December 19, 2016

Original operating manual

MilchMobil 4x4

MDK4-120-37-03 / MDK4-200-37-03 /

MDK4-120-37-04 / MDK4-200-37-04

Table of contents

1 Introduction

This operating manual enables users to operate the MilchMobil 4x4 safely as intended.

The term MilchMobil is used for subsequent description in the operating manual.

> Please read the operating manual carefully before putting the MilchMobil into service.

> Keep this operating manual and the safety data sheets for cleaning agents readily available at all times and pass them on to the next user.

> Observe all of the warnings and safety instructions in this operating manual at all times.

1.1 Versions of the MilchMobil

The **MilchMobil, a combination trolley with ground drive and control unit (MDK)**, is available in the following versions:

- **120 liters, 400V**
- **200 liters, 400V**
- **120 liters, 230V**
- **200 liters, 230V**

1.2 Functional description

The MilchMobil is used for the preparation, heating, dosing, portioning and transportation of liquid animal feed for young animals.

It is equipped with a mixer which is able to mix suitable powdered substances (e.g. easily soluble milk powder) with liquids or merely homogenize liquids. This mixer can be used as a stirrer by defining the timing, to speed up the heating process and to protect fresh milk from creaming.

In addition, the MilchMobil is equipped with heating which ensures an ideal feed temperature using a water bath installed under the stainless steel tank. The temperature indicator on the controller allows the temperature to be monitored continuously.

The dosing pump with portion control is supplied with voltage by two rechargeable batteries arranged behind the service panel. You therefore do not have to rely on a power supply con-

nection for the dosing process and can quickly dispense the preset amount of liquid feed into an appropriate container, e.g. feed bucket, anywhere via an outlet pipe.

In order to be able to move the MilchMobil more easily when filled, it is equipped with a drive unit, which is powered by two rechargeable batteries. By turning the drive switch to the desired direction of travel, the MilchMobil can be driven at walking speed to the place of use.

1.3 Contact details of the manufacturer

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

Please note down the device data specified on the type plate of your device in the following to have them readily available whenever you make a call.

TYPE:

NO.

Our contact details:
Förster-Technik GmbH
Gerwigstr. 25
D-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 information

This chapter outlines:

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

The MilchMobil is state of the art and is produced in compliance with recognized safety regulations. However, hazards and adverse effects may arise when using it. Both warning signs directly on the MilchMobil and warning notices in this manual provide warning of these hazards.

2.1 Target group

2.1.1 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.

2.1.2 Necessary qualifications of the service technician

Only trained service technicians are authorized to install the MilchMobil, put it into service, and perform maintenance and repairs.

Service technicians are electricians with appropriate qualifications, i.e. 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. This also includes the knowledge of relevant accident prevention regulations, generally accepted safety regulations, EU guidelines and country-specific standards and provisions.

2.2 Intended use of the MilchMobil

The MilchMobil may be used only for the preparation, heating, dosage, portioning and transport of liquid animal feed for young animals.

2.3 Residual risks associated with the MilchMobil

2.3.1 Hazards to health caused by the MilchMobil:

⚠ WARNING The MilchMobil is powered by electricity. You must observe the general precautions for handling electrical equipment:

- Read the operating manual before commissioning the MilchMobil.
- Keep children away from the MilchMobil.
- Do not touch any moving components of the MilchMobil, for example the mixer beater.
- Only use genuine spare parts from the manufacturer.
- Turn off the MilchMobil and disconnect the mains plug before carrying out any maintenance or cleaning work on the MilchMobil.
- The following specific hazards are associated with the MilchMobil's electrical system:
    - **Lethal electric shock.** Touching the connections in the control box of the MilchMobil can result in lethal electric shock. The cover of the control box may only be opened by an electrician.
    - **Electrical breakdown**. If there is an electrical or voltage breakdown, electric current flows through parts of the MilchMobil that are normally insulated. Touching the unit can cause a fatal electric shock. The MilchMobil must be checked regularly for electrical safety in compliance with national regulations (repeated inspection).
    - **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 of 16 A (provided by the customer) and an earth leakage circuit breaker (ELCB) of 30 mA in compliance with local regulations for the MilchMobil.
    - **Short circuit and other effects of electric current.** To avoid short circuits and to protect against other effects of electric current, make sure to take off all metal jewelry (e.g., rings, bracelets and necklaces) before working at or with the MilchMobil.
- **Harsh ambient temperature.** The MilchMobil is operating in a harsh working environment. Damage of any kind can result in hazards. Check the MilchMobil and its components regularly for damage and have damaged parts replaced by a service technician immediately.

- **Burns, fire.** The heating container can reach temperatures of up to 500 °C if the temperature control mechanism fails. Touching it can cause burns. Do not touch the heating container during operation.

- **Uncontrolled movements (including speed changes).** The MilchMobil is equipped with a battery-operated electric drive that is actuated by a drive actuator and drive controller. In the event of drive actuator malfunction, the MilchMobil may move in an uncontrolled manner. Turn the main battery switch to the OFF position to disconnect the controller.

- **Risk of catching, being pulled into the machine or getting caught in it, as well as chafing and abrasion.** If the pump wheel of the dosing pump is exposed during maintenance work, there is a risk of getting caught, being pulled into the machine, chafing or abrasion. Therefore, maintenance work on the dosing pump must only be carried out by experts.

- **Being pulled into or caught in the machine, unintentional/unexpected start-up, contact with rotating open ends.** The tank cover must be opened during cleaning in order to access the mixer. Ensure that when reaching into the hazard area, there is a risk of being pulled in or being caught, as well as unintentional or unexpected start-up and contact with the mixer.

- **Excessive strain.** When it is necessary to push the MilchMobil manually due to a malfunction, the milk tank should be filled to a maximum of 50 liters to prevent excessive physical strain. During normal operation, make sure that the maximum total weight is not exceeded and do not place additional items on the MilchMobil. Have two people push the MilchMobil if appropriate.

- **Chemical reactions and other hazards caused by materials and substances**. Fluid leaking from the rechargeable battery may cause chemical reactions or chemical burns. Use only lead-gel rechargeable batteries and observe the manufacturer's instructions for rechargeable batteries.

2.3.2 Material damage caused by the MilchMobil

The MilchMobil can cause the following types of material damage:

- **Infection**. Improper cleaning or incorrect operation can result in calves becoming infected by pathogens from the MilchMobil. This can lead to medical costs or cause the death of the calves.

- **Corrosion**. Improper cleaning or maintenance can result in the MilchMobil ceasing to function correctly.

2.4 Obligations of the owner

The owner is obliged to:

- Rule out misuse by children.
- This operating manual must have been carefully read and understood before putting the MilchMobil into service.
- Only allow operating personnel to work with/on the MilchMobil who:
  - Are familiar with the basic operational safety and accident prevention regulations.
  - Have been instructed in working with/on the MilchMobil,
  - Have read and understood this operating manual.
- Operate the MilchMobil only as intended.
- Not to change the design or functions of the MilchMobil.
- Keep all safety signs on the MilchMobil in legible condition and replace any that are damaged.
- Operate the MilchMobil only in perfect functional condition.
- Subject the MilchMobil to regular visual inspection for possible damage and have it rectified by a service technician if necessary.
- Check the safety devices applied to the MilchMobil regularly for perfect working order.
- Make sure the MilchMobil is operated only with safety devices installed.
- Provide the required personal protective devices for the operator.
- Make sure the mains sockets on the MilchMobil and the power supply provided by the customer are easy to access at all times.
- the manufacturer's instructions on use of batteries.
- ensure that the MilchMobil is always stored in a dry, clean, frost-free place, separated from the animal area (e.g. the milk chamber) and that it does not present a tripping hazard for the operator or other persons.

- Protect the MilchMobil and all corresponding cables from exposure to sunlight.
- to define a key code during commissioning.
- to only open the cover of the MilchMobil when the mixer is switched off.
- to not use the MilchMobil for milk intended for human consumption.
- Check the animal feed to be fed to the animals for perfect microbiological condition to avoid impairing the health of the animals.
- to observe the permissible total weight and not to place any objects on the MilchMobil.
- to clean the MilchMobil only with the cleaning agents recommended in this operating manual (see **7** Cleaning on page **55**).
- when cleaning the automatic feeder, to observe the safety instructions stipulated in the safety data sheet for the cleaning agent.
- to 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 MilchMobil.

2.5 Obligations of the operator

Before beginning work, the operator is obliged to:

- Observe the basic operational safety and accident prevention regulations.
- Read and understand this operating manual.
- to observe all the safety information and instructions included in this operating manual.

2.5.1 Required personal protective equipment

Furthermore, the operator is obliged to:

- Wear safety shoes at all times during operation.
- Wear safety glasses and protective gloves when using cleaning agents for cleaning.

The compulsory accident prevention regulations which apply at the operation site in the country of use and the technical rules for safety-related and specialist work must also be observed by all means in addition to the protective equipment mentioned above.

2.6 What hazard warnings are provided?

Hazards are indicated directly on the MilchMobil 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 MilchMobil 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 MilchMobil 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.

2.6.1 Components of a hazard description

A hazard description is always made up of the following elements:

- The hazard word (Danger, Warning, Caution, Attention).
- The nature of the hazard (what could happen?).
- The location of the hazard (where can it occur?).
- The actions to take to prevent the hazard (what do I need to do?).

2.6.2 Hazards causing death or injury

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:

- The word **DANGER** indicates an imminent hazard that will lead to death or serious injury.
  - Warning signs on the MilchMobil: **DANGER** (white text on red background).
  - Operating manual: **⚠ DANGER** (white text on black background).
- The word **WARNING** indicates a potentially hazardous situation that could lead to death or serious injury.
  - Warning signs on the MilchMobil: **WARNING** (black text on orange background).
  - Operating manual: **⚠ WARNING** (white text on black background).

