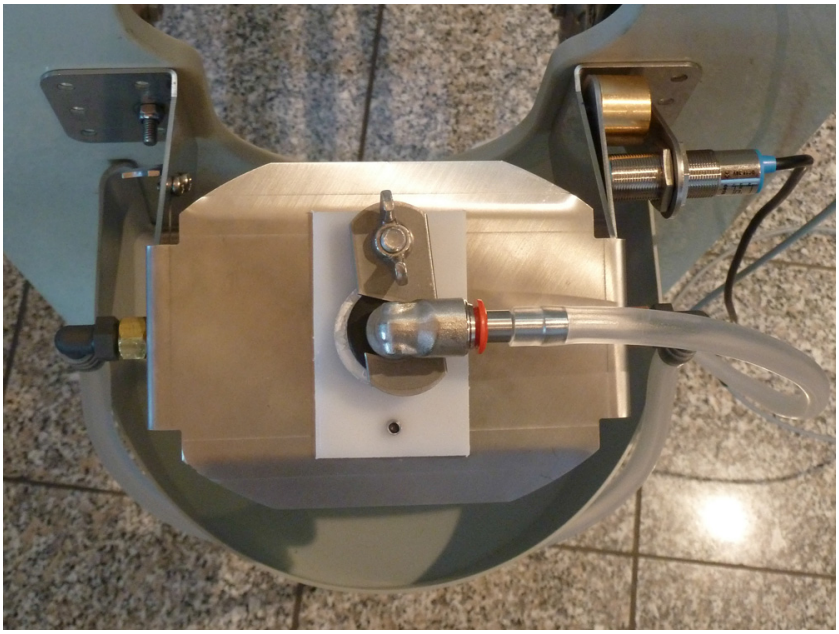
FÖRSTER TECHNIK®
Automatisch besser.

22. January 2018

Service info

Teat cleaning extension

S31.1e



1. Introduction

These installation instructions put you in the position to safely install the teat cleaner as intended.

- Please read these installation instructions carefully before installation.
- Keep these installation instructions close to hand at all times.
- Comply with all of the safety instructions in these installation instructions at all times.
- In addition, follow the instructions in the original operating manual of the automatic feeder.

1.1 Intended use

The teat cleaner is a device for cleaning the teats on calf feeder machines.

1.2 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.

1.3 Technical data

Mains connection

Earthed socket: 230 V/50 Hz (L/N/PE)

Fused at customer with: 10/16 A

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

2. Important safety instructions

2.1 Necessary qualifications of the service technician

Only trained service technicians are authorized to install the teat cleaners and put them into service.

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.

2.2 How am I warned of hazards?

2.2.1 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?).

2.2.2 Potentially fatal hazards or health hazards

A hazard symbol ⚠ (warning triangle with an exclamation mark) and the following hazard words indicate the risk of fatal injury or detrimental effects on health.

⚠ DANGER!

The word DANGER indicates an immediate danger that can cause loss of life or injury.

Marking in the installation instructions: **DANGER** (white font on red background).

⚠ WARNING!

The word WARNING indicates a potentially dangerous situation that can result in loss of life or severe injury.

Marking in the installation instructions: **WARNING** (black font on orange background).

⚠ CAUTION!

The word CAUTION indicates a potentially dangerous situation that can result in minor injuries.

Marking in the installation instructions: **CAUTION** (black font on yellow background).

2.2.3 Material damage

ATTENTION!

The word ATTENTION warns you about the risk of material damage. The device or an object or animal in its vicinity, such as a calf, can be damaged.

Marking in the assembly instructions: white writing on a blue background

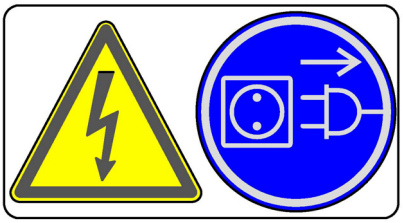
2.3 Safety labels on the product

The safety signs on the product are an important part of the safety concept and help prevent accidents.

They indicate danger areas on the machine and warn against residual risks.

