are working correctly.
- Make sure the dosing device is operated only with safety devices fitted.
- Provide the required personal protective devices for the operator.
- Make sure the power supply provided by the customer is easy to access at all times.
- Make sure that the dosing device and all parts which can be manually cleaned or which are needed for cleaning procedures are easy to access at all times.
- Make sure the dosing device is always put in a dry, clean, frost-free place, separated from the animal area (e.g. technical facilities room).
- Protect the dosing device and all corresponding cables from exposure to sunlight.
- Check the additive to be fed to the animals for excellent microbiological condition to avoid damaging the health of the animals.
- Observe the safety data sheet and the hazard warnings of the additive being used.
- Comply with the manufacturer's instructions and national regulations for storage, use and disposal of the additive being used.

2.5 How am I warned of hazards?

Hazards are indicated directly on the dosing device 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 dosing device 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 dosing device 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 ⚠ (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).

CAUTION!

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

ATTENTION!

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

Prohibition notice on the dosing device: 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

2.6 Safety signs

Different safety labels are attached at the hazardous points on the dosing device. 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?

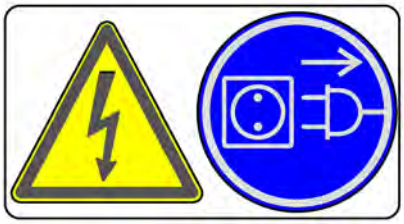
Instruction notices show a pictogram of what you are being instructed to do in a blue circle. They illustrate what you have to do. In the example, the pictogram means that you must always disconnect the plug first.

Other labels

This sign shows you which direction you should swivel the dosing device if it is not to be used for an extended period.

2.6.1 Warning signs on the machine

Danger of death by electric shock



Health hazards caused by additives and cleaning agents

Automatic startup

No spraying

Not suitable for human foodstuffs

2.7 Safety devices

The safety devices on 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.

2.8 Structural alterations

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

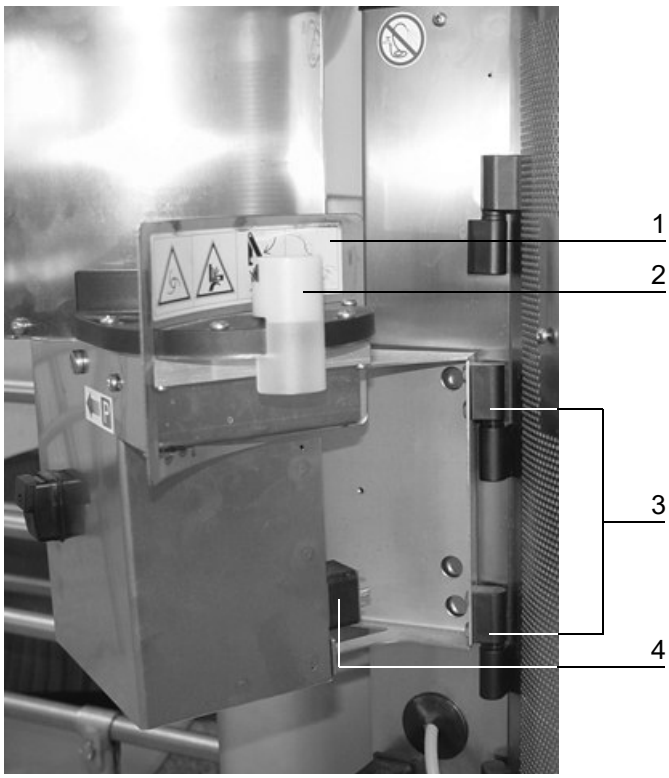
Only genuine spare parts, wearing parts and accessories may be used, since any warranty claims will otherwise be void.

3. Components

3.1 Front

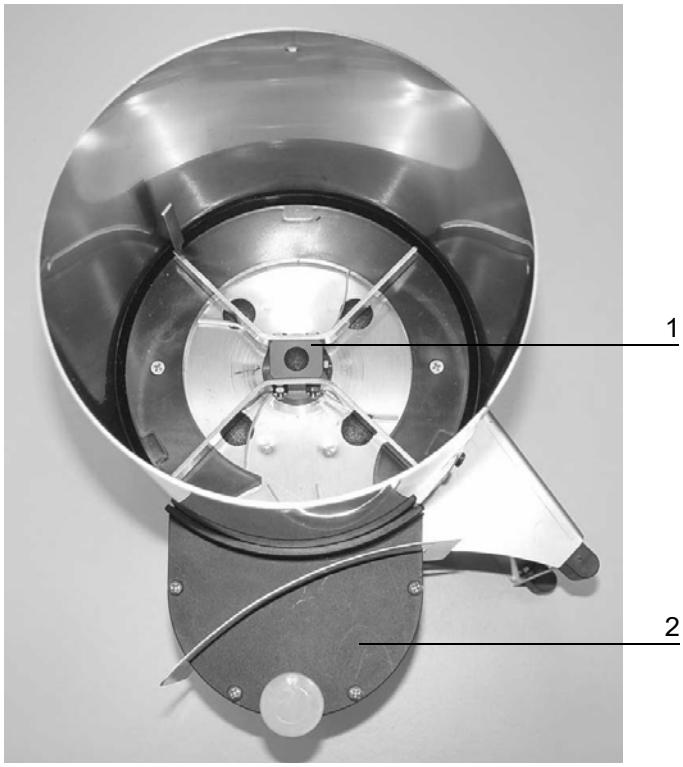
1 Cover
2 Dispenser housing
3 Base frame housing with control
4 Switch for vapor barrier

3.2 Rear

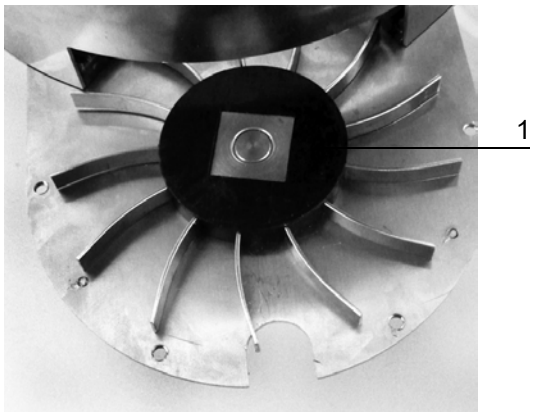


1 Fly screen cover
2 Splash guard
3 Holder
4 Connection plug

3.3 Interior view



1 Spring star with agitator blade
2 Dosing star cover



1 Dosing star

4. Commissioning

The dosing device may only be put into service by a service technician.

