Automatic milking system

mIone (Revision R-A/ R-B/ R-C)

International Sample unit

Operation Manual / Installation Instructions / Parts List
(Original operating instructions)

7801-9001-045
01 July 2017
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1 Preface

1.1 About this manual

The manufacturer reserves the right to make changes due to technical developments in the data and images given in this manual.

Reproductions, translations and copies of any kind, including extracts, require written authorisation from the manufacturer.

The abbreviations, units, technical terms, special names or industry-specific terminology used in this manual are explained in greater detail in the Appendix.

These instructions are part of the supply.

- They should be kept close at hand and remain with the equipment even if the equipment is sold.
- This manual is not subject to an amendment service. The most recent version at any time can be obtained through the technical dealer or directly from the manufacturer.
- This manual has a modular structure and is intended exclusively for the mentioned product.

For more information on the product and its components, please refer to the corresponding documents and manuals.

This applies, in particular, to the safety instructions!
Necessary documents

- Instructions on components connected with the product:
  (not a complete list):

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7801-90...-041</td>
<td>Operation &quot;Mione&quot;</td>
</tr>
<tr>
<td>7160-90...-531</td>
<td>DairyManagementSystem &quot;DairyPlan C21&quot;</td>
</tr>
</tbody>
</table>
Pictograms used

Note
The signalling word indicates information that is important for the product and environment.

This pictogram indicates a special tool required for installation.

A correction bar in the margin indicates changes to the previous edition. The character string "!!" in the search field of the PDF document locates the correction bar.

This pictogram indicates a menu point in the system program. See manual 7801-90 . . -001, section: Robot Data Manager.

This pictogram refers to another document or section.

If a manual number is given, the middle 4 digits indicate the language, as follows:

<table>
<thead>
<tr>
<th>Language</th>
<th>Language</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>-9000-</td>
<td>German</td>
<td>-9032-</td>
</tr>
<tr>
<td>-9001-</td>
<td>English (United Kingdom)</td>
<td>-9034-</td>
</tr>
<tr>
<td>-9002-</td>
<td>French (France)</td>
<td>-9035-</td>
</tr>
<tr>
<td>-9003-</td>
<td>Italian</td>
<td>-9036-</td>
</tr>
<tr>
<td>-9004-</td>
<td>Romanian</td>
<td>-9038-</td>
</tr>
<tr>
<td>-9005-</td>
<td>Spanish (Spain)</td>
<td>-9039-</td>
</tr>
<tr>
<td>-9007-</td>
<td>Swedish</td>
<td>-9040-</td>
</tr>
<tr>
<td>-9008-</td>
<td>Norwegian</td>
<td>-9041-</td>
</tr>
<tr>
<td>-9009-</td>
<td>Russian</td>
<td>-9043-</td>
</tr>
<tr>
<td>-9010-</td>
<td>Greek</td>
<td>-9025-</td>
</tr>
<tr>
<td>-9012-</td>
<td>Turkish</td>
<td>-9027-</td>
</tr>
</tbody>
</table>

All of the above languages may not be available.
1.2 Manufacturer's address

GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen

📞 +49 (0) 2383 / 93-70
🔍 +49 (0) 2383 / 93-80
✉️ contact@gea.com
🌐 www.gea.com

1.3 Customer services

Authorised Technical Dealer
If necessary, please contact your nearest authorized technical dealer.

There is a comprehensive dealer Internet search function on our website at the following address:

www.gea.com

European Contact Information:

GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen

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1880 Country Farm Dr.
Naperville, IL 60563

📞 +1 630 369 - 8100
🔍 +1 630 369 - 9875
✉️ contact_us@gea.com
🌐 www.gea.com
1.4 Declaration of incorporation for incomplete machinery
in accordance with EC Machinery Directive 2006/42/EC, Annex II 1. B

Manufacturer: GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen

We, as manufacturer, declare in sole responsibility that the incomplete machinery

Name: Automatic milking system
Model: MIone
Type: Probennahmeeinrichtung

complies with the following provisions of the above-mentioned Directive:
According to Annex I, the following points are fulfilled.  .
1.1.5, 1.3.1, 1.3.7, 1.3.8, 1.4.1, 1.4.2, 1.5.13, 1.6.1, 1.6.2, 1.7.1

Relevant EC Regulations:
2006/42/EC EC Machinery Directive
2014/30/EU EMC Directive

Applied harmonized standards, in particular:
DIN EN ISO 12100:2011-03 Safety of machinery - General principles for design
- Risk assessment and risk reduction
DIN EN 61000-6-2:2011-06 Electromagnetic compatibility (EMC) - Part 6-2:
Generic standards - Immunity for industrial environments
DIN EN 61000-6-3:2011-09 Electromagnetic compatibility (EMC) - Part 6-3:
Generic standards - Emission standard for residential, commercial and light-industrial environments

Remarks:
We also declare that the special technical documentation for this machine has been created in accordance with Annex VII, Part A and we obligate to provide these upon reasoned request from the individual national authorities by data transfer.

Authorized person for compiling and handing over technical documentation:
Josef Schröer
GEA Farm Technologies GmbH
Siemensstraße 25-27
D-59199 Bönen
☎ +49 (0) 2383 / 93-70

Bönen, 20. June 2017

Jörg Krämer
(Managing Director)
Holger Siegwarth
(Head of Product Development - Dairy Farming)
2 Safety

2.1 The owner of this product must ensure compliance with the following requirements

The product has been designed and constructed taking account of a potential risk analysis and after careful selection of the compliant harmonized standards and other technical specifications. It therefore ensures a maximum level of safety.

This safety can only be achieved in practice on the farm however when all of the necessary measures have been taken. It is part of the farmer's obligation of care to plan these measures and check that they are carried out.

The owner must ensure the following:

- Anyone performing work or activities relating to this product must carefully reads the instructions (especially the safety instructions and warnings) and signs to confirm that they have understood them and will act in accordingly!
- The manual must always be available, in a legible and complete condition, at the place where the product is used.
- All persons who carry out work on the product must be able to consult the manual at any time.
- The instructions given in the section on "Basic Safety Instructions" must be followed.
- The legal requirements are observed.
- Operating instructions must be developed for and specially adapted to the conditions of the farm to take account of all aspects of safety.
- The product may only be used for its intended purpose.
- The product may only be used if it is in perfect working condition. The safety devices especially must be checked regularly to ensure they are working.
- The computer and the software installed on it must be installed and operated in accordance with the specifications.
- A working data backup system must be available.
  Only use computers which are in perfect working condition.
- Work should only be carried out by suitably qualified persons.
- The personnel is regularly instructed in all relevant matters of safety at work and protection of the environment and is familiar with the manual, particularly the safety instructions it contains.
- To start with, operating personnel who require training may only operate the equipment under the supervision of an experienced person. Their successful completion of training is to be confirmed in writing.
- Safety signs, plates and decals, which are attached to the product, must be replaced immediately if they become illegible or lost!
- Unauthorized persons (e.g. children) are not allowed in hazardous areas and should not have access to cleaning agents or disinfectants.
2.2 Explanation of safety symbols

The safety symbols draw attention to the importance of the adjacent text. The design of the warnings is based on ISO 3864-2 and ANSI535.6.

Safety symbols and signalling words

⚠️ Warning!
The signalling word indicates an immediate danger that could lead to loss of life or serious physical injury.

⚠️ Attention!
The signalling word indicates hazardous situations that could lead to damage to property.

2.3 Basic safety instructions

⚠️ Note
There are warnings about specific residual dangers in the corresponding chapters.

- There are risks involved in the operation and maintenance of equipment for dairy farms. For your own safety, read and follow the operating manual carefully (especially the section entitled "Safety information")!
- The chapter on "Technical data" gives the permissible working conditions (pressure ranges, temperature ranges, airflow quantities etc.) and these must be observed!
- Do not open or dismantle devices (risk of injury)!
- Do not remove any protective devices (risk of injury)!
- When working with cleaning and disinfecting agents observe the notes on dangers and protective measures (risk of caustic burns)!
- Also observe the safety and warning instructions given in the operating manuals for the milking system.
- Always keep the control cabinet / all electricity supply units / electrical control units closed. Access is only permitted to authorized personnel with a key or special tool.
- Protect live and high-voltage components against moisture. Do not use water or high-pressure cleaners on these electrical products!
2.4 Personnel qualification

Everyone who performs work or activities in connection with the product must carefully read and understand the manual and then act accordingly.

- Only use trained or briefed personnel!

In addition, special qualifications are required for the following activities:
- Installation
- Commissioning
- Operation
- Troubleshooting
- Repairs

Note
Work that requires special qualifications is described in the relevant chapters!

2.5 Safety guard and devices

- Cover plate, protective cover
- Safety symbols, warnings, warning signs and labels
3 Description

3.1 Intended Use

The product described has been designed for use in agricultural (mainly milk producing) environments.

The international sampling device is to be used exclusively for automatic milk sampling in Mlone and Monobox automatic milking systems with Metatron milk meters.