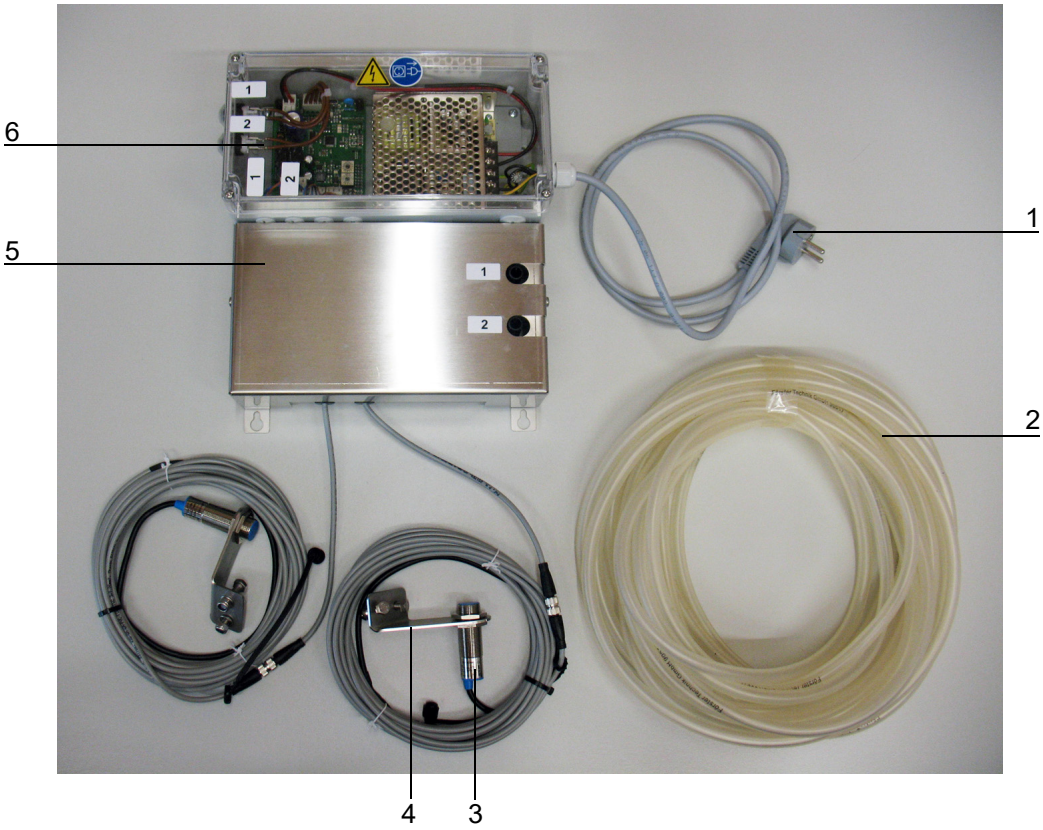
Keep all safety signs completely in legible condition and renew them if they become unreadable.

Danger of death by electric shock

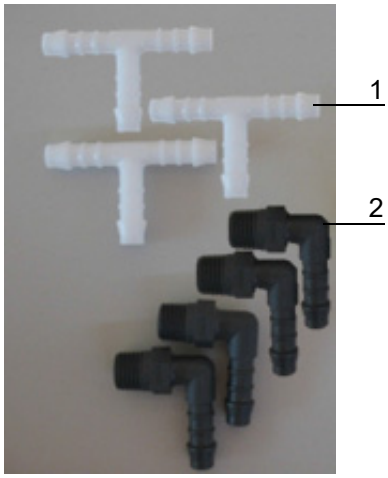


No spraying

3. Scope of delivery



1 Mains plug
2 Suction hose
3 Sensor (2x)
4 Sensor holder (2x)
5 Pump casing
6 Control unit



1 T-piece (3x)
2 Elbow coupling nipple (4x)

1 Pump bellows

4. Installation

4.1 Electrical connection provided by the customer

The teat cleaning needs its own power supply.