- The word **CAUTION** indicates a potentially hazardous situation that could lead to minor injury.
  - Warning signs on the MilchMobil: **CAUTION** (black text on yellow background).
  - Operating manual: ⚠ CAUTION (white text on black background).

2.6.3 Material damage

The word **Attention** indicates possible material damage. The MilchMobil or an object in its vicinity may be damaged, for example a calf.

- Prohibition signs on the MilchMobil: A pictogram crossed out in red in a white circle with a red border indicates something you are not allowed to do.
- Operating manual: ATTENTION (white text on black background).

2.7 Safety signs on the MilchMobil

Different safety labels are attached at the hazardous points on the MilchMobil. 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 prohibition signs?

Prohibition signs show a pictogram of the prohibited action in a red crossed out circle. See adjacent example. They illustrate what you are not allowed to do. In the example, the crossed-out hose means that you are not allowed to use any 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 must do. In the example, the pictogram means that you must always disconnect the plug first.

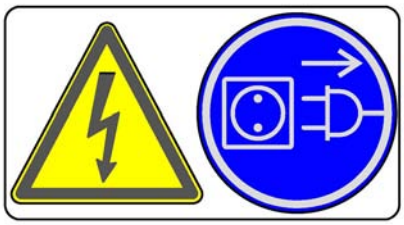
2.8 Warning signs on the machine

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

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

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

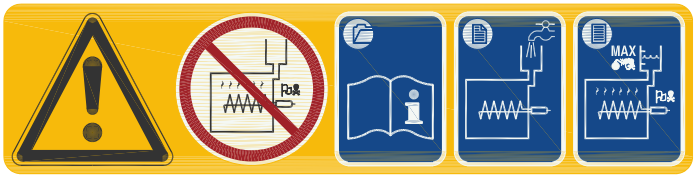
Danger of death by electric shock



Danger due to hot surfaces!

Automatic startup

Danger due to dry running of the heating



Not suitable for human foodstuffs

No spraying

Wear safety shoes.

2.9 Safety devices on the MilchMobil

The MilchMobil may only be operated if the safety equipment is complete and intact. The MilchMobil has the following safety equipment:

- Safety signs (warning signs, instruction and prohibition signs).
- Operator safety switch of the drive unit. The MilchMobil will immediately drive forward a short distance when touched.
- The main battery switch. In an emergency, the power supply to the MilchMobil can be disconnected using the main battery switch.
- The heater's safety temperature limiter. This shuts down the heater in the event of overheating (temperature rises above 70°C). The heater may only be reactivated by a service engineer.

- Key code of the drive unit. This code prevents unauthorized access by locking the drive when the operator presses a combination of keys.

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 without observing the corresponding safety instructions.
- Put the machine into service only once all safety devices have been applied and are in protection position!

Operator safety switch

The MilchMobil drive unit is fitted with an operator safety switch, which immediately causes the MilchMobil to immediately drive forward a short distance during drive operation and in standstill if contact is made. This prevents the operator from being crushed between an obstacle and the MilchMobil when reversing, for example.

1	Operator safety switch

Main battery switch

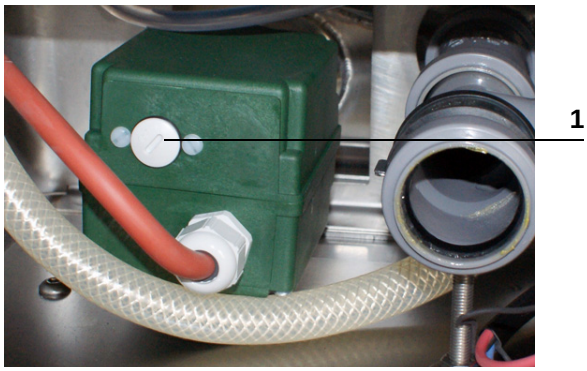
The main battery switch is used to turn the MilchMobil on and off. You will see the ON and OFF positions when turning the main battery switch.

In an emergency, the power supply to the MilchMobil can be disconnected using the main battery switch. To do so, turn the switch to the OFF position.

Safety temperature limiter

The MilchMobil heating is equipped with a safety temperature limiter which is triggered in the event of overheating and consequently shuts down the heating.

The safety temperature limiter is located behind the cover of the outlet tap under the cap in the picture.



1	Safety temperature limiter

ATTENTION The heating must be checked by a service technician if the safety temperature limiter is triggered.

Drive unit key code

The MilchMobil drive unit can be only be started by pressing a defined combination of keys (key code). This prevents use by unauthorized persons.

2.10 Use of the MilchMobil

Make sure you observe the following in order to comply with the accident prevention regulations:

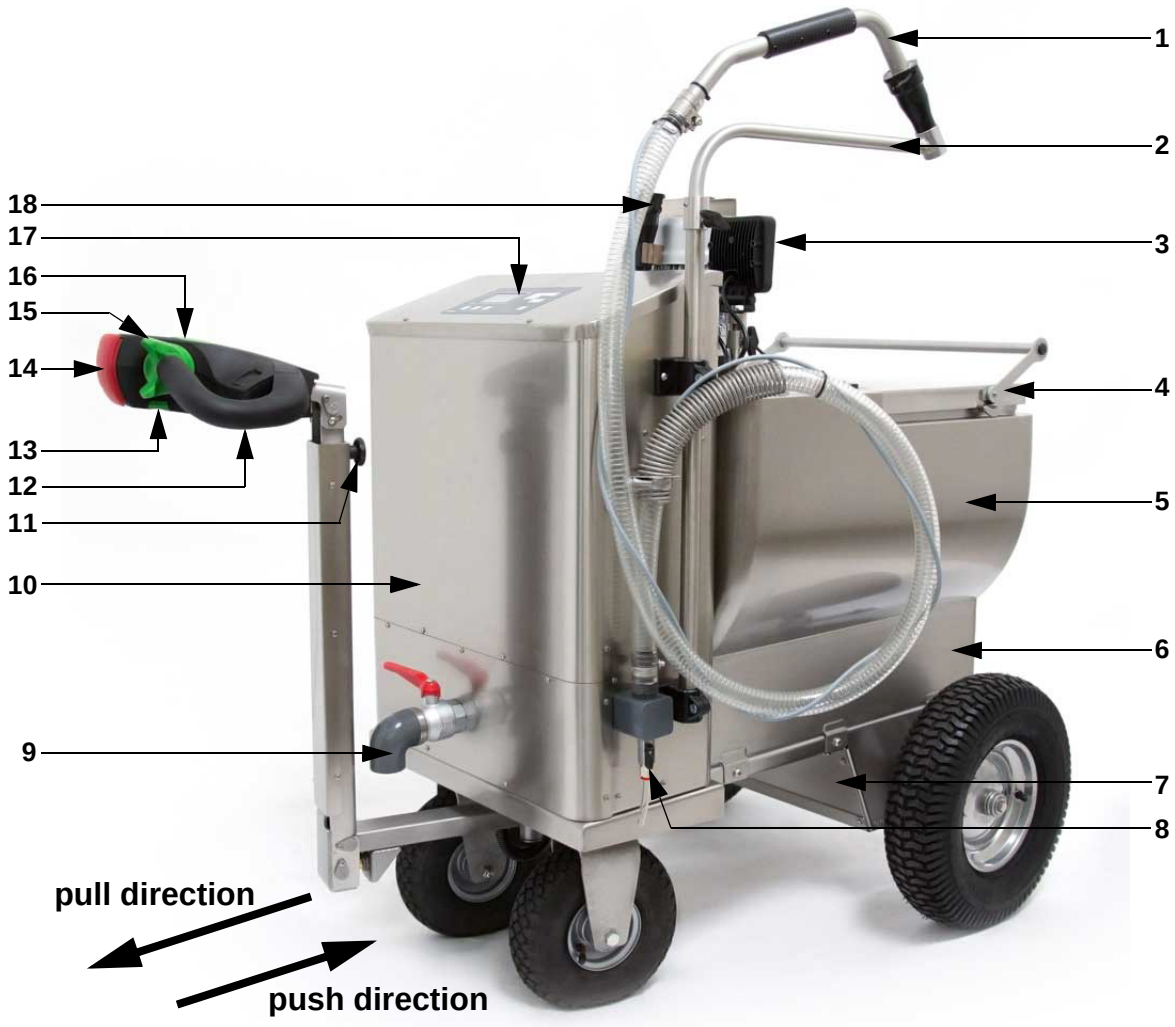
The MilchMobil with a drive unit may be used by one adult up to a maximum incline or decline of 10%.

The MilchMobil must only be operated at a speed suitable to the terrain. To prevent tipping of the MilchMobil, speed must be reduced when driving around curves.

The rechargeable batteries have a usage period of approximately 1.5 hours if the MilchMobil is moved by the drive unit and the animal feed is dispensed using portion control.