4.1 Electrical connection provided by the customer

- Have the electrical connection (provided by the customer) installed by a qualified electrician.
- Comply with local regulations and safety measures.
- A 30 mA earth leakage circuit breaker (ELCB) in the power supply (provided by the customer) is compulsory for the operation of the dosing device.
- Have excess voltage limiters installed as a lightning protection measure by a qualified electrician in your power supply (provided by the customer).
- Protect the dosing device and all associated cables from exposure to sunlight.

4.2 Cleaning

For reasons of hygiene, the dosing device must be cleaned thoroughly before putting it into service to completely remove any existing coolant or lubricant residue. For more information, see chapter 8. "Cleaning" - 33.

4.3 Lay and connect the control cable (when retrofitting)

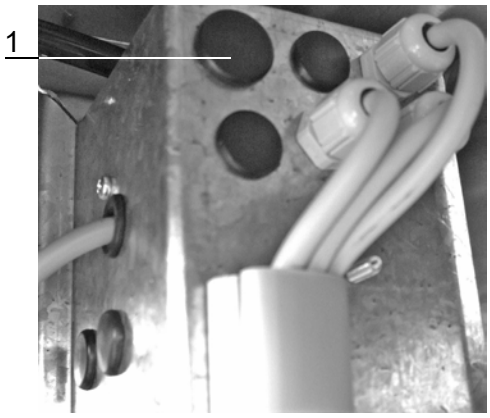
⚠ WARNING!

Beware of lethal electric shock.

The electrical components of the automatic feeder are live.

► Always disconnect the mains plug of the automatic feeder before starting any work on the control box of the calf feeder.

1. A part of the control box extends into the left side space of the automatic feeder. Remove the dummy plug at the control box and install the M16 cable gland.



1 Dummy plug at the control box

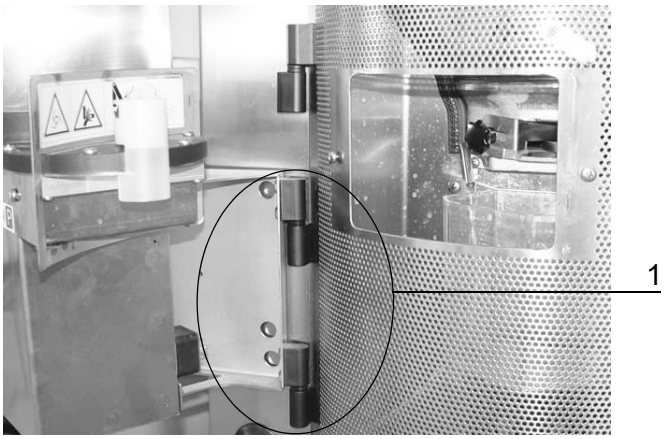
2. Push a grommet onto the connecting cable.

3. Lead the cable into the control box and terminate it at the main board (see machine circuit diagram).

4.4 Connecting the dosing device

4.4.1 For retrofitting

1. Remove the four dummy plugs at the machine housing (at the left edge of the fly screen) and screw on the dosing device's retaining bolts with 5 x 8 mm screws.
2. Hang the powder dosing device on the retaining bolts (see figure).



1 Retaining bolts

3. Open the left door of the device's basic frame.
4. Remove the round rubber dummy plugs (3 cm) at the front side of machine housing.
5. Feed the device socket with the connecting cable through the housing opening and connect it with the dosing device's plug.

1 Device socket in the machine housing

6. Close the opening at the machine housing with the sealing plug found on the cable.
7. Close the left door of the device's basic frame.

4.4.2 For new equipment

The dosing device is delivered in an uninstalled state. The holders as well as the device socket for the dosing device are already installed at the automatic feeder. There is a cover plate at the fly screen, if a fly screen is present.

When installing the dosing device, proceed as follows

1. Remove the cover plate at the fly screen (if present).
2. Hang the dosing device on the retaining bolts at the automatic feeder.
3. Release the knurled screw of the device socket and connect it with device plug of the dosing device.

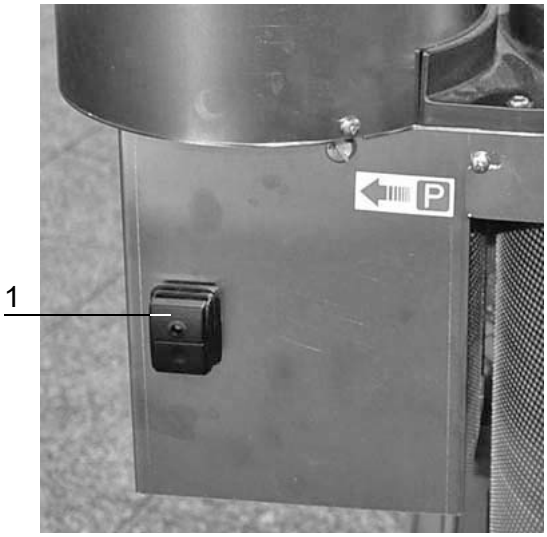
4.5 Registering the dosing device at the calf feeder

The dosing device must be activated in the setup for the automatic feeder.