- Install a customer-side mains connection for teat cleaner operation.
- Comply with the local regulations and safety measures.
- Install an earth leakage circuit breaker (ELCB - 30 mA) in the customer power supply for operation of the teat cleaner.
- Install excess voltage limiters as a lightning protection measure in the customer power supply.
- Protect the teat cleaner and all associated cables from exposure to sunlight.

4.2 Control unit installation

⚠ WARNING!

Electric shock!

The electrical components of the automatic feeder are live.

► Disconnect the automatic feeder’s mains plug before starting with the installation of the teat cleaner.

1. Switch off the automatic feeder and disconnect the mains plug.
2. Mount the control unit with pump casing on a wall protected from the elements such as cold/frost and rain. The control unit and pump casing must be protected from water and corrosive gases.
3. Ensure that the control unit with pump casing is installed below the vessel's liquid level. Similarly, the nozzles should be installed above the vessel's liquid level.

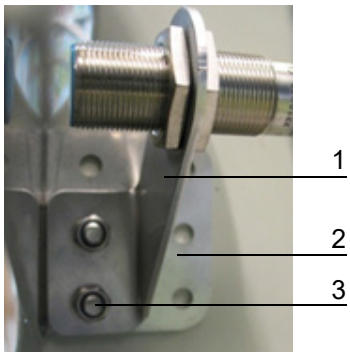
4.3 Sensor and coupling nipple installation

The coupling nipples can be installed on the swiveling teat and on the teat slider with nozzles.

4.3.1 Swiveling teat

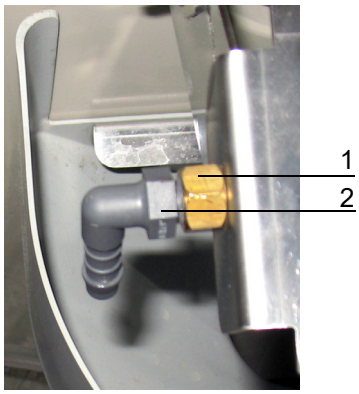
When installing in combination with the swiveling teat, proceed as follows:

1. Attach the sensor holder to the right swiveling teat attachment.



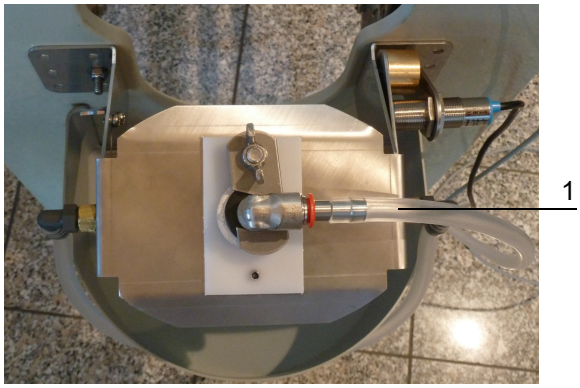
1 Sensor holder
2 Swiveling teat attachment
3 Bolts with nuts and washers (2x)

2. Screw the elbow coupling nipples into the nozzles.



1 Nozzle
2 Elbow coupling nipple

3. Ensure that the teat swivels easily. When installing the suction hose it is important that it does not hinder swiveling. Attach and secure the suction hose at the side.