3 Components

3.1 General overview



1. Dosing unit	10.Service panel
2. Pivoting arm (height adjustable)	11. Screw for height adjustment
3. LED lamp	12. Handle
4. Lockable tank lid	13. Dosage quantity selection key
5. Tank	14. Operator safety switch
6. Heating	15. Drive key
7. Drive unit	16. Dosing key
8. Drainage valve	17. Control/operator unit
9.Outlet tap	18. Cleaning head with cleaning nozzle

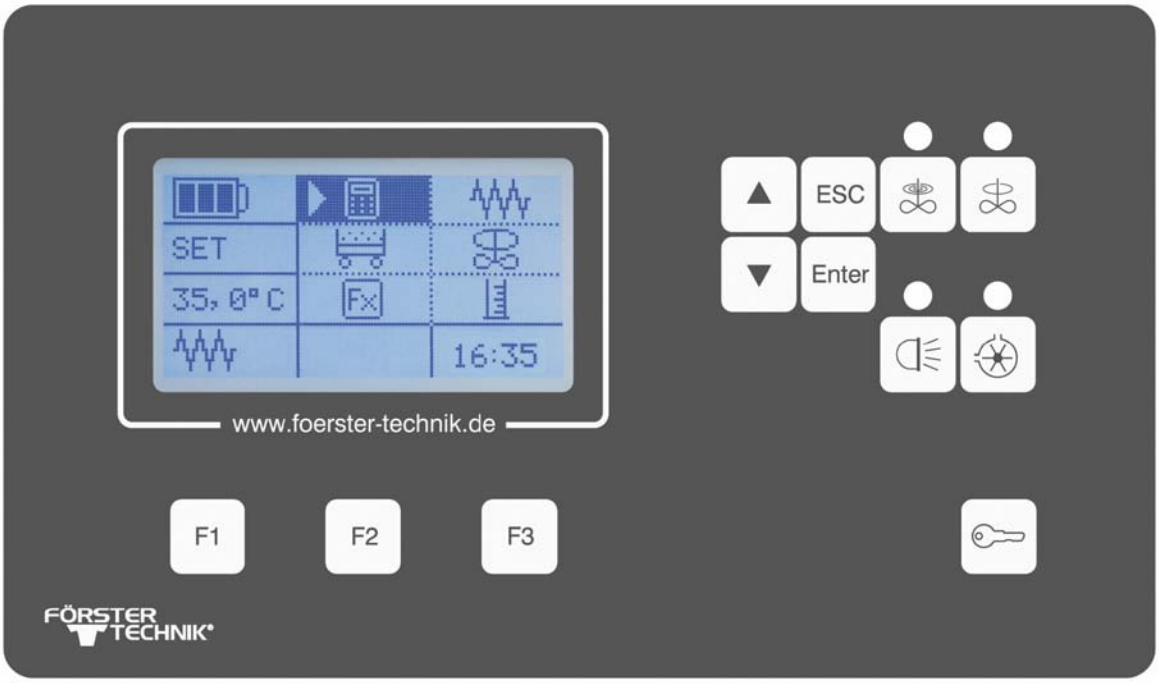
3.2 Main battery switch

The main battery switch is used to turn the MilchMobil on and off. You will see the ON and OFF positions when turning the main battery switch.

In an emergency, the power supply to the MilchMobil can be disconnected using the main battery switch. To do so, turn the switch to the OFF position.

3.3 Control/operator unit

In this operating manual, only the keyboard symbols are used for instructions and not their designations.



3.3.1 F1 / F2 / F3

These keys are used to obtain quick access to the defined feed quantity in AUTO mode and to activate functions in SET mode.

3.3.2 Up arrow / Down arrow

Pressing these keys allows you to scroll through the individual menu options and to change all settings.

3.3.3 ESC (=Escape)

Pressing this key takes you up a level in the menus or allows you to cancel a current operation.

3.3.4 Enter

Pressing this key opens menus and confirms entries.

3.3.5 Mixer

Pressing this key starts the mixer and thus ensures that the MP dissolves without clumps.

3.3.6 Intermittent stirrer

Pressing this key starts the intermittent stirrer.

3.3.7 Lamp

Pressing this key turns the LED lamp on and off.

3.3.8 Dosing pump

Pressing this key starts the dosing pump and, in feeding mode, dispenses the programmed feed quantity.

3.3.9 Key depicting a key

Pressing this key and another key unlocks the MilchMobil for use.

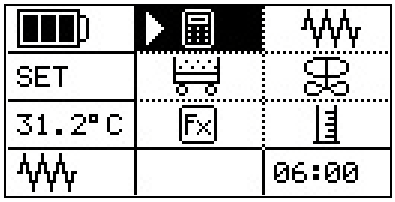
3.4 Display

3.4.1 Battery indicator

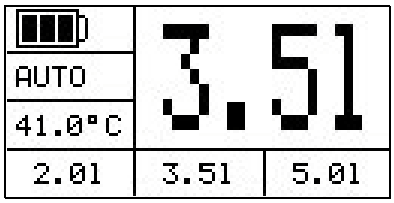
The battery indicator shows the battery charge level.

3.4.2 Operating modes

SET The MilchMobil is in SET mode when it is connected to the mains power.



AUTO The MilchMobil is in AUTO mode (feeding mode) when it is disconnected from the mains power.



3.4.3 Feed temperature

41°C The temperature display shows the current feed temperature, for example 41?.

3.4.4 Selection keys

Fx In this menu, you can program each of the 5 selection keys with any feed quantity.

3.4.4.1 Feed quantity

F1 F2 F3 Pressing the required direct selection key displays the programmed feed quantity in the display.

Press the arrow keys to change the feed quantity in 0.1 liter increments.

3.4.5 Mixing assistant

In this menu, you can determine the milk powder and water quantity by entering the number of calves, feed quantity and target concentration.

3.4.6 Cleaning

This menu can be used to enter the parameters for cleaning.

3.4.7 Heating

In this menu, the required feed temperature, the timer, the frost protection function and the stirrer for accelerating the heating process are adjusted.

3.4.8 Intermittent stirrer

This menu is used to set the intermittent stirrer timing intervals.

3.4.9 Calibration

This menu is used to recalibrate the preprogrammed direct selection quantities.

3.4.10 Setup

In this menu, you can make settings and view information.

Settings:

- Current time
- Personal key code
- Factory settings

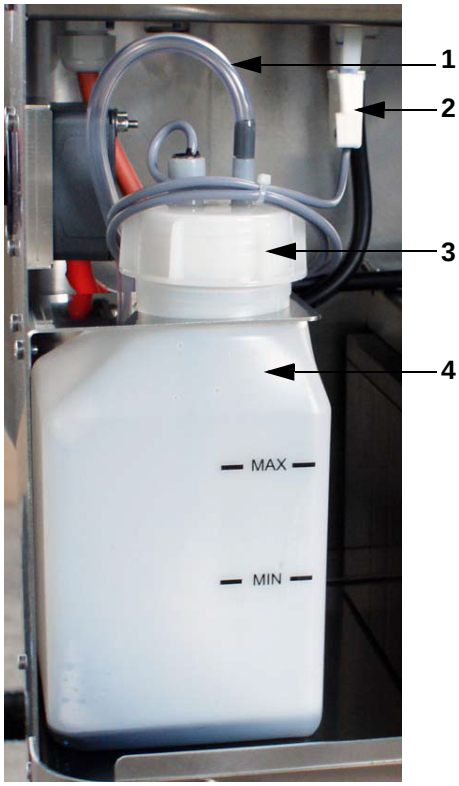
Information:

- Faults
- Diagnosis

3.5 Heating

The heating is used for heating and warming liquid feed to the desired feed temperature. The temperature of the water bath is regulated by a heating thermostat.

3.5.1 Heating expansion vessel

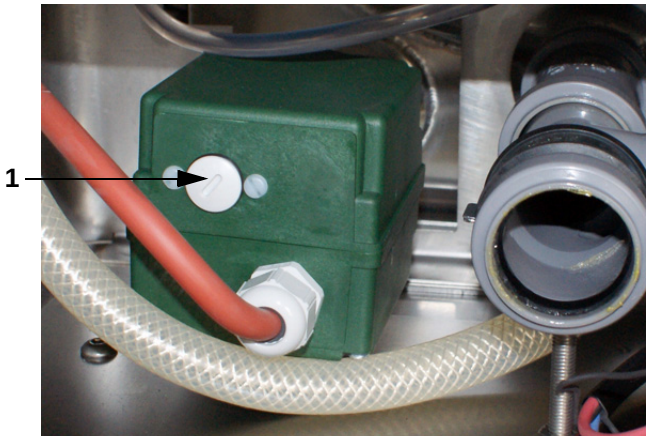


1 Exhaust hose	3 Expansion vessel lid
2 Sensor cable with plug	4 Heating expansion vessel

The expansion vessel of the heating is located behind the service panel. The level of the water bath of the heating is monitored by a sensor. You can check whether there is enough water in the water bath on the filling level indicator for the expansion vessel. If required, you can find out how to top up with water in “Filling the water bath for the heating” on page 38.

ATTENTION The heating must only be used to heat liquid and must never be operated dry since it will otherwise be destroyed. Prior to each heating process, check the water level in the expansion vessel and add water, if necessary.

3.5.2 Safety temperature limiter



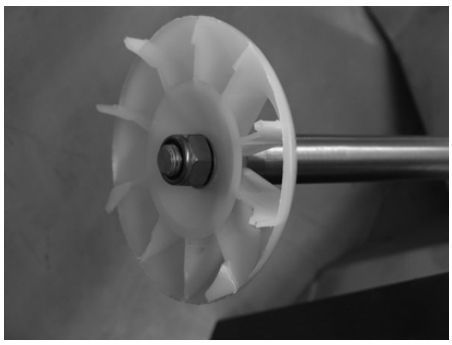
1	Safety temperature limiter

The MilchMobil heating is equipped with a safety temperature limiter which is triggered in the event of overheating and consequently shuts down the heating. The safety temperature limiter is located behind the cover of the outlet tap under the cap in the picture.

3.6 Mixer motor

The cleaning head with cleaning nozzle is attached to the mixer motor so it is always at hand when cleaning.

3.6.1 Mixer



The mixer ensures homogeneous mixing of the feed when mixing the milk powder.

3.7 Height-adjustable handle

The height of the MilchMobil handle can be adjusted using the height-adjustment mechanism to allow comfortable use by persons of all sizes.

3.8 Drive unit

3.8.1 Operator safety switch

1	Operator safety switch

The MilchMobil drive unit is fitted with an operator safety switch, which immediately causes the MilchMobil to immediately drive forward a short distance during drive operation and in stand-still if contact is made. This prevents the operator from being crushed between an obstacle and the MilchMobil.

3.8.2 Driving switch

1	Driving switch

The left and right driving switch is used to move the MilchMobil forward and backward. By turning it, the speed can be adjusted by infinite gradations.