1. Switch the calf feeder off.
2. Press [2] and hold the button pressed while you switch the automatic feeder back on. After a short while, the **Setup menu** appears on the display, from which you select:
   [2] **> Equipment**
3. Select the **Add disp. 1** line and set the value to **yes**.
4. To exit setup, repeatedly press [Esc] until the message **End setup?** appears. Confirm with [Enter].

4.6 Activating the vapor barrier

If the powder dosing device is equipped with a vapor barrier, this can be activated with the switch which is on the lower right of the dispenser housing front.



1 Switch for vapor barrier

4.7 Dispensing additives

Powdered additives can be precisely and reliably dispensed using the powder dosing device. The deviations are generally less than 0.5 grams for powdered additives. With the powder dosing device, pure substances should be mixed with dextrose or milk substitute if the dosing quantity per portion is too low.

ATTENTION!

Do not use damp powder. Always fill the powder dosing device when it is dry and keep the cover closed.

Extremely hygroscopic (i.e., water attracting) additives can lead to sticking on the dosing disc, thus harming dosage accuracy. Mixing in silicates can help. Often just mixing with milk substitute at a ratio of 1:1 will help. If sticking of the respective additive cannot be avoided, then you should mix the material with a suitable carrier or you should change the preparation. Additives with hard-grained ingredients cause more wear to the dosing disc and can lead to blocking the dosing disc.

4.8 Software

When using the dosing device, the calf 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**.

4.9 Filling the dosing device

1. Add an additive to the container of the dosing device.
2. Then choose  **> Diagnosis > Motors** and press  in **Additive 1** to fill the dosing unit.

4.10 Calibration

Calibrate the dosing device so that the additives are dosed precisely (see 5. "Calibration" - 20).

4.11 Checking the dosage accuracy (calibration)

After a few hours of operation, check the output quantity by recalibrating the additive (see 5. "Calibration" - 20). If the set quantity is not being delivered, you should mix the additive with a suitable carrier or use another additive.

4.12 Removal from service

If you do not intend to operate dosing device for a long period of time you must take the it out of service.

⚠ WARNING!

Hazardous or irritant materials!

► Collect the additive residues and dispose of them safely. When doing this be sure to comply with the manufacturer's instructions and national regulations for the use and disposal of the additive being used.

Proceed as follows to remove the system from service:

1. Thoroughly empty and clean the dosing device; for more detail see chapter 8. "Cleaning" - 33.
2. Disconnect the device socket from the device plug on the dosing device.
3. Keep the dosing device separate from the automatic feeder in a dry place.
4. Close the opening in the fly screen, in case present, with the cover intended for this.
5. Position the device socket on the designated bracket on the machine housing.

1 Device socket on machine housing

6. Cancel the dosing device in the setup of the automatic feeder by going **Equipment > Add disp. 1** select the value **no**.

5. Calibration

To ensure that the dosing device can precisely dose the additive, or if the additive was changed, the dosing device must be calibrated beforehand.

The volume or the weight of the additive to be calibrated must be determined for the calibration of the dosing device.

Note: Keep a precision scale ready for the calibration of the additives

⚠ WARNING!

Hazardous or irritant materials!

► Collect the additive residues and dispose of them safely. When doing this be sure to comply with the manufacturer's instructions and national regulations for the use and disposal of the additive being used.

5.1 Calibrating without calibration scales

1. **> Calibration > Components > Additive**
2. Use < or > to select the calibration menu for **Additive 1**.
3. Hold an empty measuring vessel under the powder discharge opening.
4. Confirm **start?** by choosing Enter. The calibration procedure will start. The set value of 20 g will be shown first in the display. The actual value flashes on the display shortly afterwards.
5. Measure the collected quantity.
6. Enter the measured quantity in the **Actual** line and confirm with Enter. You then return to the calibration menu. This will display:
   - 6.1. The set quantity
   - 6.2. How long the additive was dosed
   - 6.3. The maximum quantity which can be administered
   - 6.4. The date of the last calibration
7. Repeat the calibration procedure in order to check the result.

   Note: >99 g cannot be entered. This value cannot be exceeded, even via the **Increase**, function.

   Note: If you do not have a precision scale for the calibration of the powder additives, then you have to repeat the calibration procedure several times to get a larger amount of additives. Divide the measured amount by the number of calibration procedures and then enter the value. Repeat the calibration procedure in order to check the result.

5.2 Calibrating with calibration scales

1. **> Calibration > Components > Additive**
2. Use < or > to select the calibration menu for **Additive 1**.
3. Suspend the calibration box from the bracket provided for the purpose.
4. Confirm **start?** by choosing Enter. This message **Calibration box used?** appears.
5. Choose Enter to confirm. The calibration procedure will start. The set value of 20 g will be shown first in the display.
6. The device now carries out two check weighings without the user having to do anything and shows the result.
7. Then the average value of these two check weighings is shown flashing in the **Actual** line. Confirm this determined value with Enter. You then return to the calibration menu.
8. Repeat the calibration procedure in order to check the result.

6. Feeding

6.1 Administration of additive

Up to two additional dispensers can be connected to the automatic feeder, depending on the version of automatic feeder you are using, for administration of medicines and electrolytes: one dosing device for powdered additives and another for liquid additives.

In prescription plans, define the dosage of the medicine/electrolyte and the duration of the administration. You can create up to four prescription plans for medicine and one prescription plan for electrolytes. Medical preparations are dosed into the milk feed, while electrolytes are generally dosed into water.

Note: Electrolytes can also be dispensed in accordance to a medicine prescription plan. The electrolytes are then dosed into the milk feed like medicinal preparations.

Note: Comply with the instructions on the enclosed leaflet and consult your veterinary surgeon for advice on the dosage if necessary.

⚠ WARNING!

Hazardous or irritant materials!

► Make sure there is no unauthorized access to them. Be sure to comply with the manufacturer's instructions and national regulations for the use of the additive being used.