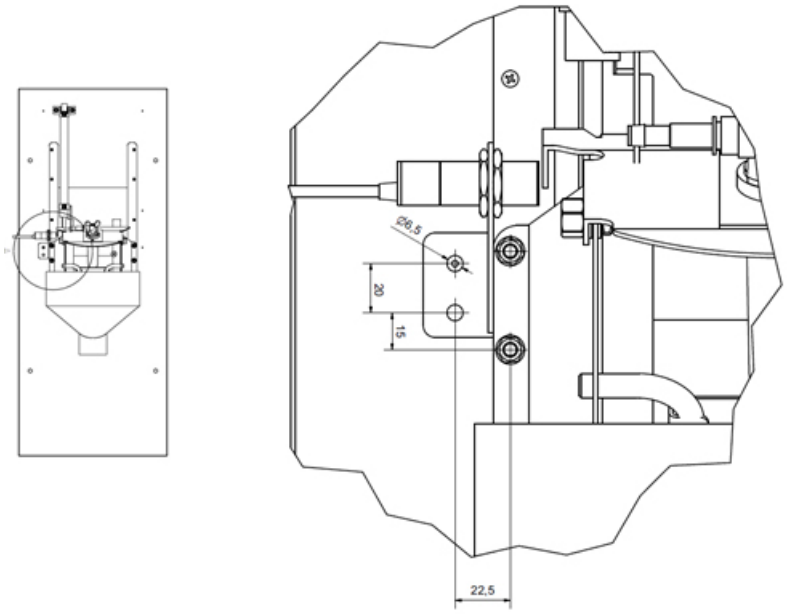
1 Suction hose

4. Repeat these steps for both feed stations, if necessary.

4.3.2 Teat slider

When installing in combination with the teat slider, proceed as follows:

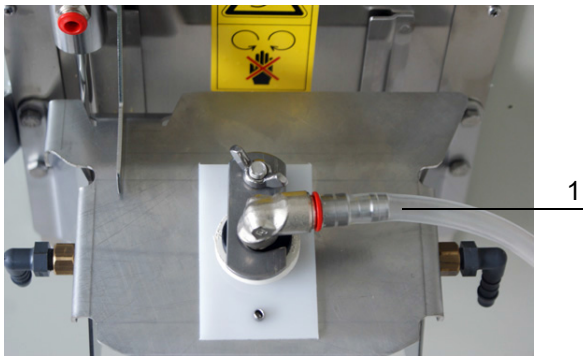
1. Drill out the existing hole in the front plate to a diameter of 6.5 mm. At a distance of 20 mm (center distance), drill a second hole vertically beneath this.



2. Attach the sensor holder to the teat slider's front plate.
3. Screw the elbow coupling nipples into the nozzles.

1 Nozzle
2 Elbow coupling nipple

4. Ensure that the suction hose is not is not interfered with when the teat slider is closed. Attach and secure the suction hose at the side to ensure this.



1 Suction hose

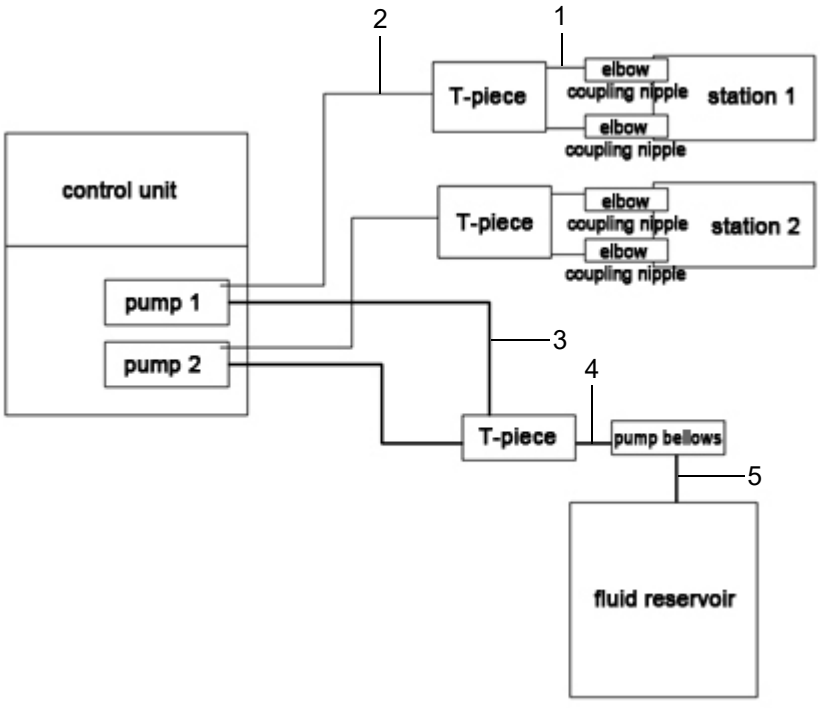
5. Repeat these steps for both feed stations, if necessary.