3.8.3 Drive speed switch

1	Drive speed switch

The drive speed switch is used to switch from driving speed (hare) to feeding speed (tortoise). Feeding speed is significantly slower than driving speed to allow for slower and more precise movement of the MilchMobil during feeding.

3.9 Dosing key

1	Dosing key

Pressing the dosing key above the driving switches dispenses the currently selected feed quantity.

3.10 Dosing quantity selection key

1	Dosing quantity selection key

The dosing quantity selection key is used to select among the dosing quantities, of which there may be up to 5.

3.11 Rechargeable battery

The MilchMobil is equipped with two gel/lead batteries.

Note: Observe the information and safety instructions on the battery data sheet supplied with this operating manual.

3.12 Outlet tap

The MilchMobil is equipped with an outlet tap which allows you to drain the prepared liquid animal feed from the stainless steel tank into any container.

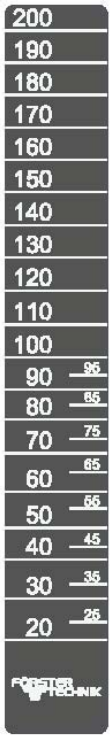
3.13 Hose drainage

Use the drainage valve on the dispensing hose to drain the water from the hose after feeding or cleaning.

3.14 Filling level scale

Both versions of the stainless steel tank are equipped with an easily readable filling level scale.

Note: The MilchMobil must be on a level surface when the scale is read.



3.15 LED lamp

The LED lamp makes it easier for you to feed at dawn, dusk or at night.

4 Technical data

4.1 Electrical connection

The specifications for the electrical connection to your MilchMobil are on its name plate (see **4.9** Name plate on page **35**).

4.2 MilchMobil 120 liters

Tank capacity	120 liters
Length in cm	120
Width in cm	79
Height in cm	130
Fill height in cm	90
Dead weight in kg	163
Weight when filled in kg	300

4.3 MilchMobil 200 liters

Tank capacity	200 liters
Length in cm	150
Width in cm	79
Height in cm	130
Fill height in cm	93
Dead weight in kg	210
Weight when filled in kg	435

4.4 Heating

120 liters

	4.5kW/400V	**3.0kW/230V**
Voltage	400V	230V
Current consumption	6.5A	13A
Frequency	50/60Hz	50/60Hz
Power	4.5kW	3.0kW
Water bath	28.5 liters	28.5 liters

200 liters

	4.5kW/400V	**3.0kW/230V**
Voltage	400V	230V
Current consumption	6.5A	13A
Frequency	50/60Hz	50/60Hz
Power	4.5kW	3.0kW
Water bath	36.5 liters	36.5 liters

4.5 Mixer

	0.37 kW
Voltage	230V
Current consumption	2.76A
Frequency	50Hz
Power	0.37 kW
Speed	1400 rpm

4.6 Dosing pump with portion control

Voltage	24 V DC
Current consumption	8 A
Flow rate	37 l/min
Pressure	1 bar
Connection	1½"

4.7 Gel/lead battery

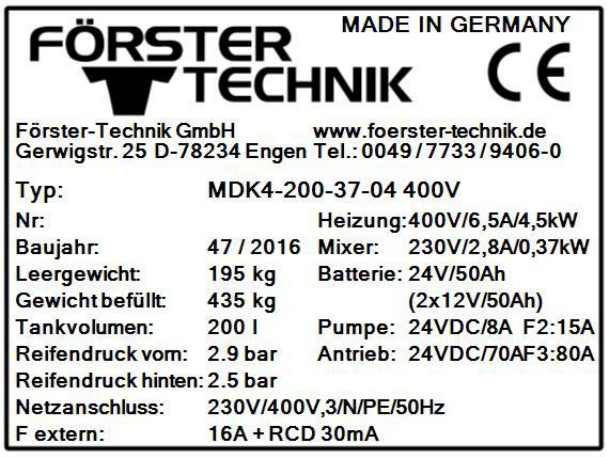
Voltage	12 V DC
Capacity	50 Ah
Length in cm	19.7
Width in cm	16.5
Height in cm	17.0
Weight in kg	13.8

4.8 Charger

Voltage	85 - 264V AC
Current consumption	1.4A / 115V AC 0.7A / 230V AC
Frequency	50/60Hz
Charging current	4.42A
DC voltage	27.2V

4.9 Name plate

The MilchMobil is equipped with its own name plate. An example of a name plate is illustrated below:



5 Putting the MilchMobil into and removing it from service

5.1 Initial start-up

5.1.1 Electrical connection provided by the customer

- Have the electrical connection (provided by the customer) installed by a qualified electrician.
- Observe the local regulations and protective measures.
- Install a 30 mA earth leakage circuit breaker (ELCB) in the power supply (provided by the customer) for operation of the MilchMobil.
- The rated voltage and rated frequency must be observed. The supply voltage specified on the name plate of the device must correspond to that of the mains supply.
- Have overvoltage protectors installed by a qualified electrician in your power supply (provided by the customer) (lightning protection measure).
- Protect the MilchMobil and all associated cables from exposure to sunlight.

5.1.2 Safety instructions

⚠ WARNING Danger of death! An explosive gas mixture may be produced when charging the rechargeable battery. Charge the rechargeable battery only in well ventilated rooms, and observe the manufacturer specifications when using rechargeable batteries.

⚠ WARNING Risk of overheating and short circuits! This can result in serious physical injury or even death. Remove all metallic items of jewelry, such as rings, bracelets or necklaces, before working on the rechargeable battery.

⚠ CAUTION Injuries to the locomotor system may be caused by the weight and installation position of the rechargeable battery. Observe the weight of the assembly in chapter see **4.7** Gel/lead battery on page **34** and the industrial safety regulations.

ATTENTION The heating must only be used to heat liquid and must never be operated dry since it will otherwise be destroyed. Prior to each heating process, check the water level in the expansion vessel and add water, if necessary.

ATTENTION The rechargeable battery must not be deeply discharged, as this may damage it.

5.1.3 Switch on MilchMobil

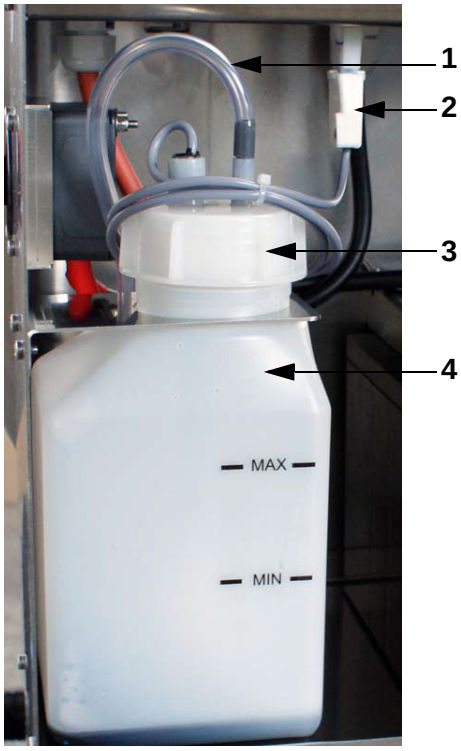
Connect the MilchMobil to the power supply and turn the main battery switch to **ON**.

5.1.4 Charging the rechargeable battery

- **⚠ WARNING** An explosive gas mixture may be produced when charging the rechargeable battery. This can result in serious physical injury or even death. **Charge the rechargeable battery only in well ventilated rooms, and observe the manufacturer specifications when dealing with rechargeable batteries.**
- Always connect the MilchMobil to the power supply and turn the main battery switch to **ON** to charge the battery.

5.1.5 Filling the water bath for the heating

The MilchMobil is supplied without water in the water bath. Fill the water bath with sufficient water before putting the MilchMobil into service. The water level is indicated by the marks on the expansion vessel.



1 Exhaust hose	3 Expansion vessel lid
2 Sensor cable with plug	4 Heating expansion vessel

The filling procedure is as follows:

1. Open the service panel.
2. Place the MilchMobil on a fixed and inclined surface so that the water bath can be filled.

   Note: It is advisable to place the small wheels on a pallet or similar object so that the MilchMobil is standing at an angle.
3. Make sure the MilchMobil is disconnected from the power.
4. Unplug the sensor cable from the jack and remove the exhaust hose of the expansion vessel.
5. Unscrew the expansion vessel lid.
6. Add cold water until the tank is full.
7. Before venting the water bath, keep the end of the exhaust hose beneath the base of the expansion vessel until the water stand has reached the minimal fill level.

   ATTENTION The expansion vessel must never become empty during venting, otherwise air will re-enter the water bath.
8. Repeat Steps 6 and 7 until no more air emerges from the exhaust hose.
9. Fill the water bath until the water level in the expansion vessel is between the min. and max. marks.
10. Screw the lid back onto the expansion vessel.
11. Reconnect the sensor cable to the jack and reconnect the exhaust hose to the expansion vessel.

    For details of how to operate the MilchMobil, refer to chapter “Operation” on page 45.

5.1.6 Cleaning the MilchMobil

For reasons of hygiene, the MilchMobil must be cleaned thoroughly with cleaning agent before putting it into service to completely remove any existing lubricant residue. See “Cleaning” on page 55.

5.1.7 Defining the selection keys

The keys  ,  and  can be freely assigned to two feed quantities.

1. Plug the mains plug into the appropriate socket.

2. Fx > Enter

3. Select the feed quantity you want to dispense in the F1 line and confirm with Enter.

4. Select the second and third feed quantities you want to dispense in the F2 and F3 lines and confirm with Enter.

5. In the F1/2 and F2/2 lines, select further feed quantities (second level) that you want to feed using the F1 and F2 key and confirm each with Enter.

   Note: The second level for the key is not enabled if you choose feed quantity 0.00 liters.

   Note: The second level of F3 is **PUSH**. This means that when is selected or a dosing key is pressed, feed is dispensed until the key(s) are pressed again.