> Feeding > Additive

The **Additive** menu contains the following submenu:

- **Animal**
- **Group**
- **Medicine prescription**
- **Elektrolyte prescription**

6.1.1 Create medicine prescription plan

In order to dispense additives to animals, first create a prescription plan and assign this to the dispenser. You can create up to four different medicine prescription plans.

1. **> Feeding > Additive > Medicine prescr.**
2. Use < or > to select one of the available prescriptions.

6.1.1.1 Select dosage

Dosage is performed either:

- According to the feed quantity (in g/liter)
- According to the animal's weight (in g/100 kg)
- As daily quantity per animal and day (g/day)

ATTENTION!

Animals to whom the additive is dispensed according to their weight (in g/100 kg) or as daily amount (g/day) must **not** be fed using the SynchroFeed function. The SynchroFeed function can be used only if the additive is dispensed to the animals in g/l.

ATTENTION!

If calves are fed at the CalfRail, always select **g/l**, otherwise the feeder will malfunction.

Dosing additive according to feed amount

Animals that receive a large quantity of feed also receive more additive than animals that receive less feed. The additive quantity is distributed evenly among the feed portions.

For example: animal 1 receives 8 liters and animal 2 receives 2 liters per day. For a medicine amount of 2 g/l, animal 1 receives 16 grams per day; animal 2 receives 4 grams per day.

Dosing additive according to weight

Heavy animals receive more additive than light ones. The weight entered for the animals when they were registered will be increased automatically every day by the increase and the increase gains.

Note: If an animal scale is present, then the animal weight will be automatically recorded. If no animal weighing scales are available, check the animal's weight and correct any deviation as necessary. Otherwise the amount of additive dosed will not be right for the animal weight.

Dosing additive as daily amount

For example: If you want to administer a certain amount of additive to an animal per day, select **Dosage g/day**.

1.  **> Feeding > Additive > Medicine prescr.**
2. Select the desired setting in **Dosage**.

6.1.1.2 Distribution

If you dose the additives according to weight (**g/100 kg**) or as daily amount (**g/day**), you can distribute this as follows during the course of the day:

- once (daily)
- twice (daily) or
- equal (= evenly distributed to all portions).

Note: The additive is distributed to the “middle” partial portions for the distribution types **once** and **twice**. The first (unadulterated feed taste) and the last partial portion (prevention of medicine residue in the mixer jar) are always free of additive. Exception: for two partial portions, the additive is dosed into the first partial portion.

Distribution type, once

The additive quantity is dosed for the first feed consumption of the day in the middle partial portion.

For example: An animal weighing 100 kg has a feed entitlement of 2 liters, the minimum saved amount is 2 liters and 9 g / 100 kg of additive is to be administered. No additive will be put in the first and fifth partial portions of the day's first feed consumption while 3 grams each will be added to the second, third and fourth partial portions.

For example: An animal weighing 100 kg has a feed entitlement of 2 liters, the minimum saved amount is 2 liters and 2 g / 100 kg of additive is to be administered. No additive will be put in the first, fourth and fifth partial portions of the day's first feed consumption while 1 gram each will be added to the second and third partial portions.

Distribution type, twice

Half the additive quantity is distributed to the morning's first feed consumption and half to the afternoon's first feed consumption (always in the middle partial portions).

First half of the day: 0 - 12 hrs, second half of the day: 12 - 24 hrs.

For example: A calf weighing 100 kg can consume 2 liters during its first visit to the feed station in the morning and 2 liters during its first visit in the afternoon. The additive dosage is 9 g / 100 kg. For the first feed consumption in the morning, the first and fifth partial portions will have no additive while the second, third and fourth will each have 1.5 g. The same applies to the first feed consumption in the afternoon.

For example: A calf weighing 100 kg can consume 2 liters during its first visit to the feed station in the morning and 2 liters during its first visit in the afternoon. The additive dosage is 4 g / 100 kg. For the first feed consumption in the morning, the first, fourth and fifth partial portions will have no additive while the second and third will each have 1 g. The same applies to the first feed consumption in the afternoon.

Distribution type, equal

Additive will be mixed into all middle feeding portions.

1.  **> Feeding > Additive > Medicine prescr.**
2. In **Distribution**, select the desired setting.

6.1.1.3 Dispenser

Select **1** in despender.

6.1.1.4 Duration of the medicine administration and additive quantity

The prescription plans can be divided into five periods (P 1 - P 5), as is also the case for feed and concentrate plans. This makes it possible for example to increase the amount of additive continuously over a longer time frame and then to reduce it again towards the end of the treatment.

1.  **> Feeding > Additive > Medicine prescr.**
2. Enter the length (number of days) of the first feeding period in **P1**. You can enter values between 0 and 99.
3. Then choose Enter in the **from** column and enter the desired start value.
4. Then choose Enter in the **to** column and enter the desired end value.
5. For **P2** to **P5**, proceed analogously to **P1**.

In contrast to the feeding plans, the final value of the previous period is not taken over as the starting value for medicine plans. Every period can be individually entered.

1. In **Duration**, you can check the total duration of additive administration
2. If you want to create further prescription plans, proceed as previously described.

Note: The prescription plans are not coupled to the barn transfer date of an animal. The additive will only be administered if the prescription plan at **additive 1 dispensed** has been activated by the selection of **R1, R2, R3** or **R4**. If the overall feeding duration has ended according to the feeding plan, the feed with additive will continue to be dispensed. In this case the feed amount last fed at the end of the prescription plan will be maintained.

Note: The amount of additive should not, if possible, go below the additive quantity of 1 g /portion. If the amount of additive is less than 1 g /portion, mix the additive with dextrose or milk powder to increase the volume of the additive.

6.1.2 Create electrolyte prescription plan

You can create an electrolyte prescription plan.

ATTENTION!

If calves are fed at the CalfRail, electrolyte feed is not possible.