Applications which are not listed here are not part of the intended use and are therefore considered as improper use!

The manufacturer/supplier is not liable for any resulting damage. The user alone bears the risk.

Correct use also includes reading the instructions and observing the inspection and maintenance conditions.

- We would specifically like to point out that parts or accessories not supplied by ourselves and setting instructions not provided by the manufacturer/supplier are not checked or released by us either.

- The installation or use of products from other manufacturers may affect the specified properties of the original parts and lead to injury to people and animals.

- The manufacturer does not accept any liability for injury to people or animals, or damage to the product, caused by the use of products from other manufacturers.

3.2 Product Changes

Unauthorised product changes may have a negative impact on the service life or function of the product.

Any modifications not described in the product documentation are deemed to be prohibited.

For safety reasons, do not carry out any unauthorized changes!

Scheduled modifications must be approved in writing by the manufacturer.

Unauthorised modifications of the product will void the warranty and may invalidate the Manufacturer's Declaration or Declaration of Incorporation.
3.3 Design of the equipment

<table>
<thead>
<tr>
<th>Milk sampling device</th>
<th>Sampling equipment in the lid</th>
</tr>
</thead>
<tbody>
<tr>
<td>This area contains all of the sampling electronics, the motors, the electromagnetic crimp valve and hose pump, the chain, chain holder, etc. (see next page)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bottle rack positioning device</th>
<th>Bottle rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>This device can be used to position the bottle rack correctly.</td>
<td>80 x 15 ml to 35 ml sample bottles can be placed in different racks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air intake valve</th>
<th>Sample tank unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>The sample tank is connected to the milk meter. Once the milk sample has been collected, air is let into the tank to mix the milk. A sample is then taken from the tank using the sampling hose. The tank is then ventilated and the milk is drawn into the milk line.</td>
<td></td>
</tr>
</tbody>
</table>
### Sampling equipment in the lid

<table>
<thead>
<tr>
<th><strong>Component</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chain with nozzle</strong></td>
<td>The nozzle is positioned over the sample bottle with the chain.</td>
</tr>
<tr>
<td><strong>Chain tensioners</strong></td>
<td>Used to maintain the correct chain tension.</td>
</tr>
<tr>
<td><strong>Chain link nozzle</strong></td>
<td>The chain link nozzle closes the chain and fills the sample bottles.</td>
</tr>
<tr>
<td><strong>Chain motor</strong></td>
<td>Brings the nozzle contained in the chain to the correct position.</td>
</tr>
<tr>
<td><strong>Limit switch</strong></td>
<td>The limit switch stops the chain motor when the filling nozzle reaches the start position.</td>
</tr>
<tr>
<td><strong>Electromagnetic crimp valve (mixing valve)</strong></td>
<td>When this valve is actuated, the sample in the sample tank is mixed by atmospheric air.</td>
</tr>
<tr>
<td><strong>Hose pump</strong></td>
<td>The pump pumps a small amount of milk into the drain channel to rinse the hose before the sample is placed in the sample bottle.</td>
</tr>
</tbody>
</table>

**Sampling device electronics**
The whole sampling process is controlled by its own CPU.
3.4 How the System Works

The following diagrams show how the sampling device works:

Legend:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>sample jar</td>
</tr>
<tr>
<td>2</td>
<td>Stop balls</td>
</tr>
<tr>
<td>3</td>
<td>Air intake valve</td>
</tr>
<tr>
<td>4</td>
<td>Mixing valve</td>
</tr>
</tbody>
</table>

The following diagrams show how the sampling device works:
3.4.1 Mix sample

- During the milking process the sample tank is filled with about 2.5% of the actual milk produced.

- After milking, atmospheric air flows through the open mixing valve and mixes the sample in the sample tank.

3.4.2 Draw sample

- The hose pump (turning 100%) draws the sample out of the sample tank.
3.4.3 Rinse lines with milk

- The hose pump (turning 60%) pumps the first part of the sample into the drain channel.

3.4.4 Position filling nozzle

- The filling nozzle is positioned over the next sample bottle.
3.4.5 Fill sample bottle

- The hose pump (turning 60%) fills the sample bottle with the sample.

3.4.6 Drain lines

- Atmospheric air flows in through the open mixing valve and drains the intake line.
- The hose pump (turning 60-100%) also drains the pressure line.
3.4.7 Return

- The filling nozzle is moved to the next drain position through one of the two drain channels.

3.4.8 Drain sample tank

- Air flows into the sample tank through the open air inlet valve releases the stop balls and drains the sample tank.
3.5 Technical Data

Geometric data

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (width x height x depth)</td>
<td>650 x 530 x 240</td>
</tr>
<tr>
<td>Weight of the case (without bottle rack)</td>
<td>24,5 kg</td>
</tr>
</tbody>
</table>

Electrical data

<table>
<thead>
<tr>
<th>Electrical Connection</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 V DC</td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer's plate

The rating plate is placed on the side of the sampling device.
4 Transport

Attention!
Women who are pregnant may not lift the sample case!
The sample case weighs 24.5 kg. In accordance with Article 4.2.1 of the Maternity Protection Act (Mutterschutzgesetz) pregnant women are not permitted to carry out work that involves lifting, moving or transporting loads that exceed 10 kg without mechanical aids.
► When possible, the case should be carried or moved by two persons. There are handles on both of the short sides. Maintain a healthy posture when lifting and carrying. Keep your spine straight (study the illustration)

Attention!
The case contains sensitive items. Do not throw it!
► Always place the case on the floor gently!

4.1 Safety instructions for transport

Read the "Safety" section as well.

Special transport hazards:

- Projecting sharp edges may cause injury.
- If parts are stacked too high, the stack can become unstable and collapse.
- The highly inflammable packaging material represents a fire hazard - naked flames and smoking prohibited!
4.2 Transport

The cable and hose must be stowed in the space provided in the bottle rack to ensure they are not damaged during storage or transport.

Transport requirements:

- The two drain channels must go into the positions provided.
  - The rear drain channel in the positioning device
  - The front drain channel in the wall of the box
- The sampling hose and connecting cable must be placed behind the positioning device in the box.

Attention!

Trapped lines
The lines must not get trapped when the sampler is closed.

- The plug on the connecting cable must be fed through the positioning device to the back.
- Alternatively, the plug may be fastened to the positioning device with a cable tie.
- A bottle rack can also be transported in the sampler.

Note
Not recommended! The total weight will then be more than 25 kg.
Transport problems

Observe the following points to avoid damaging the sampler:

---

**Attention!**
Never lay the connecting cable or hose on top of the bottle rack. The cable or hose might get damaged when the sampling device is closed.

---

**Attention!**
Never leave the drain channels loose in the box. Never leave the connecting cable plug loose in front of the positioning device. This may cause damage to components (hose pump, hose, etc.) when the sampler is closed, or during transport.
4.3 Delivery

Check the goods supplied against the packing list enclosed for completeness and damage.

Legend:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Milk sampling device</td>
</tr>
<tr>
<td>2</td>
<td>Sample tank unit</td>
</tr>
<tr>
<td>3</td>
<td>Operating manual with installation instructions</td>
</tr>
<tr>
<td>4</td>
<td>Bottle rack to hold up to 80 sample bottles (Option)</td>
</tr>
</tbody>
</table>

4.4 Storage conditions

It is recommended that the device is stored in a dry, dust-free and frost-free environment.

Please note!
The sampling device should be kept clean to extend its service life.

4.5 Information on disposing of packing material

After unpacking, the packing material must be handled properly and disposed of carefully in accordance with the valid local regulations on waste disposal and utilization.
5 Sampling device

5.1 Special personnel qualification required for sampling

Sampling may only be carried out by specially qualified personnel in accordance with the safety instructions.

Good knowledge of working with the automatic milking system and the system program (RDM) is needed to perform sampling.

See also the section on "Personnel qualification".

5.2 Safety instructions for sampling

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- Use the product for its intended purpose only.
- Taking the wrong action when there is a fault may cause damage - so familiarize yourself with the instructions on what to do if there is a fault.

Read the "Safety" section as well.

Special risks involved in sampling:

- Incorrect use may lead to serious damage to property and/or life-threatening injury to people.

Before taking samples, ensure you are familiar with:

- the operating and control elements,
- The equipment included
- The method of operation
- The immediate surroundings

Carry out the following checks before every start:

- Check and make sure that all media are suitable, connected and present.
- Check the product for any visible damage; immediately repair the fault found (noting the personnel qualification required) or contact the specialist dealer - the product may only be used if it is in perfect condition.
- Check and make sure that there are no objects or materials in the working area if they are not necessary for operation.

During sampling:

- No safety equipment may be removed or taken out of operation during sampling.
- Operating personnel should make sure that no unauthorized personnel are in the working area.
5.3 Description of the operating elements

Operation is via the controls on the sampling device and via the system computer belonging to the automatic milking system.