5.1.8 Adjusting the heating

Set the relevant parameters for the heating in the menu.

5.1.8.1 Activating the timer

1. °C > Enter

2. Select the time at which you want the heating process to start in the 1 line and confirm with Enter.

3. Select the time at which you want the heating process to start for the second time in the 2 line and confirm with Enter.

4. Select the time at which you want the heating process to start for the second time in the 3 line and confirm with Enter.

   Note: If the time is set to 00:00 and you confirm with Enter, **OFF** is displayed automatically. The timer is therefore not activated.

5. To activate the timer, press Esc repeatedly until you are at the top level of the setting menu. Press F1. The timer symbol is displayed.

   Note: When the timer is activated, appears in the display along with the relevant time. If the timer is not activated, appears in the display.

5.1.8.2 Specifying the feed temperature

1. °C > Enter

2. Specify the feed temperature to be reached in the °C line and confirm with Enter.

3. In the **HOLD** line, you can select **ON** to set the heating to maintain the feed temperature. When set to **OFF**, the heating shuts down as soon as the set feed temperature is reached.

   Note: If you want the MilchMobil to stand for a time between the heating process and feeding, activating the **HOLD** function is recommended as this maintains the milk at the feed temperature.

ATTENTION Make sure that the MilchMobil does not stand for longer than 30 minutes as this temperature promotes formation of germs and can therefore cause health problems for the animals.

5.1.8.3 Setting frost protection

To prevent the water bath from freezing, the temperature of the water bath when stationary should be set under **Frost protection**.

1. > Enter
2. Activate the frost protection function in the line and confirm with Enter.
3. Select the water bath temperature in the °C line so that the heating switches on and confirm with Enter.

   Note: To maintain the frost protection function when stationary, the MilchMobil must be connected to the mains.

5.1.8.4 Adjusting the stirrer during heating

To speed up the heating process, running the stirrer during heating is recommended.

1. > Enter
2. Select **ON** in the line to activate the stirrer during heating, or select **OFF**, to deactivate it and confirm with Enter.
3. If the stirrer is activated, select the number of seconds you want the stirrer to run for in the **ON** line and confirm with Enter.
4. Select the number of seconds you want the stirrer to pause for in the **OFF** line and confirm with Enter.

Note: In the 230V version, the pause time between stirring and mixing is at least 300 seconds. The heating is deactivated during stirring.

5.1.9 Intermittent stirrer for fresh milk

The intermittent stirrer prevents fresh milk from creaming in the tank. In this menu you specify the settings relating to the direct selection key for the control unit of the stirrer.

1. > Enter
2. Select the number of seconds you want the stirrer to run for in the **ON** line and confirm with Enter.
3. Select the number of seconds you want the stirrer to pause for in the **OFF** line and confirm with Enter.

5.1.10 Calibration

To ensure that the dosing pump can precisely dispense the feed quantity specified, calibration must be carried out during commissioning. Have a measuring beaker ready for the calibration process.

Proceed as follows when calibrating:

1. Make sure the MilchMobil is connected to the power mains.
2. Open the tank lid.
3. Add at least 20 liters of water to the stainless steel tank.
4. Start the calibration menu .
5. Select a programmed selection key (F1, F2 or F3).
6. Hold the dispensing unit in the stainless steel tank.
7. Press to dispense. The outlet hose is filled.
8. To complete the process, press Enter.
9. Suspend the dispensing unit in the pivoting arm and hold it in a constant position during the calibration process.
10. Select a programmed selection key (F1, F2 or F3) to be calibrated.
11. Press and dispense the water into a measuring beaker.
12. If the desired quantity is not dispensed, enter the measured quantity using the arrow keys and confirm this quantity with Enter.

13.Repeat the procedure until the desired amount is dispensed.

14.The calibration procedure is over as soon as the desired amount of water is dispensed.

5.1.11 Setup settings

The following settings have to be made in the menu during initial start-up:

5.1.11.1 Setting the time

1. > Enter
2. Set the current time using the arrow keys and confirm with Enter.

5.1.11.2 Specifying the key code

The key code is used to prevent the MilchMobil from being used by unauthorized persons. The default setting is the Enter key.

1. > Enter
2. Select a key that you want to specify as the key code when pressed in combination with the key and confirm with .

   Note: It is **not** possible to use Esc in the key code as this key is used to exit the menu.

5.2 MilchMobil operating location

- Install the MilchMobil in a clean, dry and frost-free location, separated from the animal area (e.g. milk chamber).
- If the MilchMobil cannot be set up in a clean, frost-protected location, the frost protection should be activated to prevent the water bath from freezing (see **5.1.8.3** Setting frost protection on page **41**).
- Make sure that there is no more liquid in the dosing pump and the outlet hose.
- Protect the MilchMobil from dirt and flies.

5.3 Removal from service

You must remove the MilchMobil from service if you do not intend to operate it for a long period of time.

Proceed as follows to remove the MilchMobil from service:

1. Make sure the MilchMobil is on a firm and level surface.
2. Completely open the outlet tap to empty the stainless steel tank.
3. Carry out thorough cleaning. See “Cleaning” on page 55.
4. Close the outlet tap after cleaning.
5. Drain the water from the hoses.
6. Reset any parameters set in the setup menu to the factory settings ( ).
7. Turn the main battery switch to **OFF** and disconnect the mains plug.
8. Have a service technician remove the rechargeable batteries and store them in a frost-free room.
9. Empty the water bath of the heating. Proceed as follows:
   - 9.1 Remove the drain plug from the bottom of the tank.
   - 9.2 Allow the water to flow into an appropriate container or a drain.
   - 9.3 Screw the drain plug back in again after emptying the bath to protect the heating from dirt.
10. Cover the MilchMobil and store it in a level, clean, dry and frost-free location.
11. Make sure that you do not store the rechargeable batteries for longer than six months as this will cause them to become deep discharged and cause them to be damaged. Therefore, charge the batteries intermittently (every two months).

6 Operation

6.1 Safety instructions

⚠ WARNING The surfaces of the heating tub and stainless steel tank can become hot This can cause severe burns. Do not touch the heating tub or stainless steel tank.

⚠ WARNING To comply with the accident prevention regulations, you may only use the MilchMobil for the period specified in “Use of the MilchMobil” on page 19, to minimize the risk of being run over, fatigue, problems in the locomotor system and other consequences which may arise from lack of concentration, such as stumbling or falling.

⚠ WARNING Always observe the total weight of the MilchMobil. No additional items may be placed on the MilchMobil because the brake and the motor are not designed to hold extra weight.

⚠ WARNING To avoid short circuits and to protect against other effects of electric current, make sure to take off all metal jewelry, especially rings, bracelets and necklaces, before working.

ATTENTION To avoid infections, check whether the animal feed is in perfect microbiological condition and give it swiftly to the animals after preparing it.

ATTENTION Always prepare the animal feed in a dry, clean, frost-free location, separated from the animal area (e.g. milk chamber).

ATTENTION The heating must only be used to heat liquid and must never be operated dry since it will otherwise be destroyed. Prior to each heating process, check the water level in the expansion vessel and add water, if necessary.

ATTENTION The dosing pump must never be operated when dry as this can destroy it. Residual quantities must be drained using the outlet tap.

ACHTUNG Clean the MilchMobil after each use. Observe the cleaning specifications in “Cleaning” on page 55.

ATTENTION When on an inclined surface and when driving quickly around corners, the MilchMobil can tip due to its high center of gravity. When driving on outdoor terrain, ensure the stability of the MilchMobil.

6.2 Moving the MilchMobil using the drive unit

The procedure for moving the MilchMobil using the drive unit is as follows:

1. Use the screw on the drawbar to adjust the height of the handle so it is correct for your body height.
2. Check the battery level.

   The battery should be as fully charged as possible (3 bars) to ensure that there is sufficient power for the dosing pump and the drive unit.
3. Activate the drive unit by disconnecting the mains plug and entering the key code (and specified key) (see **5.1.11.2** Specifying the key code on page **43**).

   Note: Disconnecting the mains plug switches the MilchMobil to AUTO mode, which means that only the selection and arrow keys are active. Settings must be made in SET mode.
4. Determine the direction that you would like to move the MilchMobil by turning the driving switch to forward or reverse.
5. Also regulate the speed of the MilchMobil by moving the driving switch.

   Note: The MilchMobil moves at walking pace and cannot exceed 6 km/h. As soon as you release the driving switch, the movement of the MilchMobil stops immediately. The speed is significantly slower in the pushing direction than in the pulling direction.
6. Set the drive speed switch to driving speed (hare). For feeding, you can change to feeding speed (tortoise).

Note: In an emergency, the power supply to the MilchMobil can be disconnected using the main battery switch.

6.3 Reference values for the heating time for fresh milk

The following specifications for the heating time for fresh milk are empirical values, based on an ambient temperature of 20 - 25°C (see **5.1.8.2** Specifying the feed temperature on page **40**).

Fresh milk at milking temperature is based on an initial temperature of approximately 35 °C and a target temperature of approximately 42 °C.

Cooled fresh milk is based on an initial temperature of approximately 4°C and 15°C and a target temperature of approximately 42°C.

For fresh milk at milking temperature

MDK	Filling quantity (liters)	Heating time (min)
120 l	50	20
	120	60
200 l	100	25
	200	50

For cooled fresh milk (4°C)

MDK	Filling quantity (liters)	Heating time (min)
120 l	50	60
	120	150
200 l	100	80
	200	110

For cooled fresh milk (15°C)

MDK	Filling quantity (liters)	Heating time (min)
120 l	50	40
	120	120
200 l	100	50
	200	90

Note: For cooled fresh milk, heating takes longer. You should therefore use the timer function. You can also speed up the heating process by preheating the water bath for 10 minutes.

6.4 Turning on the heating

The heating can be started manually or automatically using the timer.