1.  **> Feeding > Additive > Elektrolyte prescr.**
2. Set the electrolyte **quantity** (concentration).
3. Set the **duration** of the administration of electrolytes.
4. Set how much **elektrolyte** feed the animal can consume per meal.
5. Set how much **feed** the animal can consume per meal. The amount of feed that the animal can consume each day is limited by the feeding plan.

   Note: The animals receive alternately electrolyte feed and milk feed. If you have set 0 l at feed, the animal will only receive electrolyte feed.
6. In **Waiting time**, you set how long the animal must wait until it can consume milk feed after the electrolyte feed or, as the case may be, electrolyte feed after the milk feed. The waiting time also applies if the animal only receives electrolyte feeds (feed = 0.0 l). The default value is two hours.

7. Select **Dispenser 1**.

6.1.3 Setting administration of additive

After you have created the prescription plan, you can allocate it to individual animals or to a group and then activate. You can also allocate more than one prescription plan to a dispenser in order to have flexibility in the additive plan.

6.1.3.1 Dispensing medicine individually to animals

1. **> Feeding > Additive > Animal**
2. Select with < or > the required animal and press Enter in **Additive 1**.
3. In **dispensed** press Enter and select the prescription plan.

   More lines will appear.
4. In **Dos.**, press Enter.
   - 4.1. **Increase/reduction** enter the number of days (validity period) on which the calf is to receive a modified dosage. You can enter values between 0 and 99. The default setting is 0 days.
   - 4.2. In **Quantity**, you enter the required change in dosage. You can enter values between 0 and 99. Use the (**+/-**) key to enter a minus sign (-) in front of the number, for example -1 g/l, in order to reduce the dosage and a plus sign (+), for example +1 g/l, to increase the dosage. The default setting is 0.
   - 4.3. In **Prescription**, you see the amount of the dosage according to the prescription plan.
   - 4.4. In **Dos.**, you see the amount of the dosage after the change.

   Press Esc once to go one menu level higher.
5. In **Feed**, press Enter.
   - 5.1. **Increase/reduction** enter the number of days (validity period) on which the calf is to receive a modified feed quantity. You can enter values between 0 and 99. The default setting is 0 days.
   - 5.2. In **Quantity** you enter the required change in feed quantity. You can enter values between 0 and 25 l. Use the (**+/-**) key to enter a minus sign (-) in front of the number, for example -2 l, in order to reduce the feed quantity and a plus sign (+), for example +2 l, to increase it. The default setting is 0.0 liters.
   - 5.3. In **Plan**, you see the amount of the feed according to the prescription plan.
   - 5.4. In **Feed**, you see the amount of the feed after the change.

   Press Esc once to go one menu level higher.
6. In **Weight**, you see the weight of the animal that was specified during registration (only if **g/100kg** is set for dosing).

   Note: If the additives are to be dispensed according to the weight of the animal, it is important that you enter the exact weight of the respective animal. This is so that heavy animals should receive more additive than lighter ones.

7. In **Additive 1**, the amount of additive is shown.
8. If you press Enter in **Additive day**, you can shorten or lengthen the duration of additive administration. The corrected **prescription day** and the **prescription end** are shown in the lines below.

   Press Esc once to go one menu level higher.
9. **Blocked** (see 6.1.4 "Handling remaining portions" - 29).

6.1.3.2 Dispensing electrolytes individually to animals

1. **> Feeding > Additive > Animal**
2. Select with < or > the required animal and press Enter in **Additive 1**.
3. Set **dispensed EL**.

   More lines will appear.
4. In **Dos.** press Enter.
   - 4.1. **Increase/reduction** enter the number of days (validity period) on which the calf is to receive a modified dosage. You can enter values between 0 and 99. The default setting is 0 days.
   - 4.2. In **Quantity**, you enter the required change in dosage. You can enter values between 0 and 99. Use the (**+/-**) key to enter a minus sign (-) in front of the number, for example -1 g/l, in order to reduce the dosage and a plus sign (+), for example +1 g/l, to increase the dosage. The default setting is 0.
   - 4.3. In **Prescription**, you see the amount of the dosage according to the prescription plan
   - 4.4. In **Dos.**, you see the amount of the dosage after the change.

   Press Esc once to go one menu level higher.
5. In **Elektrol.**, the electrolyte feed amount per meal will be shown. Press Enter if you would like to change this amount.
6. In **Feed**, you can change the amount of milk feed which the animal can consume per meal.
7. If you press Enter in **Additive day**, you can shorten or lengthen the duration of additive administration. The corrected **prescription day** and the **prescription end** are shown in the lines below.

6.1.3.3 Administering to a group of animals

1. **> Fütterung > Zusatz > Gruppe**
2. Select with < or > the required group.
3. The **Additive 1** line is variable. If additive 1 was already administered to one or more animals of the group, **partly** will be shown. If all animals in the group receive the same additive, the respective prescription abbreviation (**R1, R2, R3** or **R4**) or **EL** will be shown.

   If you press Enter you can find out from a list how many animals in the group:

3.1. Receive neither medicine nor electrolytes
3.2. Receive medicine in accordance to the respective prescription plan
3.3. Receive electrolytes
3.4. Are blocked.

4. If you want to administer an additive to the group, press Enter in the **dispensed** line and select the respective prescription. The message **group x additive Rx dispense?** appears in the display. Confirm the message by choosing Enter if the animals in the group are to receive additive according to the prescription plan.

Note: Animals that are blocked (see 6.1.4 "Handling remaining portions" - 29) receive no additive. Animals that are already receiving additive will not be “converted” to the prescription plan of the group. If all animals, including those who are already receiving the additive, are to receive the additive in accordance with the prescription plan, you must set **no** in **Additive 1** so as to cancel all animals from the additive. The message **group x no additive dispense?** appears. Confirm this by choosing Enter. Now you can select the prescription plan which then applies to all animals in the group.