Milk sampling device

<table>
<thead>
<tr>
<th>L</th>
<th>Indicator lights</th>
<th>On indicator (green)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>RESET button</td>
<td>Move filling nozzle to the start position</td>
</tr>
<tr>
<td>T2</td>
<td>PUMP button</td>
<td>Operate the hose pump manually</td>
</tr>
<tr>
<td>S</td>
<td>Selector switch</td>
<td>Set sample quantity</td>
</tr>
</tbody>
</table>

System computer

System computer control panel/user interface
Operated by touching the screen.

See instructions for further information on the subject 7801-90 . . -041
5.4 Overview of the steps involved in the sampling process

**Warning!**

**Risk of crushing**
There is a danger of being trapped between moving and stationary parts.
- Standing in the danger area is strictly forbidden.

The following steps must be performed to ensure successful sampling. Detailed information on the individual steps is given below:

**Prepare for sampling**
- Stop automatic operation
- Set up and connect the sampling device
- Settings on the user interface of the automatic milking system

**Take samples**
- Start automatic operation
- Note the box data

**Interrupt sampling**
- Stop automatic operation
- Stop sampling
- Change the bottle rack
- Resume sampling
- Resume automatic operation

**End sampling**
- Stop automatic operation
- Stop sampling
- Create the sample file
- Transfer the sample bottles
- Start the system clean
- Disconnect and remove the sampling device
- Resume automatic operation

5.5 Prepare for sampling

**Note**
Connect the sampling device to the automatic milking system before the system clean so that the milk-carrying parts of the installation can be cleaned again before sampling.

5.5.1 Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.
5.5.2 Set up and connect the sampling device

Set up the sampling device

The sampling device must be set up on the floor so that the robot can move freely.

Note

One sampling device is required for each milking box.

The sampling device is drained through the internal drain channels.
- Set up the sampling device horizontally or with a slight incline.

Attention!

Risk of collision
The robot can collide with the sampling hose and connection cable.
- Run the connection cable and sampling hose under the robot rail so that the robot can move freely.
Set the sample quantity (depends on the capacity of the sample bottles)

The correct volumes for filling the 15 ml to 35 ml bottles must be set with the selector switch.

**Note**
The sample quantities actually filled may differ from the values given in the table. They depend upon:

- correct hose lengths
- vacuum level
- amount of wear on the hose pump

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Sample quantity [ml]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11-13</td>
</tr>
<tr>
<td>2</td>
<td>15-17</td>
</tr>
<tr>
<td>3</td>
<td>19-21</td>
</tr>
<tr>
<td>4</td>
<td>23-25</td>
</tr>
<tr>
<td>5</td>
<td>27-29</td>
</tr>
<tr>
<td>6</td>
<td>31-33</td>
</tr>
<tr>
<td>7</td>
<td>34-36</td>
</tr>
<tr>
<td>8</td>
<td>38-40</td>
</tr>
<tr>
<td>9</td>
<td>42-44</td>
</tr>
<tr>
<td>10</td>
<td>45-47</td>
</tr>
</tbody>
</table>

- Set the switch as indicated in the table.

**Note**
The capacity of the hose pump reduces over time. This must be compensated for by increasing the switch setting.
Mount the sampler on the milk meter

When commissioning for the first time, the sampler has to be mounted beneath the milk meter tank.

- Remove the milk meter tank.
- Fit sampler, including gasket.

Attention!

Observe the position of the assembly marking (nose)!
The nose of the flange must be pointing upwards and forward.

- Fasten sampler with 2 half-clips and a clamp.
• Place milk meter tank on the sampler and fasten.
• Connect Hose.

**Please note!**
The nose of the sampler must fit into the groove in the gasket and the milk meter tank.

**Attention!**

Incorrect measuring results
A missing sampling device nose can lead to incorrect measuring results.
► Under no circumstances is the nose of the sampling device to be removed!

**Please note!**
The sampler remains on the milk meter tank even after sampling.

• Connect the two connecting pieces together with the milk tube.
• Push the hose holder into the sampler holder and tighten the knob.
• Position the hose in the holder so that the two bends in the hose run evenly and no kinks are produced.
Assemble the sample tank

The sample tank must be assembled before it is installed.

Attention!
Sample suction error
If the ball catch (1) is not seated properly under the lid, the balls do not block the holes in the lid properly when the sample is being sucked from the tank.

- Check that the ball catch is seated properly (1).
- Loosen the nuts, if necessary (2)
- Align the ball catch and retighten the nuts (1, 2)

- Fit Y-hose connectors.
● Fit hose and intake tube.

● Taper the intake tube at the bottom so that it cannot attach itself to the bottom of the tank.

● Place tank on the cover and fasten.

---

**Note**
The arrow on the plug must be pointing up for sampling.
Fit the sample tank in the milking system (Metatron)

The sample tank must be connected to the milk meter, air inlet valve and sampling device.

- Remove hose from the right-hand connector on the sampler
● Fasten sample tank to the sampler with holder and knob.

Attention!
The hose and intake tube from the cover must end at the lowest point in the sample tank.

● Connect the hose from the sample tank to the right-hand connector on the sampler.
• Fit the hose from the air inlet valve on the sample tank.

• Connect the hose from the left-hand connector on the sampler to the Y-connector on the sampler.
• Remove the cap from the sampler cover.

• Connect the sampling hose of the sampling device to the sample tank.

**Attention!**

**Risk of collision**
The robot can collide with the sampling hose.
► Run the sampling hose underneath the robot rail.

**Note**
The sampling device's operating times are adapted to the original length of the sampling hose.
Do not change the length of the hose!
Insert the bottle rack

Before sampling begins, the drain channels must be fitted and a bottle rack inserted.

- Push the front drain channel onto the side of the case.

- Place the bottle rack in the positioning device.

⚠️ **Attention!**
Make sure the bottle rack is the right way round. Note numbering!

Note
The bottle rack can only be inserted or removed without the rear drain channel fitted.
- Push rear drain channel onto the positioning device.

---

**Please note!**

When starting a sampling session and replacing a bottle rack, the individual rack number must be assigned.
If other bottle rack numbers are to be used, change them before sampling starts.

For information on this subject see the section entitled "Stop sampling"

---

**Attention!**

**Overheated samples**
The samples in the sampling device must not overheat!
► Do not expose the sampling device to direct sunlight.

---

**Note**

Keep the sample bottles filled with milk in a place that is cool and protected from frost.
Connect the cable to the automatic milking system

The sampling device receives the electricity it needs from the automatic milking system.

**Attention!**

The connecting cable must be fed beneath the robot rail so that the robot can move freely.

- Connect the 5-pole plug on the connecting cable to the connector on the left beneath the control unit for the corresponding milking box.

- The green indicator lamp on the sampling device will light.

- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.

- Close the sampler cover.
5.5.3 Settings on the user interface of the automatic milking system

Entering settings:

- Open menu item

  ![RDM](image)

  **Robot Data Manager**
  **Herd / Sampling / Sampling specification**

  - Set number of milk samples per animal
  - Set number of bottles in the bottle rack

Sampling then begins and the status is shown on the Box page.

See instructions for further information on the subject 7801-90 . . -001
5.6 Take samples

Please note!
Carry out a system clean before starting sampling so that the milk-carrying parts of the installation can be cleaned once again.

For information on this subject see the section entitled "Cleaning"

5.6.1 Start automatic operation

Start sampling
- Open menu item

Please note!
First enter the number of the bottle rack if the number suggested is not going to be used.

For information on this subject see the section entitled "Stop sampling"

- Switch entry gates to all milking boxes to automatic mode.

Please note!
- If a cow produces less than 2 kg of milk (e.g. if the cluster is inadvertently removed), the data is not recorded and a sample is not taken.
- If the teat cups are being attached manually during sampling, wait for at least one minute after the cow has left the box before attaching the cluster to the next cow. The sampling cycle does not start until the cluster has been removed and takes about one minute.
- A message is generated when all of the sample bottles in the sampling device have been filled.
5.6.2  **Note the box data**

Note the following data so that the data export can be checked:

- Sampling start time
- ID of the first cow in each box

5.7  **Interrupt sampling**

To change a bottle rack, sampling must be interrupted for the corresponding milking box.

5.7.1  **Stop automatic operation**

- Close entry gate to the milking boxes.
  - Wait until the animal has left the milking box.

5.7.2  **Stop sampling**

- Interrupt milking at one milking box
  - Open menu item
    
    ![Robot Data Manager](image)

    - Interrupt sampling
      Press the button shown (1. X)
      - Milking box ready for change (colour of fields change).

5.7.3  **Change the bottle rack**

- Change bottle rack
  - Open the sampler cover.
  - Remove the rear drain channel from the positioning device.
  - Replace bottle rack.
  - Push rear drain channel onto the positioning device.
  - Press the "RESET" button.
    (the filling nozzle will be heard moving to the start position)
  - Close the sampler cover.
- Enter the number of the new bottle rack.
  - Click the button (1. X)
  - Enter number of accept suggestion

Please note!
The number can only be entered with the on-screen keypad (click on the figures).
Make sure that numbers are not duplicated.
- Save the setting (2. X)

5.7.4 Resume sampling

- Continue sampling
  - Click the button (X)

5.7.5 Resume automatic operation

- Switch entry gate into the milking box to automatic mode.
5.8 End sampling

5.8.1 Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.