4.4 Hose and cable connection installation

1. Remove the pump casing cover.
2. Cut the hose to size for both feed stations (see figure):
   - 2.1. 4 x 30 cm for the elbow coupling nipple/T-piece connection (1)
   - 2.2. 2 x T-piece to pump connection (2)
   - 2.3. 2 x pump to T-piece connection (3)
   - 2.4. 1 x T-piece to pump bellows connection (4)
   - 2.5. 1 x pump bellows to fluid reservoir connection (5)

ATTENTION!

Install the T-piece (3) as close as possible to the fluid reservoir.

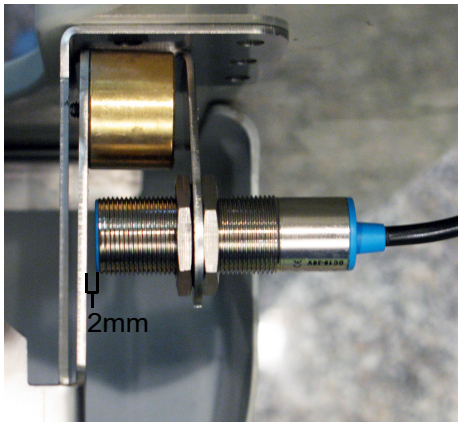


3. Install the cut to size hoses as sketched schematically in the figure.
   3.1. The pump outlet on the front of the pump casing is the outlet to the teat and goes directly to the feed station T-connection.
   3.2. The pump outlet on the right of the pump casing is the inlet from the fluid reservoir.

ATTENTION!

The pump numbers (1 and 2) can be allocated to the feed stations (1 and 2).

4. Install the fluid reservoir close to the control unit. Ensure that the hose is always a few centimeters from the floor of the fluid reservoir.
5. Install the sensor approx. 2 mm away from the swivel teat extension (see figure) and secure it using the nuts.



6. Run the sensor cable to the control unit. Attach a ferrite one meter after the sensor (see machine wiring diagrams) and fix it to a wall.
7. Connect the sensor cable to the existing connecting cable on the pump casing. Ensure that Pump 1 and Pump 2 are connected correctly.
8. Repeat these steps for both feed stations, if necessary.
9. Refasten the cover on the pump casing.

5. Commissioning

During the cleaning process the animals may come into contact with or ingest cleaning additives, because they have access to the teat during the cleaning process. Only additives that are harmless to animals, people and the environment, and that do not leave behind any residues in the bodies of animals and are approved for animal food production, are permitted. The additives used must not have a flammable, explosive or corrosive effect on the materials used by Förster-Technik.

ATTENTION!

The selection and application of the fluid is the responsibility of the user.

An example of a fluid is water and additives.

► Inform the user that the manufacturer's instructions and safety instructions for the additive used must be observed.

- Fill the hose from the fluid reservoir to the nozzles with cold water using the pump bellows.

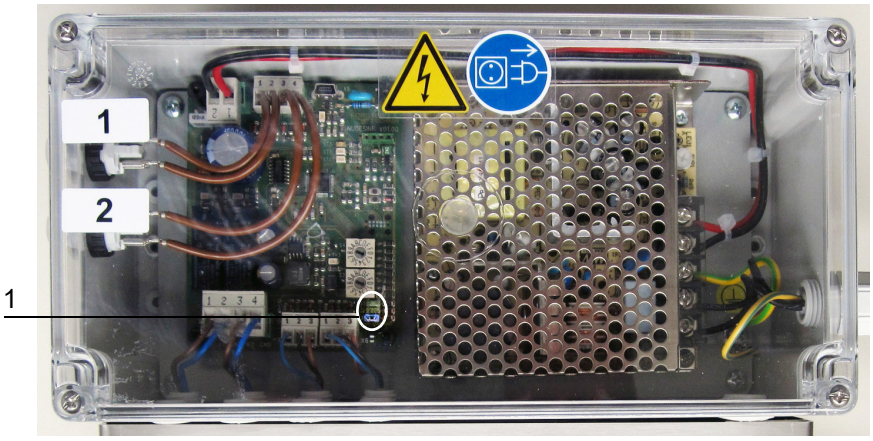
5.1 Automatic cleaning

Automatic cleaning can be divided into 3 phases:

- **Start:** The teat swivels down. The sensor then triggers the beginning of automatic cleaning.
- **Delay time:** Time between sensor triggering and the pump starting. This time is adjustable.
- **Cleaning:** Cleaning duration (fluid pumped be pumps). This time is adjustable.