6.1.3.4 Changing administration of additive

1. **> Feeding > Individual animal > Additive 1**
2. Select with < or > the desired animal.
3. The respective prescription plan will be shown in the **Additive 1** line. If you press Enter you can change the settings:
4. You can end the administration of additive in the **dispensed** line [**no**] or select another prescription plan (**R1, R2, R3** or **R4**) or **EL**.
5. If you want to change the prescribed amount of the additive for the selected animal, press in the **Dosing** line Enter. This will take you to the four-lined submenu:
   5.1. Enter the desired period of validity in **Incr./Red.**.
   5.2. Enter how much the currently dispensed additive amount should be increased or decreased in **Amount**. Use the (**+/-**) key to enter a minus sign (-) in front of the number, for example -1 g/l, in order to reduce the dosage and a plus sign (+), for example +1 g/l, to increase the dosage. The default setting is 0.
   5.3. In **Prescription**, you see the amount of the dosage according to the prescription plan.
   5.4. In **Dos.**, you see the amount of the dosage after the change.
   Press Esc once to go one menu level higher.
6. If you want to change the feed amount (only if **R1, R2, R3** or **R4** was selected in **dispensed**) of the additive for the selected animal, press in the **Feed** line Enter. This will take you to the four-lined submenu:
   6.1. **Increase/reductions**, enter the number of days (validity period) on which the calf is to receive a modified feed quantity. You can enter values between 0 and 99. The default setting is 0 days.

6.2. In **Quantity**, you enter the required change in feed quantity. You can enter values between 0 and 25 l. Use the (**+/-**) key to enter a minus sign (-) in front of the number, for example -2 l, in order to reduce the feed quantity and a plus sign (+), for example +2 l, to increase it. The default setting is 0.0 liters.

6.3. In **Plan**, you see the amount of the feed according to the prescription plan.

6.4. In **Feed**, you see the amount of the feed after the change.

Press Esc once to go one menu level higher.

7. In **Weight** (only if **R1, R2, R3** or **R4** is selected in **dispensed**), the current animal weight is shown. If you want to change this, press Enter. This will take you to another submenu:

   7.1. Enter the desired value in **Weight**. The increase will be calculated automatically.

8. The (updated) amount of additive is shown in **Additive 1** (only if **R1, R2, R3** or **R4** is selected in **dispensed**).

9. The electrolyte feed amount will be shown in **Elektrol.** (only if selected in **dispensed EL**). Press Enter if you would like to change this amount.

10. You can change the milk feed amount which the animal can consume per meal in **Feed** (only if selected in **dispensed EL**).

11. If you press Enter in **Additive day**, you can lengthen (but only after the second day of dispensing the additive) or shorten the duration of dispensing the additive. The corrected **prescription day** and the **prescription end** are shown in the lines below.

Note: If the deviation plan for the animal is no longer valid, then it will become an **Plan over animal** and automatically revert to being supplied with additive according to the prescription plan.

6.1.4 Handling remaining portions

Block rem. portion prevents certain calves from drinking residual portions which contain additive (medicine!).

If an animal does not completely consume a feeding portion which contains additive, (the rod electrode is covered), the feed consumption is blocked for those animals that should not receive additive.

Feed consumption for blocked animals can be resumed only

- if the residual portion is drunk by another animal which is supposed to receive additive or is not blocked for residual portion consumption
- or the residual amounts are automatically evacuated via the mixer drain valve (if present).

6.1.4.1 Blocking the residual portion for individual animals

1. **> Feeding > Additive > Animal**
2. Select with < or > the desired animal.
3. In **blocked**, enter whether the animal should be blocked for residual portions which contain additives.

Note: To lift the block for an animal to administer additive, you must enter **no** in **blocked**. Only then can you set the desired prescription plan in **Additive 1**. Proceed similarly if you want to block an animal which receives the additive. Set no in **Additive 1** and then set yes in **blocked**.

Note: Blocked animals will not be administered any additive even if the dispensing the additive has been activated for the whole feeding group (see 6.1.3.3 "Administering to a group of animals" - 27).

Note: If you feed your animals from a **CalfRail**, you cannot block the remaining portion when administering additive.

6.1.4.2 Blocking of the residual portion for animal groups

1. **> Feeding > Additive > Group**
2. Select with < or > the required group.
3. If you press Enter in **blocked**, a submenu will open. There you can block residual portions with additive for the displayed animal group.
4. In **blocked**, select **yes** and press Enter. All animals in the respective group will be blocked for residual portions unless additive is being dispensed at that moment to them.

Note: Electrolyte feed is also possible if the administration of medicine is blocked for an individual animal or for the whole animal group (see 6.1.3 "Setting administration of additive" - 26).

Note: Residual portions which contain additive are drained off or are fed to an animal that is allowed to have the additive. If an animal with additive entitlement is followed by a blocked animal, the feeding portion will only be prepared after the mixer jar has been rinsed with clear water (fully automatic) or after eight portions without additive have been prepared.

6.2 Dosing of extra portions with additive

You can manually start the preparation of feeding portions at anytime. These feeding portions are not deducted from the animal's daily amount which it is entitled to according to the feeding plan.

1. **> Extra portion**
2. Confirm **start?** with Enter. The extra portion will be prepared.
3. When preparing and dosing the extra portion, the parameter **Additive** is considered.

   Enter the concentration for **Additive 1** here if you want to add additives to the extra portion.

Note: The defined value is retained until the next change.

6.3 Manual additives dispensing

Via **manual functions** you can start the additive manually.

1. **> Additive 1: start?**
2. Confirm with Enter. The additional dosage for **Additive 1** is started.

7. Animal control

You can check the feed consumption with administration of additives for each animal in the **Animal control** menu.

7.1 Calling up animal information

When you press **Info** [i] the following menu appears:

- **Animal list**
- **Entitlement**
- **Alarm**
- **Plan over date**
- **Additive**
- **marked**
- **...**

The number of animals that satisfy this criterion is shown in the display of every menu.

7.2 Information about animals with plan over messages

One day before a temporally limited action (e.g., additive prescription plan) is to end, a plan over message for the action in question is displayed.