5.8.2 Stop sampling

- Stop sampling
  - Open menu item

  Robot Data Manager
  Herd / Sampling / Operations

  - Click on the button. (X)

5.8.3 Create the sample file

- Export sampling data.

For further information, see section "Sample data export".
5.8.4 Transfer the sample bottles

The sample bottles in the bottle rack are filled in this order at each individual milking box.

The sample bottles are assigned to the individual cows in the same order when the data is exported.

Attention!

Incorrect sequencing when transferring the sample bottles to the laboratory unit can result in incorrect test results!

► When transferring the sample bottles to the laboratory unit, make sure that the order corresponds to the order of examination in the laboratory!

- Open the sampler cover.

- Transfer the sample bottles to the laboratory unit.
  - 1 → 1
  - 2 → 2
  - 3 → 3
  - ...

Example:
Dutch laboratory unit

- Close the sampler cover.
5.8.5 Start the system clean

The sampling device is cleaned with the short clean and the system clean. This means that scheduled system cleans are performed even when a sampling session is running.

⚠️ Warning!

Risk of scalding
Hot steam generated during the main system clean can cause scalding if the device cover is left open!
- Do not open the cover during the main system clean.

► Note
It is not necessary to remove the bottle rack before the system clean begins.

Once sampling has been completed, start a system clean to clean the sampling device.

● Start system clean

Robot Data Manager
Herd / Cleaning / Operations

► Note
It is not necessary to remove the bottle rack before the system clean begins.

5.8.6 Disconnect and remove the sampling device

► Note
The red suction hose should be disconnected from the lid of the sample tank at the end of the system clean and placed in a vessel containing hot water. The pump in the sampling case should then be run manually for about 1 minute. In this way, residual milk is flushed from the suction hose.

Once the system clean has ended, the sampling devices must be removed from all of the boxes.

● Carry out the steps described for setting up and connecting the device, but in reverse order.

► Note
The sample tank unit remains with the sampling device. It is used to carry out measurements on that sampling device.

To extend its service life, the sampling device should be kept clean and it should be stored in a dry place at room temperature.

5.8.7 Resume automatic operation

● Switch entry gates to all milking boxes to automatic mode.
5.9 Displaying information about the current sampling process
5.10 Clean

The milk-carrying parts of the installation are cleaned fully automatically by the automatic milking system.

**Note**
Carry out cleaning directly before and after sampling.

Cleaning is performed with the individual phases of the system clean (pre-rinse, main clean and final rinse) and also with the short clean.

**Warning!**

Risk of scalding by hot cleaning solution!
Hot steam generated during the main system clean can cause scalding if the device cover is left open!
► Do not open the cover during the main system clean.

- The hose pump runs several times for approximately 1 minute and remains stationary briefly.
- The mixing valve opens and the hoses are drained by the incoming air.

**Please note!**
The red suction hose should be disconnected from the lid of the sample tank at the end of the system clean and placed in a vessel containing hot water. The pump in the sampling case should then be operated using the "Pump" button for about 1 minute to flush residual milk from the suction hose.

Also clean the sampling device manually, inside and out, after each session.

- Never clean electrical equipment with water or similar fluids.

**Attention!**

Damage can be caused if fluid gets in!
Protect any electrically conductive components from the effects of moisture.
► Do not clean the sampling device with a high pressure cleaner or jet of water!

- Clean the sampling equipment in the case lid with a damp cloth and then wipe dry.
- Clean the plastic case and the stainless steel components in the bottom of the case with a brush or sponge and warm cleaning solution. Next wipe with a clean, damp cloth and then wipe dry.

**Note**
Empty bottle racks and the drain channels can be cleaned in a dish washer.
6 Sample data export

The sample data can be exported in different ways:

Country-specific export files

(on the connected herd management PC with DairyPlan C21)

Available to date:

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany (DE)</td>
<td>ADIS data in accordance with ADR directive 1.2 and national Data Dictionary AGRO2012</td>
</tr>
<tr>
<td>The Netherlands (NL)</td>
<td>ADIS data in accordance with EDI - Electronische Melkmeting EDI-EMM, Version 1.1., November 1998 and new issues</td>
</tr>
<tr>
<td>France (FR)</td>
<td>ADIS Data Entity 880022</td>
</tr>
</tbody>
</table>

Raw data

(on the robot PC)

Call up from RDM on the robot PC and create file (.csv).

6.1 Installation

All of the files required for the set language are installed with the "normal" DairyPlan C21 installation on the herd management PC.

No further installation is required.

See instructions for further information on the subject

7160-90 . . -531 DairyManagementSystem "DairyPlan C21"
6.2 To call up the program

**Note**
A country-specific sample data export can only be started on the herd management PC.
A sample data export can only be started on the robot PC with RDM.

6.2.1 Sample data export for Germany (DE)

The sample data export is started on the herd management PC.
If the HM-D program module has been purchased (not obligatory for exporting sample data but necessary for importing milk control results, exporting control messages, etc.):

- Call up from the DP menu ("Datenaustausch", "LKV-Kopplung Deutschland" ["Data exchange", LKV connection Germany").
- Start the application DPMiko.

If it is not in the DPMenu, start the program DPMiko.exe directly from the DairyPlan installation folder with Windows Explorer or set up a link to DPMiko.exe and use that to start the program later.

- In DPMiko select the button "Datenexport MIOne" [MIOne data export].
- Start the application "Robotermilchmengen_an_LKV" (based on DPRequest.exe).
6.2.2 Sample data export for Holland (NL)

The sample data export is started on the herd management PC.

**Note**
Make sure that "DPMenue_NL" is active in the DP menu ("M" button on the right next to the menus).

- Start sample data export with "Monstername Export" from the "Monstername" menu.

6.2.3 Sample data export for France (FR)

The sample data export is started on the herd management PC.

At this time it is not possible to call up from the DP menu.

Alternatively, a link file, with the name "lancer FR_Export_Donnees_Echantillonnage.lnk" is copied into the DairyPlan installation directory during installation.

This file can be dragged from the DairyPlan directory onto the desktop so that it can be used as a shortcut.

- Call up the application from the link as follows:

  `<DP-Installationspfad>\DPRequest.exe Export_Donnees_Echantillonnage /IS /NatFR`

**Note**
This link only works if the DairyPlan program is installed in the directory "C:\DairyPln".

This is the standard installation path on the herd management PC.

Otherwise adjust the DP installation path in the link file "Properties".
6.2.4 Raw data export

Raw data export is started on the robot PC.
The export format is a simple list of values. It is used for countries that do not define a specific format. This comma-separated values text file (.csv) can, for example, be processed using a spreadsheet program.

⚠️ Note
Do not use the raw data export for countries that have a specially defined export format; always use the country-specific sample data export.

The raw data export is started in the RDM program in the "Herd" / "Sampling" screen (with the "Export raw sample data" button).

- Call up the menu point.

Example (DE):

- Press the "Export Proben-Rohdaten" [Export raw sample data] button.
6.3 Program execution

If a country-specific sample data export is specified:

Another DPRequest application is started depending on the language set:

<table>
<thead>
<tr>
<th>Country</th>
<th>Application Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany (DE)</td>
<td>Robotermilchmengendaten_an_LKV</td>
</tr>
<tr>
<td>The Netherlands (NL)</td>
<td>ExportMonstername</td>
</tr>
<tr>
<td>France (FR)</td>
<td>Export_Donnees_Echantillonnage</td>
</tr>
</tbody>
</table>

The sequence is very similar. Only the fields that have to be completed for the country in question are shown.

If no country-specific sample data export is specified:

Use the raw data export.
6.3.1 DPRequest application main dialogue

Enter the following:

- Farm number that should be included in the data.
- Restricted to groups or second group number (described in German as an "Abrechnungseinheit" "AE" - "accounting unit") if data is not to be sent for all lactating cows.

Please note!
If samples were taken from all the animals in a herd, these fields must be left empty.

- Name of the target file. The following are pre-set:
  - DE: DPADISproben.ads
  - NL: MELKCTRL.EMM
  - FR: Export_Donnees_Echantillonnage.ads

Please note!
The name can be changed and a path can also be entered.

Example:
A USB flash drive is displayed as drive "E".
⇒ E:DPADISproben090723.ads
If a path is not entered, the file will be saved in the DairyPlan installation directory (generally "C:\DairyPln").