5.1.1 Setting delay time

3 different delay times for both feed stations can be selected using switches on the circuit board (see Figure).



1 Delay time switches

⚠ WARNING!

Electric shock!

The electrical components of the automatic feeder are live.

► Disconnect the control unit's mains plug before making the cleaning settings.

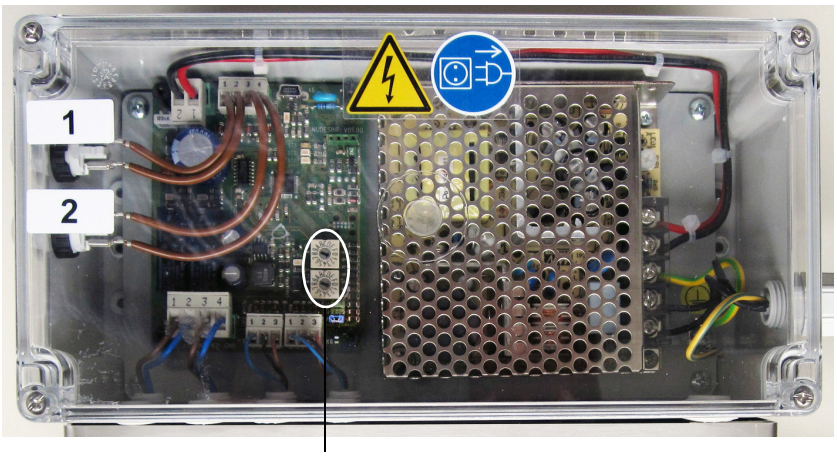
1. Remove the cover of the control unit.
2. The respective switch must be set to **ON** to activate the delay time.

   The following settings are possible:

Switch [ON]	Delay time [sec]
1	20
2	30
3	40

5.1.2 Setting cleaning time

The cleaning time can be set individually between 1 and 15 seconds for each feed station using two hex switches (see figure).



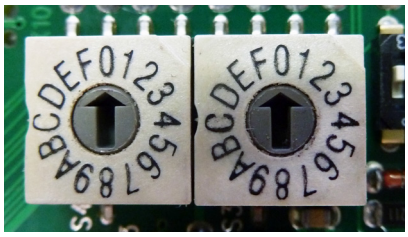
1 Hex switches

⚠ WARNING!

Electric shock!

The electrical components of the automatic feeder are live.

► Disconnect the control unit's mains plug before making the cleaning settings.



1. Set Pump 1 using hex switch S4. The arrow points to the set pump duration.
2. Set Pump 2 using hex switch S3.

   In Firmware version 1.00 the following cleaning times can be selected manually on the circuit board for the two feed stations:

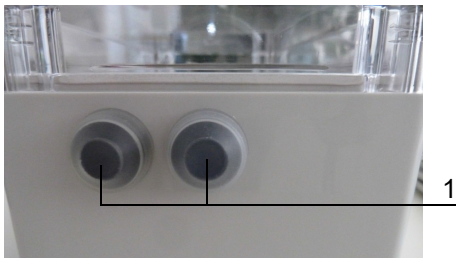
Hex switches	Cleaning time [sec]
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15

   Note: Setting 0 is not programmed.

4. Refasten the cover on the control unit.
5. Insert the mains plug and turn on the automatic feeder.

5.2 Manual cleaning

Manual cleaning can be triggered by pressing the pushbuttons on the left of the control unit (see figure).



1 Buttons for manual cleaning

1. Press the required button and keep it pressed. As soon as the button is released cleaning stops.

   The maximum teat cleaning is as long as defined in the cleaning time settings (see 5.1.2 "Setting cleaning time" - 13).

Note: Manual cleaning is only possible when the teat is in the at-rest position (pointing down).