6.4.1 Manual

1. Plug the mains plug into the appropriate socket.
2. Press F1 repeatedly until the heating symbol ( ) flashes in the display. The heating is then turned on.

6.4.2 Timer

1. Plug the mains plug into the appropriate socket.
2. To activate the set times for the timer (see **5.1.8.1** Activating the timer on page **40**), press F1. The timer symbol is displayed.

Note: When the timer is activated,  is shown in the display along with the relevant time. The heating starts automatically at the set time.

6.5 Preparing and dispensing liquid animal feed

6.5.1 When using fresh milk only

In this case, make sure you proceed in the order described in the following:

1. Make sure the MilchMobil is on a level surface. This ensures ideal stability of your MilchMobil.
2. Make sure the outlet tap is closed.
3. Plug the mains plug into the appropriate socket.
4. Fill the amount of fresh milk you wish to feed to the animals into the stainless steel tank.
   Note: Add at least 20 liters of fresh milk to the tank so that all sensors are covered.
5. If the timer is activated, wait until the heating starts at the set time (see “Activating the timer” on page 40)
   or
6. Turn the heating on by pressing 

repeatedly until the heating symbol flashes. Observe the reference values in “Reference values for the heating time for fresh milk” on page 46.
7. Check whether the desired feed temperature has been reached on the control display.
8. Disconnect the mains plug when the desired temperature is reached.
   Note: Disconnecting the mains plug switches the MilchMobil to AUTO mode, which means that only the selection and arrow keys are active. Settings must be made in SET mode.
9. Enter the set key code to start the drive unit (see “Specifying the key code” on page 43).
10. Move the MilchMobil to the place of operation.
11. Make sure the MilchMobil is on a level surface. Set the drive speed switch to feeding speed (tortoise) if appropriate.
12. Check the feed temperature.
    Note: The temperature of the mixed feed must be approximately 39 °C when ingested by the calf.

13. Press the desired selection key (F1, F2 or F3) to dispense the set feed quantity. The value is shown clearly in the display.

    Note: If a **second level** is defined for F1 and F2, this is indicated by a small symbol in the relevant feed quantity field. Press the dosing quantity selection key on the handle or press F1 or F2 again to select the second level.

    The second level of F3 is **PUSH**, which means that when  is selected or a dosing key is pressed, feed is dispensed until the key(s) are pressed again.

    Note: The selected feed quantity can be changed in 0.1 liter increments using the arrow keys. However, pressing the selection key again dispenses the originally defined quantity.

14. Open the tank lid and fasten it to the lid holder.

15. Hold the dispensing unit in the tank, press the dispensing key and insert the first portion in the tank so that the hose is filled.

16. Close the tank lid.

17. Start the feeding process. You can choose between two dispensing methods:

    - **Dispensing via pivoting arm:** Suspend the dispensing unit in the pivoting arm and press the dispensing key on the handle to begin dispensing.

      Note: Alternatively, you can press  to start the dosing pump and thus the dispensing process.

      or

    - **Dispensing without pivoting arm:** Press the dispensing key on the dispensing unit to start the dispensing process.

      Note: If one of the two dispensing keys is pressed again, dispensing stops.

18. When dispensing is complete, the pump shuts down automatically.

19. Once the entire feeding procedure is complete, drive the MilchMobil to its parking place. Set the drive speed switch to driving speed (hare), if appropriate.

20. Clean the MilchMobil after each use. For more information, see chapter “Cleaning” on page 55.

21. Charge the rechargeable battery. See “Charging the rechargeable battery” on page 38.

6.5.2 Using the mixing assistant to determine the milk powder and water quantity

The number of calves, the feed quantity and the target concentration must be entered so that the mixing assistant can determine the milk powder and water quantity.

1. > Enter
2. Select the number of calves in the line and confirm with Enter.
3. Select the feed quantity per calf in the line and confirm with Enter.
4. Select the target concentration in the line and confirm with Enter.
5. This takes you to a submenu that displays the calculated milk powder quantity in kilograms (kg) and water quantity in liters (l). Press Enter.

6.5.3 When using milk substitute and water

In this case, make sure you proceed in the order described in the following:

1. Make sure the MilchMobil is on a level surface. This ensures ideal stability of your MilchMobil.
2. Plug the mains plug into the appropriate socket.
3. Make sure the outlet tap is closed.
4. Fill at least enough water into the stainless steel tank to cover the mixer well. The temperature of the water must allow an easily soluble milk substitute to be completely dissolved. Observe the specifications of the manufacturer.
5. Turn the heating on by pressing F1 repeatedly until the heating symbol flashes.
6. Check whether the desired mixing temperature has been reached in the display.
7. When the desired mixing temperature has been reached, press to start the mixer.
   Note: A beep sounds when the mixer starts.
8. Add the full amount of milk substitute evenly to the water. Observe the manufacturer's concentration specifications, taking into account the desired total mixing amount.
9. You can begin feeding once the milk substitute has dissolved completely.
   Note: The temperatures of the water and liquid feed must be coordinated so that the mixed feed is approximately approx. 39°C when ingested by the calf.

10. Turn the mixer off by pressing  .

11. Disconnect the mains plug.

Note: Disconnecting the mains plug switches the MilchMobil to AUTO mode, which means that only the selection and arrow keys are active. Settings must be made in SET mode.

12. Enter the set key code to start the drive unit (see “Specifying the key code” on page 43).

13. Move the MilchMobil to the place of operation.

14. Make sure the MilchMobil is on a level surface. Set the drive speed switch to feeding speed (tortoise) if appropriate.

15. Press the desired selection key (F1, F2 or F3) to dose the defined feed quantity. The value is shown clearly in the display.

Note: If a **second level** is defined for F1 and F2, this is indicated by a small symbol in the relevant feed quantity field. Press the dosing quantity selection key on the handle or press F1 or F2 again to select the second level.

The second level of F3 is **PUSH**, which means that when  is selected or a dosing key is pressed, feed is dispensed until the key(s) are pressed again.

Note: The selected feed quantity can be changed in 0.1 liter increments using the arrow keys. However, pressing the selection key again dispenses the originally defined quantity.

16. Open the tank lid.

17. Hold the dispensing unit in the tank, press the dispensing key and insert the first portion in the tank so that the hose is filled.

18. Close the tank lid.

19. Start the feeding process. You can choose between two dispensing methods:

- **Dispensing via pivoting arm:** Suspend the dispensing unit in the pivoting arm and press the dispensing key on the handle to begin dispensing.

  Note: Alternatively, you can press  to start the dosing pump and thus the dispensing process.

  or

- **Dispensing without pivoting arm:** Press the dispensing key on the dispensing unit to start the dispensing process.

Note: If one of the two dispensing keys is pressed again, dispensing stops.

20. When dispensing is complete, the pump shuts down automatically.

21. Once the entire feeding procedure is complete, drive the MilchMobil to its parking place. Set the drive speed switch to driving speed (hare), if appropriate.

22. Clean the MilchMobil after each use. For more information, see chapter “Cleaning” on page 55.

23. Charge the rechargeable battery. See “Charging the rechargeable battery” on page 38.

6.5.4 When using fresh milk, milk substitute and water

In this case, make sure you proceed in the order described in the following:

1. Make sure the MilchMobil is on a level surface. This ensures ideal stability of your MilchMobil.
2. Make sure the outlet tap is closed.
3. Plug the mains plug into the appropriate socket.
4. If the timer is activated, wait until the heating starts at the set time (see “Activating the timer” on page 40)

   or
5. Turn the heating on by pressing 

repeatedly until the heating symbol flashes. Observe the reference values in “Reference values for the heating time for fresh milk” on page 46.
6. Fill at least enough water into the stainless steel tank to cover the mixer well. The temperature of the water must allow an easily soluble milk substitute to be completely dissolved. Observe the specifications of the manufacturer.
7. Check whether the desired mixing temperature has been reached on the control display.
8. When the desired mixing temperature has been reached, press  to start the mixer.

   Note: A beep sounds when the mixer starts. This indicates that the mixer is starting.
9. Add the full amount of milk substitute evenly to the water. Observe the manufacturer's concentration specifications, taking into account the desired total mixing amount.

10. As soon as the milk substitute is completely dissolved, add fresh milk of milking temperature and, if necessary, hot water until the desired amount of liters is reached. You can read it off the liter scale in the stainless steel tank.

    Note: The temperatures of the water and liquid feed must be coordinated so that the mixed feed is approximately approx. 39 °C when ingested by the calf.

11. Turn the mixer off by pressing  .

12. Disconnect the mains plug when the desired temperature is reached.

    Note: Disconnecting the mains plug switches the MilchMobil to AUTO mode, which means that only the selection and arrow keys are active. Settings must be made in SET mode.

13. Enter the set key code to start the drive unit (see “Specifying the key code” on page 43).

14. Move the MilchMobil to the place of operation.

15. Make sure the MilchMobil is on a level surface. Set the drive speed switch to feeding speed (tortoise) if appropriate.

16. Press the desired selection key (F1, F2 or F3) to dispense the set feed quantity. The value is shown clearly in the display.

    Note: If a **second level** is defined for F1 and F2, this is indicated by a small symbol in the relevant feed quantity field. Press the dosing quantity selection key on the handle or press F1 or F2 again to select the second level.

    The second level of F3 is **PUSH**, which means that when  is selected or a dosing key is pressed, feed is dispensed until the key(s) are pressed again.

    Note: The selected feed quantity can be changed in 0.1 liter increments using the arrow keys. However, pressing the selection key again dispenses the originally defined quantity.

17. Open the tank lid.

18. Hold the dispensing unit in the tank, press the dispensing key and insert the first portion in the tank so that the hose is filled.

19. Close the tank lid.

20. Start the feeding process. You can choose between two dispensing methods:

    - **Dispensing via pivoting arm:** Suspend the dispensing unit in the pivoting arm and press the dispensing key on the handle to begin dispensing.