Example (DE):

- Press the "OK" button to create the data and call up the next step.
### 6.3.2 Farm data dialogue box

Depending on the language set, different fields are displayed that have to be completed:

<table>
<thead>
<tr>
<th>Field</th>
<th>DE</th>
<th>NL</th>
<th>FR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Same value as in the main dialogue box, check. This farm “registration number” should generally be entered without any spaces. If necessary, check with the LKV or control centre.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of farm number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Ask the relevant LKV or control centre if necessary.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second farm name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(give the name that is to be included in the export data.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal code</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town / Address</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone number</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data centre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(code numbers and name are offered for the data centre. Only the code number is included in the data. If another data centre has to be given, find the corresponding code number and enter directly in the field).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(code numbers and name are offered for the laboratory. Only the code number is included in the data. If another laboratory has to be given, find the corresponding code number and enter directly in the field)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field is displayed
Example (DE):

Example (NL):

- Press the "Next" button ["Weiter"] to call up the next step.
6.3.3 MLP (milk yield test) settings dialogue box (DE only)

Details have to be entered on the milk yield test:

- Test method (who performed the test)
- Test diagram (usually "S", occasionally also special solutions which are not listed)
- Test interval (how often testing is performed)
- Milking frequency (always "R" for milking with a robot)

**Note**
The exact details should be agreed with the relevant control centre.

Example (DE):

- Press the "Next" button ["Weiter"] to call up the next step.
6.3.4 Dialogue for single milking and sample export

There are two time periods for which data can be exported:

1. **Export individual milkings for the period between the previous and the present sampling (the sample bottle number is exported as zero)**
   (The time period between the end of the previous official sampling and the beginning of the current sampling.)

Most control centres use milking data from this time to establish a yield assessment. To ensure that these data do not include any sample bottle or sample box numbers that come from other sampling operations (for health monitoring for example) and might confuse the control centre computer, these data are exported in DairyPlan so that there are always zeros for the sample numbers.

Only the start of this time period (date and time) is entered, this corresponds to the end of the previous sampling. The end of the time period is calculated based on the start of the time period in the following section.

---

**Note**
Remove the tick if no data are to be exported from this period.

2. **Export individual milkings from sampling with sample bottle numbers**
   (enter the date and time)
   (Time period of the actual sampling)

Single milk output data, with the bottle and box numbers saved, are exported here.

- Enter the beginning and end of the time period (date and time).

Example (DE):
Attention!

**Compare the bottle numbers**
The bottle numbers for the animals and the numbers on the bottles in the sample box must correspond.

► Use the display screen to check carefully.
The functions of the data display buttons are described below.

- Print a sample data document.
  Start the process by clicking on the corresponding button (below date/time of the sampling period).

**Note**
The printed sample data document is added to the sample box (or bottle rack) and is sent with it to the laboratory.
The sender of the samples and the number of boxes and bottles can be taken from the printed document.
Milk dry animals and colostrum cows
(only for sample data export Germany)

If this function is activated, a segment is added to the data which registers the dry and colostrum animals with the LKV. These data are taken from the sampling data for conventional dairy farms and is referred to as "Entity 880033" by the data centres.

**Note**
Not all computer centres can process this data for a milking robot. Check in advance whether your computer centre can read the data entity 880033 from a farm using robots.

**Attention!**
Data about dry animals and colostrum cows can only be generated on the sampling day.
► If data is reported at a later date, omit the data entity 880033 because the program only exports the dry cows and colostrum animals that are currently in the data set.

- Start data export with the "OK" button.
"Anzeige Betrieb + allgemeine Daten" button ["Display farm + general data] (DE and NL only)

This button can be used to display the data to be exported (general details of the farm or herd):

- Click on the button.
- "DPList" will open in a separate window.

Example (DE):

Display data that are to be sent to the control centre as "Entity 880001 Betriebsdaten" (farm data).

Example (NL):

Display data that are to go to the control centre as "Entity 204008 Gebeurtnis Bedrijfsgegevens" (farm data) and "Entity 204010 Gebeurtnis Registratie" (list of animals on the farm).
"Daten anzeigen" button ["display data"] for both time periods.

This button can be used to display the rows of data for the corresponding period:

- Click on the button.
- "DPList" will open in a separate window.

Example (DE):

Displays data that are to be transmitted as "Entity 880022 Einzelgemelke" (single milk output).

**Note**
The ear marker numbers of all animals for which data will be exported must be clearly entered as a 15-figure number.

Example (NL):

Display data that are to be transmitted as "Entity 204250 Gebeurtnis Monstername Koe".
**Note**
For France, the data are transmitted in an amended form of the German "Entity 880022".

**Note**
The (1st) period after the end of the previous sampling (usually several weeks) may be too large to be able to display all of the rows of data in the DPList screen.
To check all of the rows of data, use DPList to export the data ("File" menu, "Transfer file") to an ASCII file or an Excel table.
(see DPList program for the exact process)
If the computer has a printer installed, alternatively all of the pages can be viewed with "File" and "Page view".

**Attention!**
**Data processing error caused by unofficial samplings**
There must be a zero for all of the sample box and bottle numbers for the period after the end of the previous sampling.
This is important because unofficial samplings may interfere with the processing of the data in the laboratory.
► The number of bottle numbers listed must be the same as the number of sample bottles filled.

"Additional Data Milk Control" button (NL only)
For exporting data in Holland, it is possible to mark individual, conspicuous animals (sick animals for example) with a specific code.
Although that code will then be in all of the single milk output rows for that animal.
It is not possible to enter it only for specific single outputs.

The code is entered with the program in "Details", "Letztes Gemelk" ["Last Milking"] dialogue page in the field "Zusatzcode (PRLMU)" ["Additional code"].

A screen showing the animals with a code can be called up with the button described here:

● Click on the button.
● "DPList" will open in a separate window.

**Note**
The exact codes can be obtained from the relevant control centre.
6.3.5 Creating the export data

As described in the section on "Dialogue box for single milk output and sample export", the data export is started by pressing the "OK" button.

- When the data export has been successful, a message will appear.

Example (DE):

- Confirm the display with "OK".

**Note**

If the data export has not been successful, error messages will be displayed together with suggestions for correcting them.

The file is saved as described in the section on "DPRequest application main dialogue".
- Send the file to the relevant control centre.

6.3.6 Creating raw data

If raw data are generated instead of country-specific export data, start the RDM program as described in "Call up the program / Raw data export".

- A window will open.

Example (DE):

- For "Location" enter a drive. This might be a hard disk or a connected USB stick (recommended)).

**Attention!**

"C" drive loss of data

Data that was created on the "C" drive can no longer be found after a system restart.
- As far as possible do not use drive "C"!
● Press the "Start Export" button to start the data export.

The milking data from the last sampling period are written to a file on the specified drive.

### Note

When a drive letter is entered as "Location", the file will be saved in the main directory on that drive.

If a drive letter is not entered, the file will be written to the DairyPlan folder (generally "D:\DairyPln").

The file name is composed as follows:

<YearMonthDayHourMinuteSecond>DefaultCSVSampleOutput.csv

● After a successful data export, there will be a message in the "Status" window for "Export".

The following data fields will be exported:

- Barn number (cowNr)
- Ear marker number (earTag)
- Milking box number (boxNr)
- Date of milking (date)
  The date is shown according to the language (in the order Day/Month/Year).
- Time of milking (time)
- Quantity of milk from this milking (yield)
  The decimal marker (point or comma) is shown according to the language.
- Box number (rackNr)
- Bottle number (bottle)

### Note

The first row lists the abbreviated designations of the data fields.

The values are separated from each other by a semicolon.

Example:

cowNr;earTag;boxNr;date;time;yield;rackNr;bottle
3;276000579311111;2;12.01.09;7:34;16,42;12345;1
5;276000579611112;5;12.01.09;8:04;21,85;12345;2

● Send the file to the relevant control centre.
7 Operating faults

If necessary, please contact your nearest authorized technical dealer.

7.1 Special personnel qualification required for troubleshooting

Troubleshooting may only be performed by specially qualified personnel in accordance with the safety instructions.

They must be trained in operating and setting up the sampler, have experience of working with it and must have read and understood this manual.

See also the section on "Personnel qualification".

7.2 Safety Instructions for Troubleshooting

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- First of all, prevent the product from being restarted accidentally.
- Ensure that safe disconnection can be carried out by a second person at any time.

Read the "Safety" section as well.

Special dangers involved in troubleshooting:

- If energy sources are switched on unintentionally this may lead to serious damage to property and/or life-threatening injuries to people and animals.
- Electrostatic processes may damage electronic components.

Attention!

Electrostatic discharge!

Circuit boards can be damaged by electrostatic discharge.