[i] **> Plan over date**

The following expire date messages can appear, among other things:

End of an additive or electrolyte prescription plan

Once an additive or electrolyte prescription plan has come to an end the animals receive no more additives. The corresponding plan over message that reminds you of the discontinuation of the plan, is displayed on the right.

Increase and reduction plans

When the deviation plan for electrolytes or additive expires, a plan over message is also displayed to remind you that the corresponding animal is being fed again exactly according to the electrolyte or additive plan of the group.

Note: Press [C] to hide the message. The message is displayed again on the next day and can be deleted by pressing [C]. The display continues until the message is deleted.

7.2.1 Deleting plan over messages

Press [Enter] in **delete all?**. All available animal expire messages for the corresponding animal are deleted.

7.3 Information about animals with administration of additive

The **Additive** control menu is shown only if at least one animal is receiving additive.

1. **> Additive**
2. At **Additive 1**, you can see which prescription or electrolyte plan is being or has been used for the administration of additives or electrolytes to the animal.
3. Press Enter. In the submenu you can check and/or change the following values:
   - 3.1. In **dispensed** you can end the additive dosage [**no**] or define a different additive prescription plan [**R1-R4**].
   - 3.2. In **Consumption %** you can see the relative (%) feed consumption for today and yesterday (not for electrolytes).
   - 3.3. In **Consumption g** or **Consumption l**, you can see the absolute (g or l) feed consumption for today and yesterday (not for electrolytes).
   - 3.4. In **Additive** or **Elektrolyte**, you can see how much was given to the animal today and yesterday.
   - 3.5. In **Dos.**, you can see the **Dosage** of the additive. You can press Enter to change the dosage.
   - 3.6. In **Feed**, you can change the amount of milk feed which the animal can consume per meal. You can press Enter to change the amount.
   - 3.7. In **Weight**, you can see the weight of the calf (only if dosage is g/100kg).
   - 3.8. In **Additve day**, you can see how long the animal has already been receiving additive. You can press Enter to lengthen or shorten the administration of additives (**Correction**). The prescription day corresponds to the corrected additive day.

   Press Esc once to go one menu level higher:
4. From **Break off**, you can see how often the feed consumption with or without additive was broken off.

7.4 Information about interrupted feeding procedures

1. **> Additve**
2. Select the animal and press Enter in **Break off**.
   - 2.1. In **with additive**, you can see how often the feed with additive has been broken off.
   - 2.2. In **without additive**, you can see how often the feed without additive has been broken off.

Note: Yesterday's breaks are displayed in the left-hand column, and today's breaks are displayed in the right-hand column.

8. Cleaning

8.1 Specifications for cleaning

What has to be cleaned?

The dosing container, the dosing unit and the powder discharge opening at the dosing device must be regularly cleaned.

How often does the unit have to be cleaned?

- The dosing unit and powder discharge opening have to be checked every day and cleaned if need be.
- Every time the additive is changed and at least once a year, a thorough cleaning of the dosing device must be performed.

8.2 Safety instructions

⚠ DANGER!

Danger due to automatic running!

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

► Never reach into the crushing danger areas of the indicated places as long as parts are able to move there. When cleaning the powder discharge opening, always use the tool included in the delivery.

⚠ WARNING!

Hazardous or irritant materials!

► Collect the additive residues and dispose of them safely. When doing this be sure to comply with the manufacturer's instructions and national regulations for the use and disposal of the additive being used.

⚠ WARNING!

Risk of injury and death.

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

► Always wear personal protective equipment (e.g. safety glasses, protective gloves) when handling cleaning agents. Observe also the specifications on the safety data sheet for your cleaning agent.

ATTENTION!

Never spray-wash the powder dosing device and also do not wash it out.

If you use a moist cloth for cleaning, you have to completely dry the components before you fill the powder container again.

8.3 Cleaning procedure

8.3.1 Manual cleaning during operation

Proceed as follows for the cleaning of the dosing unit and the powder discharge opening:

⚠ WARNING!

Hazardous or irritant materials!

► Collect the additive residues and dispose of them safely. When doing this be sure to comply with the manufacturer's instructions and national regulations for the use and disposal of the additive being used.

1. Switch off the automatic feeder.
2. Push or swivel the dosing device out of the dosing position and into the resting position.
3. Use the cleaning scraper supplied in the delivery to clean the powder discharge opening.
4. Check the draining ball for deposits by removing the splash guard. Clean the ball, if need be, and put the splash guard back on.
5. Switch the automatic feeder back on.

8.3.2 Thorough cleaning when changing additives, as well as

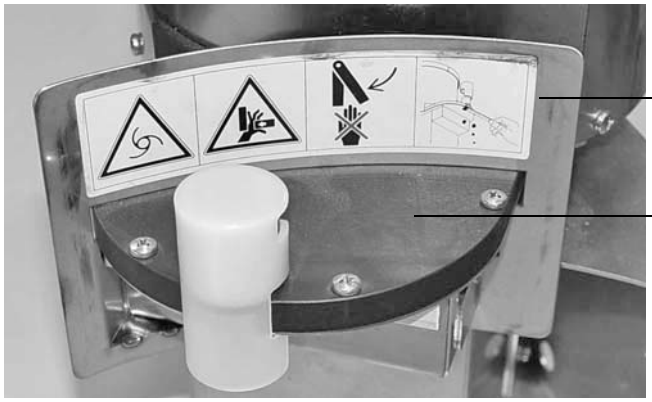
The dosing device has to be subjected to a thorough cleaning when it is not to be used for longer periods. This is done as follows:

⚠ WARNING!

Hazardous or irritant materials!