Note: Alternatively, you can press  to start the dosing pump and thus the dispensing process.

or

- **Dispensing without pivoting arm:** Press the dispensing key on the dispensing unit to start the dispensing process.

  Note: If one of the two dispensing keys is pressed again, dispensing stops.

21. When dispensing is complete, the pump shuts down automatically.
22. Once the entire feeding procedure is complete, drive the MilchMobil to its parking place. Set the drive speed switch to driving speed (hare), if appropriate.
23. Clean the MilchMobil after each use. For more information, see chapter “Cleaning” on page 55.
24. Charge the rechargeable battery. See “Charging the rechargeable battery” on page 38.

6.6 Intermittent stirrer for fresh milk

To prevent the fresh milk from creaming, the stirrer function should be used.

ATTENTION With warm outside temperatures, make sure that the milk is not stored in the MilchMobil for too long as this increases the formation of germs and can cause health problems for the animals.

This is done as follows:

1. Plug the mains plug into the appropriate socket.
2. Set the timing for the stirrer in the menu (see **5.1.9** Intermittent stirrer for fresh milk on page **42**).
3. Press  to start the stirrer. Pressing again turns the stirrer off again.
   Note: The stirrer continues running until it is turned off by pressing  .

7 Cleaning

7.1 Safety instructions

⚠ WARNING Live electrical components. Danger of death by electric shock! This can result in serious physical injury or even death. Before beginning cleaning, make sure all electrical connections are safely disconnected from the mains supply and the rechargeable battery is fully charged.

⚠ WARNING Risk of injury due to rotating tools! Limbs, untied long hair and loose clothing can become caught when reaching into the catchment area of the indicated points. This can result in serious physical injury or even death. Never reach into the catchment area of the indicated points as long as parts are able to move. Always wear tight-fitting clothing. Tie long hair. Remove any jewelry or rings.

⚠ WARNING Risk of injury and death! Never mix alkaline and acidic cleaning agents, since this may cause a dangerous chemical reaction. Dangerous gases may be produced and cause serious breathing difficulties. They may also cause explosions.

⚠ WARNING Risk of injury and death! 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 In order to ensure proper hygiene, observe the exact cleaning water temperature and cleaning agent concentration specifications provided by the manufacturer.

ATTENTION Make absolutely sure that no undiluted or large quantities of cleaning agent seep into the ground water, watercourses or the sewage system. No undiluted or unneutralized cleaning agents may enter the sewage or receiving water. Observe the provisions of your local disposal authority and the safety data sheet for your cleaning agent.

ATTENTION Never use a high-pressure cleaner or similar equipment for cleaning, since the MilchMobil may otherwise be damaged.

ATTENTION Make sure there is sufficient water in the container when rinsing or cleaning the dosing pump to prevent dry running of the pumps.

ATTENTION In order to prevent the materials used in the MilchMobil from being damaged, find out from your cleaning agent supplier whether your cleaning agent is suitable for this type of

use. Observe the instructions from the cleaning agent supplier included on the technical data sheet, in particular the dosing instructions and safety regulations.

7.2 Specifications for cleaning the MilchMobil

What has to be cleaned?

The inside of the tank and all parts which come into contact with liquid animal feed must be cleaned thoroughly at normal water pressure each time after use.

How often does the MilchMobil have to be cleaned?

The MilchMobil must be cleaned with alkaline cleaning agents at least once a day. A cleaning cycle with acidic cleaning agent should also be performed if necessary.

7.3 Cleaning agents

We recommend the cleaning agent **HyClean K45** for cleaning the MilchMobil. You can obtain it from us.

However, commercially available alkaline or acidic cleaning agents which meet the following requirements may also be used:

> The cleaning agents must be able to be used within a temperature range of 40°C to 50°C.

> The ingredients must not have a corrosive effect on the materials used by Förster-Technik. The cleaning agents must be free from chlorine, in particular, since chlorine corrodes stainless steel, damaging it in the process.

7.4 Material list

The following materials are used in the MilchMobil:

> PA66 polyamide 66

> PP polypropylene

> PVC polyvinyl chloride

> Stainless steel V2A

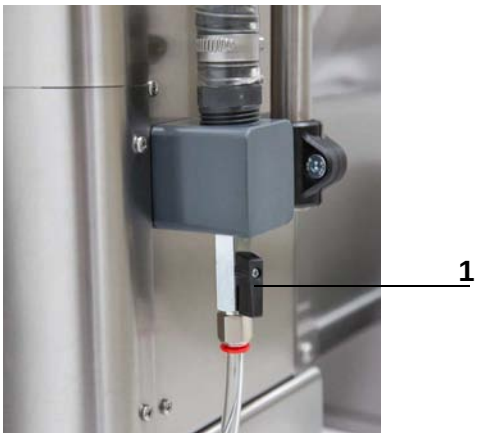
> Rubber (neoprene)

7.5 Cleaning procedure

During cleaning, absolutely ensure that you observe the safety instructions in chapter 7.1 "Safety instructions".

1. Place the MilchMobil on a level surface near a gully.
2. Open the drainage valve on the dispensing hose.

   Rotate the dispensing head of the dispensing unit a bit to allow air into the hose, so that it can fully empty out.



1	Drainage valve

3. Open the outlet tap completely to empty the stainless steel tank.
4. Rinse the stainless steel tank with clean hot water.
5. Close the outlet tap and the drainage valve on the outlet hose.
6. Add approximately 20 liters of water to the stainless steel tank.
7. Plug the mains plug into the appropriate socket.
8. Select (Cleaning) in the setting menu and press Enter.
9. Hold the dispensing unit in the gully.
10. Press F2 to select the **PUSH** function.
11. Press once clean water flows out of the dispensing unit.

ATTENTION Make sure that the dosing pump is never operated when dry. Residual quantities must be drained using the outlet tap.

12. Add approximately 15 liters of water to the stainless steel tank.

13. Add the appropriate amount of cleaning agent as required.

14. Thoroughly clean the stainless steel tank, the inside of the tank lid and the mixer with mixer bridge using a brush or sponge.

15. In the menu, select F1 (3 minutes) or F3 (6 minutes) as the pump running time.

16. Remove the dispensing head and screw the cleaning head onto the dispensing unit.

17. Remove the check valve from the dispensing head. To do so, apply pressure from above with a long object against the check valve until it falls out.

18. Place the check valve into the dispensing head once again. In doing so, absolutely ensure that the check valve O-ring is not damaged.

19. Insert the dispensing unit with cleaning head into the cleaning open in the tank lid intended for this purpose.

1	Cleaning head in tank lid

20. Press to start the pump. The water is pumped in a circuit for the selected time (3 or 6 minutes).

1 Cleaning nozzle

21. Open the outlet tap completely to empty the stainless steel tank.
22. Rinse the stainless steel tank with clear water until the cleaning agent residue is completely removed.
23. Close the outlet tap.
24. Add approximately 15 liters of water to the stainless steel tank.
25. Remove the cleaning head and screw the dispensing head onto the dispensing unit.
26. Hold the dispensing unit in the gully.
27. Press F2 to select the **PUSH** function.
28. Let the remaining fluid in the tank drain via the dispensing unit until approximately 5 liters of fluid remains. Then press ✱ to stop the pump.
29. Rotate the dispensing head a quarter turn and open the drainage valve on the outlet hose to let the fluid out of the hose.
30. Close the drainage valve and rotate the dispensing head until it is closed again.
31. Disconnect all electrical connections from the mains supply.
32. Open the outlet tap.
33. Allow the stainless steel tank to dry.
34. If necessary, bring the MilchMobil to its level, frost-free parking location (see “Moving the MilchMobil using the drive unit” on page 46).
35. Cover the cleaned MilchMobil.
36. Connect the MilchMobil to the mains supply to charge the battery. Make sure you observe the procedure and safety instructions in “Charging the rechargeable battery” on page 38.

7.6 Cleaning the sealing ring in the tank lid

The sealing ring in the tank lid must be cleaned every 14 days. This is done as follows:

1. Open the tank lid and suspend the latch in the lid holder.
2. Remove the sealing ring from the tank lid.

3. Clean the recess in the tank lid thoroughly with a suitable brush or a sponge.
4. Clean the sealing ring.
5. Push the sealing ring back into the tank lid so that it is fitted securely.
6. Close the tank lid.

8 Maintenance

The visual and functional inspection of the components can be conducted by the owner/operator.

Repair work must **always** be performed by a service technician.

8.1 Safety instructions

⚠ WARNING Live electrical components. Danger of death by electric shock! This can result in serious physical injury or even death. Always disconnect the mains plug before carrying out any maintenance or servicing work on the MilchMobil.

⚠ WARNING Risk of overheating and short circuits! This can result in serious physical injury or even death. Remove all metallic items of jewelry, such as rings, bracelets or necklaces, before working on the rechargeable battery.

⚠ WARNING Risk of injury due to rotating tools! Limbs, untied long hair and loose clothing can become caught when reaching into the catchment area of the indicated points. This can result in serious physical injury or even death. Never reach into the catchment area of the indicated points as long as parts are able to move. Always wear tight-fitting clothing. Tie long hair. Remove any jewelry or rings.

⚠ CAUTION Injuries to the locomotor system may be caused by the weight and installation position of the rechargeable battery. Observe the weight of the assembly in chapter see **4.7** Gel/lead battery on page **34** and the industrial safety regulations for lifting loads.

8.2 Maintenance intervals and activities

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

8.2.1 Each time prior to use

Visual inspection of the components

All mechanical and electrical components must be subjected to visual inspection for damage and deposits each time before they are used. 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 MilchMobil. Any deposits should be removed.

8.2.2 Monthly

Check the tire pressure and, if necessary, pump up the tires.

Front wheel tire pressure: 42 psi; 2.9 bar

Rear wheel tire pressure: 42 psi; 2.9 bar

8.2.3 Every 3 months

8.2.3.1 Conduct a functional inspection

The calibration, the temperature regulator and all switches must be subjected to functional inspection every three months.