Avoid electrostatic charge (e.g. from clothing) and only touch the edges of circuit boards.
## 7.3 Possible faults and troubleshooting help

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green indicator lamp does not come on</td>
<td>Cable not connected</td>
<td>Check and connect correctly if necessary</td>
</tr>
<tr>
<td></td>
<td>Faulty LED</td>
<td>Replace LED</td>
</tr>
<tr>
<td>No sample in the sample bottle</td>
<td>Sampling hose is not connected correctly, or is</td>
<td>Check and replace if damaged</td>
</tr>
<tr>
<td></td>
<td>blocked, kinked or torn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hose pump defective</td>
<td>Replace faulty parts</td>
</tr>
<tr>
<td></td>
<td>Crimp valve and/or air inlet hose for mixing open</td>
<td>Check and replace any defective parts</td>
</tr>
<tr>
<td>Too much or too little sample in the sample bottle</td>
<td>Sampling hose is the wrong length</td>
<td>Use the original length</td>
</tr>
<tr>
<td></td>
<td>Wrong switch position</td>
<td>Reset the quantity</td>
</tr>
<tr>
<td>To little sample in the sample bottle</td>
<td>Reducing hose pump capacity</td>
<td>Readjust the quantity with the switch</td>
</tr>
<tr>
<td></td>
<td>Sampling hose (red) is kinked</td>
<td>Replace the hose of the hose pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjust the sampling hose until it is no longer kinked</td>
</tr>
<tr>
<td></td>
<td>Air inlet hose for mixing is leaking</td>
<td>Check and replace if damaged</td>
</tr>
<tr>
<td></td>
<td>Suction hose (red) is caseated</td>
<td>Disconnect the suction hose from the tank and hold it in a vessel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>containing hot water; run the pump manually for one minute to flush the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hose.</td>
</tr>
<tr>
<td>Different sample volumes in sample bottles</td>
<td>Suction hose (transparent) is sucking itself onto</td>
<td>Push the suction hose in the tank up to the lid nozzle and attach it to</td>
</tr>
<tr>
<td></td>
<td>the tank.</td>
<td>the draw tube using a sealing ring</td>
</tr>
<tr>
<td>Sample is missing the sample bottle</td>
<td>Chain and/or chain sprockets are worn out</td>
<td>Replace faulty parts</td>
</tr>
<tr>
<td></td>
<td>Limit switch is being passed</td>
<td>Check and adjust the limit switch trigger point</td>
</tr>
<tr>
<td></td>
<td>The encoder of the drive motor is faulty</td>
<td>Check the encoder, and replace the motor, if necessary</td>
</tr>
</tbody>
</table>
### Malfunction
The sample is not being drawn or not being drawn completely from the sample tank

### Possible cause
The ball catch under the lid is not seated correctly; the balls in the lid of the sample tank are not closing properly.

### Solution
Remove the lid from the tank, loosen the nuts, align the ball catch, retighten the nuts.

### Malfunction
The air intake-valve filter is blocked

### Possible cause
Clean the filter

### Malfunction
The air intake valve is faulty

### Possible cause
Replace the air intake valve

### Malfunction
Samples are not being drawn from the sample tank

### Possible cause
Cable not connected

### Solution
Check the connecting cable, connect properly, if necessary

### Malfunction
At the beginning of sampling from a new cow, residue from the suction hose flows back into the tank.

### Possible cause
Residue from the previous sample remains in the suction hose. The hose in the mixing valve is not opening completely when the lines are emptied.

### Solution
1: Replace the hose of the mixing valve
2: Replace the mixing valve

### Malfunction
Sample is not being mixed properly

### Possible cause
Hose in the mixing valve is not opening completely during mixing

### Solution
1: Replace the hose of the mixing valve
2: Replace the mixing valve
8 Maintenance

If necessary, please contact your nearest authorized technical dealer.

8.1 Special personnel qualification required for maintenance work

Maintenance work may only be performed by specially qualified personnel in accordance with the safety instructions.

They must be trained in operating and setting up the sampler, have experience of working with it and must have read and understood this manual.

See also the section on "Personnel qualification".

8.2 Safety instructions for maintenance

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- Only use original spare parts / original wearing parts / original accessories. In the case of products by other manufacturers it cannot be ensured that they have been designed and produced from the point of view of loads and safety.
- All of the steps involved in the maintenance work must be worked through in the order specified.
- The maintenance work specified in the instructions (adjustment, cleaning, lubrication, inspection, etc.) must be performed at the times specified.
- Maintenance work should only be performed with the tools envisaged for this purpose.
- Also note the special information in this manual for the individual components.
- Only use the operating media specified.
- Immediately replace any components that are not in perfect condition.

Read the "Safety" section as well.

Before carrying out maintenance work, make sure of the following:

- Before performing any work on electrical installations or equipment (components, housing, etc.) switch off all power supplies and make sure they cannot be switched back on again. Put up a sign warning against switching them back on again.
- all components have cooled to room temperature
Special risks involved in maintenance work:

- Serious damage to property might occur if incorrect replacement or wearing parts are installed.
- If energy sources are switched on unintentionally, this may lead to serious bodily injury or damage to property.
- Electronic components may be damaged by electrostatic processes.

**Note**
Only touch the edge of the printed circuit board and avoid static caused for example by clothing.

On completion of the maintenance work, check that:

- The installation values set before the work was performed have not been changed by the work (see settings report).
- All screwed connections that were loosened earlier have been tightened.
- All safety devices, guards, tank covers, etc. that were removed previously have been put back correctly.
- All safety equipment is working perfectly again.
- Have all of the tools, materials and other equipment that were used been removed from the working area again?
- Operation has been checked after maintenance work has been completed or parts replaced. Produce a full test report if necessary.
8.3 Inspections and preventive maintenance

<table>
<thead>
<tr>
<th>Interval* (samples filled)</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>After every session</td>
<td>Milk sampling device</td>
<td>Clean thoroughly inside and out</td>
</tr>
<tr>
<td>every six months (7500-9000)</td>
<td>Hose pump hose</td>
<td>replace</td>
</tr>
<tr>
<td>once a year (15000-18000)</td>
<td>All hoses, wearing parts</td>
<td>replace</td>
</tr>
<tr>
<td></td>
<td>Filling position</td>
<td>Check and adjust limit switch if necessary</td>
</tr>
<tr>
<td>every 3 years (45000-60000)</td>
<td>Chain, driving pinion, chain sprockets</td>
<td>Check, replace if necessary</td>
</tr>
<tr>
<td></td>
<td>Hose pump</td>
<td>replace</td>
</tr>
</tbody>
</table>

* Period of constant use (several times a week)

Carry out regular checks on electrical equipment:
- Tighten any loose connections
- Replace damaged lines or cables immediately
- Close off any cable openings that are not being used

8.3.1 Replacing wearing parts on the sample tank

Wearing parts come together in a set of replacement parts.
- Replace wearing parts

8.3.2 Replacing the hose pump hose

Replace the hose every year to ensure reliable operation.

⚠️ Attention!
Only replace the hose when the hose pump is off.

Attention!
Only replace the hose when the hose pump is off.
- Switch off the hose pump before replacing the hose.

- Pull the hose out from the hose pump.
● Undo the three screws in the housing cover.

● Remove the housing cover from the hose pump.

● Take the hose out of the housing cover.

● Insert a new hose in the housing cover.

● Screw the housing cover onto the hose pump.

**Attention!**
Not fitting the housing cover properly can damage the hose or cause fluctuation of the pump output.

- Make sure that the housing cover is positioned correctly between the guide marks (x)!
  - The housing cover must be flush

● Connect the houses onto the outside of the hose pump again.

The pump can now be used again.
Note
After replacing the hose, reset the sample quantities required on the unit and carry out a trial run.
8.3.3 Replacing the chain and sprockets

The chain comes correctly pre-tensioned from the factory.  
It is not necessary to re-tension the chain because of the very slight wear.  
As a rule the chain will not have to be changed for several years.

**Warning!**

**Danger from automatic start**  
The conveyor chain can start to move when work is being carried out.  
There is a risk of crushing and electric shock.  
▶ Disconnect the cable from the power supply before starting the work.

- Undo the four screws holding the sampling equipment in the lid.

- Turn the sampling equipment out of the lid so that the chain is on top.

- Loosen the threaded pin on the sprocket (drive) with a spanner.

- Place a spanner on the square of the chain tensioner and loosen the chain.
• Remove the sprocket from the drive shaft.

• Replace any defective parts (e.g. chain or sprockets).

• Place sprocket with chain on the drive shaft, loosening the chain with the spanner.

• Turn the sprocket until the threaded pin is pointing towards the flat surface of the drive shaft.

• Position the sprocket at the required height on the drive shaft.

• Tighten the threaded pin on the sprocket (drive) with a spanner.

• Re-assemble the sampling device.
8.3.4 Checking and adjusting the limit switch trigger point

The trigger point may change over time and therefore has to be checked regularly.

- Connect the cable to the automatic milking system.
- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.
- Open the catch on the top of the cover.
- Briefly press the button on the right of the electronic card.
  - The filling nozzle moves one position further.
- Check the nozzle's first filling position.
  - The filling positions are marked by notches.
- Press the "RESET" button.
  - The filling nozzle moves back to the start position.
● Press and hold down the button on the right of the electronic card.
  - The filling nozzle travels to position 41.

● Check the nozzle’s filling position.
  - The deviation may not be more than +/- 1.5 mm.

**If the first filling position is not correct:**

⚠️ **Warning!**

**Danger from automatic start**
The conveyor chain can start to move when work is being carried out. There is a risk of crushing and electric shock.