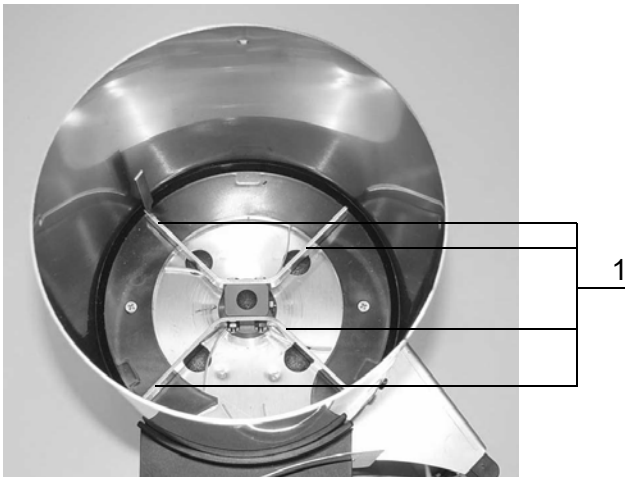
► Collect the additive residues and dispose of them safely. When doing this be sure to comply with the manufacturer's instructions and national regulations for the use and disposal of the additive being used.

1. Exit automatic mode for the calf feeder.
2. Switch off the automatic feeder.
3. Disconnect the device plug from the device socket and remove the dosing device.
4. Place the dosing device on a clean and dry place with good support (e.g., table).
5. Remove the additive residue from the dosing container and clean it with a dry cloth.
6. Remove the splash guard and clean it with a moist cloth.
7. Release the screws which secure the fly screen cover and the dosing star cover at the housing of the dosing device (see figure).



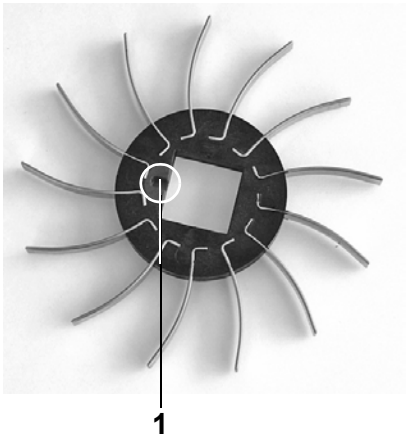
1 Fly screen cover
2 Dosing star cover

8. Remove the covers and clean then with a moist cloth.
9. Put the agitator blade into position as shown in the figure. This makes it easier to remove the dosing star.



1 Agitator blade

10. Remove the dosing star and clean it thoroughly with a damp cloth.
11. Replace the dosing star. You can recognize the bottom of the dosing star by the notch (see figure).



1 Notch (bottom)

12. Then attach the dosing star cover, fly screen cover and the splash guard.

    Note: Only reinstall parts that have been thoroughly dried.

13. For longer pauses of use (otherwise continue with point 14): keep the dosing device separate from the automatic feeder in a dry place and close the opening of the fly screen, in case present, with the cover intended for this. Position the device socket on the designated bracket on the machine housing.

14. Hang the dosing device back in and connect the device plug to the device socket.

15. Add an additive to the container of the dosing device.

16. Switch on the automatic feeder.

17. Carry out a calibration (for more information, see 5. "Calibration" - 20).

18. Switch the automatic feeder back into automatic mode.

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. Einige sind erst dann gelöscht, wenn Sie C oder in **Störung löschen?** bzw. **Warnung löschen?** Enter drücken.

9.1 Faults

9.1.1 Calibration

The calf feeder cannot switch to automatic mode if the additive has not been calibrated. The **Fault Calibration** appears if the additive has not been calibrated.

1. Press Enter in **Calibration**.
2. Calibrate the additive. For more information, see chapter 5. "Calibration" - 20.

9.2 Warnings

9.2.1 Calibration

The **Warning Calibration** indicates that last calibration was 120 days ago.

1. Press Enter in **Calibration**.
2. Calibrate the additive. For more information, see chapter 5. "Calibration" - 20.
3. Delete the warning.

Note: If you delete the warning but do not then perform a calibration the message will reappear one day later.

9.2.2 Additive in partial portion less than 1 gram

The **Warning additive 1 too low** appears on the display if the additive amount is less than 1 g / portion.

1. Mix the additive with dextrose or milk powder to increase the volume of the additive and adjust the prescription.
2. Delete the warning.

9.3 Diagnosis

The dosing device and its functions can be checked via the **Diagnosis** menu of the calf feeder. This menu facilitates troubleshooting in the event of a technical problem with the dosing device.

9.3.1 Motors

Here you can test whether the connected dosing device is operating properly, and test its actuation function.

1.  **> Diagnosis > Motors**
2. Press Enter in **Additive 1** line, to check the function of the dosing device.

   If the test produces a negative result, please consult a service technician.

   Note: You can also fill the dosing unit from this menu item.

10. Maintenance/servicing

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

10.1 Safety instructions

⚠ DANGER!

Beware of lethal 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 dosing device.

⚠ DANGER!

Danger due to automatic running!

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

► Never reach into the crushing danger areas of the indicated places as long as parts are able to move there. When cleaning the powder discharge opening, always use the tool included in the delivery.

10.2 Maintenance intervals and activities

10.2.1 Daily

Visual inspection of the components

All mechanical and electrical components must be subjected to visual inspection for damage and deposits every day.

If any damage is detected during the visual inspection, the faulty components have to be replaced by a service technician before work can be resumed with the dosing device.

10.2.2 Every 4 months

The dosing device must be calibrated every 4 months (see chapter 5. "Calibration" - 20).

10.2.3 Annually

The dosing device must be emptied every 12 months and a functional inspection performed. In addition, thorough cleaning is required according to the cleaning concept (see chapter 5. "Calibration" - 20).

If any faults are detected during the functional inspection, they must be rectified by a service technician.

10.3 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.

This inspection may be conducted **only** by a service technician!

If any damage is detected during the inspection, the faulty components must be replaced by a service technician before work can be resumed with the dosing device.

Index

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:

Make:	Accessories
Type:	Dispenser for powder additives; Fresh milk tank

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)

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 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, 28 October 2013

Place, date

Signature
Markus Förster
CEO