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

8.2.3.2 Cleaning the outlet tap

For reasons of hygiene, the outlet tap must be cleaned thoroughly every three months. For this purpose, the outlet tap has to be removed. This is done as follows:

1. Loosen the screws that secure the cover on the MilchMobil.

1	Fastening screws (x9)

2. Pull the outlet tap, including the cover, off the MilchMobil.

   Note: The outlet tap is connected to the outlet of the stainless steel tank and is not screwed in.

3. Clean the outlet tap thoroughly with a suitable brush.

4. Replace the outlet tap and cover, and tighten the screws securely.

8.3 Replacing the sealing ring in the tank lid

The sealing ring on the inside of the tank lid should be replaced regularly to prevent the tank lid from leaking.

Replace as follows:

1. Open the tank lid and fasten the latch to the lid holder.
2. Remove the sealing ring from the tank lid.
3. Push the new sealing ring into the tank lid so that it is fitted securely.
   Note: Do not shorten the seal as the tank lid would otherwise no longer be leak-proof.
4. Close the tank lid.

8.4 Remove the rechargeable battery

When taking the unit out of service or if one of the rechargeable batteries is defective, it must be replaced. This is done as follows:

⚠ WARNING Danger due to battery fluid seeping out. They may cause chemical reactions. Only use gel/lead batteries when replacing the battery.

⚠ CAUTION Injuries to the locomotor system may be caused by the weight and installation position of the rechargeable battery. Observe the weight of the assembly in chapter see **4.7** Gel/lead battery on page **34** and the industrial safety regulations for lifting loads.

1. Make sure the MilchMobil is on a level surface. This ensures ideal stability of your MilchMobil.
2. Make sure that the mains plug for the MilchMobil is disconnected.
3. Open the service panel.
4. Remove the protective caps and the connecting cables on the rechargeable battery.
5. Loosen the 4 clip screws.

1	Clip screws (4x)

6. Replace the rechargeable battery with the new one.
7. Screw the clip screws back in and reconnect the connecting cables and the protective caps.
8. Close the service panel.

8.5 In 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.

9 Troubleshooting

The visual and functional inspection of the components can be conducted by the owner/operator.

Only service technicians may perform work on the electrical installation of the MilchMobil and eliminate any detected faults. This includes opening the control housing.

9.1 Safety instructions

⚠ WARNING Live electrical components. Danger of death by electric shock! This can result in serious physical injury or even death. Always disconnect the mains plug before carrying out any maintenance or servicing work on the MilchMobil.

⚠ WARNING Automatic start-up. This can result in serious physical injury or even death. If you have to open the pump housing in the course of troubleshooting, make sure you bear in mind that the pump may start up unexpectedly and incur serious injuries.

⚠ WARNING Risk of overheating and short circuits! This can result in serious physical injury or even death. Remove all metallic items of jewelry, such as rings, bracelets or necklaces, before working on the rechargeable battery.

Visual inspection by the owner/operator

- If the MilchMobil is not working, for example, it is not heating or the mixer is not running, check whether mains plug of the MilchMobil is properly connected.

Note: If the problem persists, please contact a service technician!

9.2 Which fuses are located where

In the housing of the control box

- 1x standard vehicle blade-type fuse 15A for the dosing pump
- 1x standard vehicle blade-type fuse 7.5A for the control
- 1x strip fuse 80A for the drive unit
- 1x strip fuse 100A between the batteries

On the control board

- 2x micro fuse 5x20 mm T6, 3A for the heating and stirrer
- 1x micro fuse 5x20 mm T3, 15A for battery charging
- 1x micro fuse 5x20 mm T2, 5A for the control.

ATTENTION If fuses are defective, please replace them with fuses with the same properties.

Note: If the problem persists, please contact a service technician!

9.3 Faults

If a fault occurs, ⚠ flashes in the setting menu. Pressing F2 takes you to the fault menu in the setup (🔧), where the faults present are indicated by their fault code with ✕. If the faults have been remedied, ✓ is displayed.

9.3.1 Feed temperature sensor (#1)

If the **Feed temperature sensor** fault is displayed, this can be due to a loose contact or a defective sensor.

Only for service technicians:

- Check the cable connections on the MilchMobil control.

  or

- Replace the temperature sensor.

9.3.2 Temperature sensor in water bath (#2)

If the **Water bath temperature sensor** fault is displayed, this can be due to a loose contact or a defective sensor.

Only for service technicians:

- Check the cable connections on the MilchMobil control.

  or

- Replace the temperature sensor.

9.3.3 Heating timeout (#3)

If the **heating timeout** fault appears, no temperature increase is shown in the display when heating.

Only for service technicians:

- The heating rod is defective.

> Check the heating rod for continuity.

- The temperature sensor is defective.

> Replace the sensor.

- No voltage is applied to the heating.

> Check the customer’s fuses.

- The safety temperature limiter has been triggered. Reactivate as follows:

1. Disconnect all electrical connections safely from the mains supply.
2. Allow the water bath to cool down.
3. Loosen the screws that fasten the cover the outlet tap to the MilchMobil and remove the outlet tap along with the cover.
4. Press the safety temperature limiter button with a suitable tool until you hear it engage.
5. Screw the outlet tap and cover back onto the MilchMobil.
6. Check that there is sufficient water in the heating expansion vessel and refill it if necessary.
7. Connect the MilchMobil to the 400V mains supply.
8. Press 

to turn on the heating.
9. Subject the heating to a functional inspection.

9.3.4 Stirrer overheating (#4)

The **Stirrer overheating** fault can appear if connections 3 and 4 on terminal X10 on the PCB are loose.

- Please contact a service technician.

9.3.5 Insufficient water in expansion vessel (#5)

If the insufficient water in expansion vessel fault is displayed, the water level in the expansion vessel is below the **Min** mark or the sensor is defective.

- Top up the heating expansion vessel with water (see “Filling the water bath for the heating” on page 38).
- **Only for service technicians:**

  If the water bath is full, replace the sensor.

9.4 The drive unit does not start

Possible causes:

- The rechargeable battery is not charged.
- Control is in standby mode (locked with key code).

9.4.1 Rechargeable battery not charged

If the charge level indicator is flashing and has no bars, this shows that the battery is flat.

> Completely charge the battery by connecting the MilchMobil to the 400V mains supply.

9.4.2 Control is in standby

If the MilchMobil has not been moved for an extended time but the drive unit is turned on, the controller switches to standby.

If the MilchMobil is in standby mode, the Förster-Technik logo is shown in the controller display.

> Enter your set key code to enable the display and the drive unit.

9.5 Dosing pump does not start

Possible causes:

- The MilchMobil is connected to the mains (SET mode).

> Disconnect the MilchMobil from the mains.

- The dosing pump is defective.

> Have the dosing pump replaced by a service technician.

- The fuse is defective.

> Replace the fuse (see **9.2** Which fuses are located where on page **65**).

9.6 Default setting

In the event of a fault, the MilchMobil must be reset to factory settings.

1. Plug the mains plug into the appropriate socket.
2.  > Enter.
3.  > Enter

   The **X** in the menu blinks.
4. Press an arrow key.

   ✓ is displayed.
5. Confirm with Enter.

   The reset is performed and the MilchMobil is restarted.
6. After the reset, the various software versions are shown in the display.

   Use F1, F2 or F3 to select the proper software for your equipment.

   Note: The equipment designation is found on the name plate of your MilchMobil.

10 Disposal

All MilchMobil feeder components, liquids and solids must be disposed of in compliance with the applicable official regulations for proper waste recycling and disposal in your country. If you are not certain which regulations apply to you, ask your service technician and use the Internet or the yellow pages to find out which government agency is responsible for your jurisdiction. Contact the appropriate authorities and find out which regulations apply to you.

Always observe the safety data sheets supplied with some components, liquids and solids.

Before you dispose of the automatic feeder, you must shut it down.

10.1 Disposing of residual cleaning agent

Dispose of any residual cleaning agent. See the cleaning agent manufacturer's technical data sheet for more information on the disposal of the cleaning agent.

⚠ WARNING 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 disposing of cleaning agents. Follow all the safety instructions listed in the safety data sheet for the cleaning agent and wear the specified safety equipment.

10.2 Disposing of hoses

Dispose of hoses as controlled waste or municipal waste, depending on the material. Read the disposal instructions on the packaging of the hoses, or contact your waste disposal center for instructions.

10.3 Disposing of cables

Dispose of cables as controlled waste or municipal waste, depending on the material. Read the disposal instructions on the packaging of the cables, or contact your waste disposal center for instructions.

10.4 Disposal of the PCB

The MilchMobil contains a printed circuit board (PCB). You must dispose of this component separately. Ask your waste disposal company where you can dispose of electronic waste.

10.5 Disposing of the MilchMobil

For disposal instructions, contact the appropriate authorities, such as your waste disposal company or local government agency.

See the Cleaning chapter for an overview of the materials in the MilchMobil.

Dispose of the MilchMobil.

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:	MilchMobil
Type:	MMH1-100-00-03, MMH1-180-00-10, MMK1-100-37-03, MMK1-180-37-10, MMM1-100-37, MMM1-100-55, MMM1-180-37, MMH2-100-00-03, MMH2-180-00-10, MMK2-100-37-03, MMK2-180-37-10, MMM2-100-37, MMM2-100-55, MDK2-200-37-04, MDK3-120-37-04, MDK3-200-37-04, MDK4-120-37-03, MDK4-200-37-03, MDK4-120-37-04, MDK4-200-37-04
Funktion:	Preparation, heating, dosage, portioning and transportation of liquid animal feed for young animals.

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 - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100:2010)
EN 60204-1:2006/A1:2009	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005)
EN 60204-1:2006/AC:2010	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
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, 21.11.2016

Place, date

Signature
Markus Förster
CEO