► Disconnect the cable from the power supply before starting the work.

● Take the sampling device out of the lid as described in "Replacing the chain and sprocket" and turn over.
  - The limit switch is accessible.

● Change the position of the limit switch so that the filling nozzle is exactly on the marking for the first filling position.

● Re-assemble the sampling device.

● Check the nozzle’s first filling position again as described above.
9 decommissioning

Decommissioning may only be performed by specially qualified personnel in accordance with the safety instructions.

See also the section on "Personnel qualification".

9.1 Safety instructions for decommissioning

To prevent damage to property and/or life-threatening injury to personnel, the following must always be observed:

- All of the steps involved in the decommissioning work must be worked through in the order specified.
- First of all, make the operating area for decommissioning completely safe.
- Make sure that operating media are disposed of without harming the environment.

Read the "Safety" section as well.

Special risks during initial commissioning:

- Leaking lubricants, solvents, preservatives, .... can cause injury if they come into direct contact with the skin.
- Components which have not been removed correctly may fall off or twist.
- Exposed sharp-edged components/tools/.... may cause injury.

9.2 Temporary decommissioning

- Stop sampling.

To extend its service life, the sampling device should be kept clean and it should be stored in a dry place at room temperature.

9.3 Final decommissioning/disposal

You are strongly advised to contact the supplier if the system is to be decommissioned.

- Stop sampling.
- Take components out of the automatic milking system.
  (in the reverse order as described in the section entitled ?Prepare for sampling?)

After final decommissioning, handle all components properly and dispose of them in accordance with valid local regulations on waste disposal and utilisation.

Note
The system contains components (metals, electrical components, plastics, etc.) which are not biodegradable.
## 10 Spare Parts

### 10.1 Milk sampling device

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0020</td>
<td>7801-2187-070</td>
<td>Bracket, complete</td>
<td>MiOne Metatron</td>
</tr>
<tr>
<td>0030</td>
<td>7801-2503-020</td>
<td>Sampler complete</td>
<td></td>
</tr>
<tr>
<td>0040</td>
<td>0019-5575-300</td>
<td>Saucer-head screw</td>
<td>M8x25</td>
</tr>
<tr>
<td>0050</td>
<td>0026-1345-300</td>
<td>washer</td>
<td>8,4</td>
</tr>
<tr>
<td>0060</td>
<td>0019-9101-300</td>
<td>Cheesehead screw</td>
<td>M4x20</td>
</tr>
<tr>
<td>0070</td>
<td></td>
<td>Milk sampling device</td>
<td>MiOne Interior</td>
</tr>
<tr>
<td>0080</td>
<td>7800-0025-657</td>
<td>Cover holder</td>
<td></td>
</tr>
<tr>
<td>0090</td>
<td>7800-0025-663</td>
<td>Distance bush</td>
<td>M8x56</td>
</tr>
<tr>
<td>0100</td>
<td>0019-6901-300</td>
<td>Hexagon head bolt</td>
<td>M8x16</td>
</tr>
<tr>
<td>0120</td>
<td>0026-0439-300</td>
<td>washer</td>
<td>8,4x24x2</td>
</tr>
<tr>
<td>0130</td>
<td>7800-0025-678</td>
<td>Lock washer</td>
<td>7</td>
</tr>
<tr>
<td>0150</td>
<td>7801-1268-020</td>
<td>Drain channel, welded</td>
<td>Duo Compact II</td>
</tr>
<tr>
<td>0160</td>
<td>7801-1268-000</td>
<td>Drain channel, welded</td>
<td>rear</td>
</tr>
<tr>
<td>0170</td>
<td>0019-9100-300</td>
<td>Cheesehead screw</td>
<td>M4x16</td>
</tr>
<tr>
<td>0180</td>
<td>0026-0429-300</td>
<td>washer</td>
<td>5,3x15x1,2</td>
</tr>
<tr>
<td>0190</td>
<td>0026-1362-300</td>
<td>washer</td>
<td>4,3</td>
</tr>
<tr>
<td>0200</td>
<td>0013-0310-300</td>
<td>Hexagon Head Nut</td>
<td>M4</td>
</tr>
<tr>
<td>0210</td>
<td>0019-6845-300</td>
<td>Hexagon head bolt</td>
<td>M6x25</td>
</tr>
<tr>
<td>0220</td>
<td>0026-0922-300</td>
<td>washer</td>
<td>6,4x18x1,6</td>
</tr>
<tr>
<td>0230</td>
<td>0013-0294-300</td>
<td>Hexagon Head Nut</td>
<td>M6</td>
</tr>
</tbody>
</table>

See corresponding parts list/drawing for further breakdown of components.
## 10.1.1 Sampler complete

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0010</td>
<td>7161-2513-010</td>
<td>Sampler</td>
</tr>
<tr>
<td>0020</td>
<td>7161-5588-030</td>
<td>Box, ø96x257 / 700 ccm</td>
</tr>
<tr>
<td>0030</td>
<td></td>
<td>Cover for sampler complete</td>
</tr>
<tr>
<td>0040</td>
<td>x 0018-0380-848</td>
<td>Pipe (170 mm) 8x1 (available by the metre)</td>
</tr>
<tr>
<td>0050</td>
<td>0018-4376-898</td>
<td>tube (160 mm) 4x1.5 (available by the metre)</td>
</tr>
<tr>
<td>0060</td>
<td>7021-7102-018</td>
<td>Milk hose 8,5x3,75 (Meterware)</td>
</tr>
<tr>
<td>0070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0080</td>
<td>7036-7101-010</td>
<td>Milk hose 8,5x3,75x320</td>
</tr>
<tr>
<td>0090</td>
<td>0021-3134-700</td>
<td>Star knob 32/M6</td>
</tr>
<tr>
<td>0100</td>
<td>7161-2084-130</td>
<td>Tube holder ø16x60</td>
</tr>
<tr>
<td>0110</td>
<td>7161-3270-000</td>
<td>Clip complete</td>
</tr>
<tr>
<td>0150</td>
<td>7161-5014-000</td>
<td>Handle</td>
</tr>
<tr>
<td>0160</td>
<td>0018-5324-820</td>
<td>Y-hose connector 10</td>
</tr>
<tr>
<td>0170</td>
<td>7021-7102-018</td>
<td>Milk hose 8,5x3,75 (available by the metre)</td>
</tr>
<tr>
<td>0180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0190</td>
<td>0026-2249-890</td>
<td>Cap 4x15</td>
</tr>
<tr>
<td>-</td>
<td>7801-9905-130</td>
<td>Set of spare parts</td>
</tr>
</tbody>
</table>

* - Wear part, see section on "Maintenance" for maintenance interval

Included in set of spare parts (7801-9905-130).

See corresponding parts list/drawing for further breakdown of components.
# Cover for sampler complete

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0020</td>
<td>7161-2298-010</td>
<td>Guide piece</td>
</tr>
<tr>
<td>0030</td>
<td>7161-5566-000</td>
<td>Lever</td>
</tr>
<tr>
<td>0040</td>
<td>7161-1467-000</td>
<td>Sealing panel 36x20xø4</td>
</tr>
<tr>
<td>0050</td>
<td>0007-2060-700</td>
<td>Sealing ring 66x6</td>
</tr>
<tr>
<td>0060</td>
<td>0007-1818-700</td>
<td>Sealing ring 9x2</td>
</tr>
<tr>
<td>0070</td>
<td>0013-0311-300</td>
<td>Hexagon Head Nut M5</td>
</tr>
<tr>
<td>0090</td>
<td>7161-2084-140</td>
<td>Bracket</td>
</tr>
<tr>
<td>0100</td>
<td>7161-6708-000</td>
<td>Plug complete ø12 Metatron (with 110, 130)</td>
</tr>
<tr>
<td>0110</td>
<td>0007-2509-700</td>
<td>Sealing ring 8x2</td>
</tr>
<tr>
<td>0120</td>
<td>0026-1508-890</td>
<td>Ball 12mm</td>
</tr>
<tr>
<td>0130</td>
<td>0007-1974-700</td>
<td>Sealing ring 10x2</td>
</tr>
<tr>
<td>0150</td>
<td>0013-0276-300</td>
<td>Hexagon Head Nut M6</td>
</tr>
<tr>
<td>0160</td>
<td>7801-4807-000</td>
<td>connector RMS</td>
</tr>
<tr>
<td>0170</td>
<td>7051-2045-000</td>
<td>hose connector</td>
</tr>
<tr>
<td>-</td>
<td>78019905-130</td>
<td>Set of spare parts</td>
</tr>
</tbody>
</table>

* Wear part, see section on "Maintenance" for maintenance interval included in set of spare parts (7801-9905-130).

See corresponding parts list/drawing for further breakdown of components.
## Clip complete

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>7161-3270-000</td>
<td>Clip complete</td>
</tr>
<tr>
<td>0010</td>
<td>7161-2097-140</td>
<td>Clamp ø69x17</td>
</tr>
<tr>
<td>0020</td>
<td>7161-2653-000</td>
<td>Clamp 55xø4</td>
</tr>
<tr>
<td>0040</td>
<td>0007-3239-890</td>
<td>x Sealing ring 25 Tri-Clamp ø50,5xø25,3</td>
</tr>
</tbody>
</table>

**x - Wear part, see section on "Maintenance" for maintenance interval**

**Included in set of spare parts (7801-9905-130).**
Set of spare parts

<table>
<thead>
<tr>
<th>7801-9905-130</th>
<th>Set of spare parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0010</td>
<td>7021-7106-060 Milk sampler hose, silicone 8,5x3,75x320 Sil gn</td>
</tr>
<tr>
<td>0020</td>
<td>0007-3239-890 Sealing ring D1in Tri-Clamp Sil 8 x 2</td>
</tr>
<tr>
<td>0030</td>
<td>0007-2509-700 Sealing ring 10x2</td>
</tr>
<tr>
<td>0040</td>
<td>0007-1974-700 Sealing ring 10x2</td>
</tr>
<tr>
<td>0050</td>
<td>7161-1467-000 Sealing panel 10x2</td>
</tr>
<tr>
<td>0060</td>
<td>0007-2060-700 Sealing ring 66 x 6</td>
</tr>
<tr>
<td>0070</td>
<td>0007-1818-700 Sealing ring 9 x 2</td>
</tr>
<tr>
<td>0080</td>
<td>7021-7106-058 Milk sampler hose, silicone 8,5x3,75(x25.000) Sil gn (210 mm)</td>
</tr>
<tr>
<td>0090</td>
<td>7021-7106-058 Milk sampler hose, silicone 8,5x3,75(x25.000) Sil gn (110 mm)</td>
</tr>
<tr>
<td>0100</td>
<td>7021-7106-058 Milk sampler hose, silicone 8,5x3,75(x25.000) Sil gn (120 mm)</td>
</tr>
<tr>
<td>0110</td>
<td>0018-4376-898 tube ID4xOD7(xL25.000) Sil tp (250 mm)</td>
</tr>
<tr>
<td>0120</td>
<td>0018-0380-848 Pipe OD8xID6 Pla na (270 mm)</td>
</tr>
<tr>
<td>0130</td>
<td>0026-2249-890 Cap ID4 Pla rd</td>
</tr>
</tbody>
</table>
## 10.1.2 Milk sampling device (MIone Interrior)

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0020</td>
<td>7801-5306-000</td>
<td>Sprocket</td>
</tr>
<tr>
<td>0030</td>
<td>7800-0025-633</td>
<td>Shaft</td>
</tr>
<tr>
<td>0040</td>
<td>7801-2160-000</td>
<td>Cover complete</td>
</tr>
<tr>
<td>0050</td>
<td>7801-5566-000</td>
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</tr>
<tr>
<td>0080</td>
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<td>Sub-unit terminal block MSTB2,5-2-ST-5,08</td>
</tr>
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<td>0090</td>
<td>0005-3302-000</td>
<td>Sub-unit terminal block MSTB2,5-3-ST-5,08</td>
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<td>0130</td>
<td>0013-0310-300</td>
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<td>0026-1362-300</td>
<td>washer</td>
</tr>
<tr>
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<td>0019-6787-300</td>
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</tr>
<tr>
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<td>Line</td>
<td>Part Number</td>
<td>Description</td>
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<td>------</td>
<td>-------------</td>
<td>--------------------------------------------</td>
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<tr>
<td>0210</td>
<td>0026-1380-840</td>
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</tr>
<tr>
<td>0220</td>
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<td>Cable Screw-Joint</td>
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<td>Nut</td>
</tr>
<tr>
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<td>Cable, complete</td>
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<td>7800-0025-601</td>
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<td>Hexagon head bolt</td>
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<td>7801-2456-000</td>
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<td>0026-1382-300</td>
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<td>0700</td>
<td>0018-6276-820</td>
<td>T-Hose connector</td>
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<td>Sub-unit terminal block</td>
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<td>0005-4341-000</td>
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<td>0005-3536-900</td>
<td>Cable tie</td>
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<td>0750</td>
<td>0005-1299-060</td>
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<td>0760</td>
<td>7051-2479-190</td>
<td>gasket</td>
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<td>7801-7106-010</td>
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<td>0780</td>
<td>7161-2492-000</td>
<td>Tension relief</td>
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<td>0790</td>
<td>7161-2281-020</td>
<td>Hook</td>
</tr>
</tbody>
</table>

**x** - Wear part, see section on "Maintenance" for maintenance interval

☐ See corresponding parts list/drawing for further breakdown of components.
Hose pump

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0010</td>
<td>7801-2981-000</td>
<td>Hose pump</td>
</tr>
<tr>
<td></td>
<td>7801-2635-000</td>
<td>x tube</td>
</tr>
<tr>
<td>0020</td>
<td>7801-4900-000</td>
<td>x Spare Parts</td>
</tr>
<tr>
<td></td>
<td>7015-9902-200</td>
<td>x Set of spare parts</td>
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<tr>
<td></td>
<td></td>
<td><strong>- Wear part, see section on &quot;Maintenance&quot; for maintenance interval</strong></td>
</tr>
</tbody>
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Illuminated pushbutton complete

<table>
<thead>
<tr>
<th>Item</th>
<th>Part no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0005</td>
<td>0005-3768-880</td>
<td>Illuminated pushbutton complete</td>
</tr>
<tr>
<td></td>
<td>0005-1312-900</td>
<td>Indicator lights</td>
</tr>
<tr>
<td></td>
<td>0005-1343-810</td>
<td>Diaphragm</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>green</strong></td>
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</table>
### Cable, complete

<table>
<thead>
<tr>
<th>Item</th>
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<th>Description</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
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<td>7801-6933-010</td>
<td>Cable, complete</td>
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</tr>
<tr>
<td>0030</td>
<td>0005-1773-040</td>
<td>Connector housing</td>
<td>HAN 3A-M20</td>
</tr>
<tr>
<td>0040</td>
<td>0005-4486-900</td>
<td>Cable Screw-Joint</td>
<td>M16x1,5x5-10</td>
</tr>
<tr>
<td>0060</td>
<td>0005-4465-900</td>
<td>reduction</td>
<td>M20x1,5 - M16x1,5</td>
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<tr>
<td>0070</td>
<td>0005-1773-030</td>
<td>Connector insert</td>
<td>HAN 4A-M</td>
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### 10.2 Bottle racks

<table>
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<th>Item</th>
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<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9000</td>
<td>Bottle rack</td>
<td>DE / CH / JP / PL</td>
</tr>
<tr>
<td>9000</td>
<td>7801-6451-000</td>
<td>Bottle rack</td>
<td></td>
</tr>
<tr>
<td>9000</td>
<td>7801-6451-010</td>
<td>Bottle rack</td>
<td>NL (new) / USA</td>
</tr>
<tr>
<td>9000</td>
<td>7801-6451-020</td>
<td>Bottle rack</td>
<td>NL (old)</td>
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<tr>
<td>9000</td>
<td>7801-6451-030</td>
<td>Bottle rack</td>
<td>SE</td>
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<tr>
<td>9000</td>
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<td>Bottle rack</td>
<td>DK</td>
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<td>Bottle rack</td>
<td>FR</td>
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<tr>
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<td>7801-6451-060</td>
<td>Bottle rack</td>
<td>LT / USA</td>
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<tr>
<td>9000</td>
<td>7801-6451-070</td>
<td>Bottle rack</td>
<td>NO</td>
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11 Appendix

11.1 Order of the sample bottles in the rack

Legend:

Sample bottle number
Order in which the sample bottles are filled

<table>
<thead>
<tr>
<th>45</th>
<th>Sample bottle number</th>
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</thead>
<tbody>
<tr>
<td>7801-9001-045</td>
<td>01 July 2017</td>
</tr>
<tr>
<td>90 / 98</td>
<td>11 Appendix</td>
</tr>
<tr>
<td>11.1</td>
<td>Order of the sample bottles in the rack</td>
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</tbody>
</table>

Milking box numbering

| 2 1 | 1 2 |
| 3 2 1 | 1 2 3 |
| 4 3 2 1 | 1 2 3 4 |
| 5 4 3 2 1 | 1 2 3 4 5 |

Left-hand version | Right-hand version

Legend:

Sample bottle number
Order in which the sample bottles are filled
11.2 Terminal diagram for the CUP electronic card

Legend:
1. Valve
2. Pump
3. Motor
4. Limit switch

11.3 Pin assignment

Legend:
UB 24V voltage monitoring (OUT)
SC Sample/Clean Signal (IN)
PE Earth, green/yellow (Protection Earth)
(1) Electrical Requirements
(2) Dimensions
## 11.4 Abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
</tr>
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<tbody>
<tr>
<td>ADIS</td>
<td>International data exchange format, ISO 11787 <em>(Agricultural Data Interchange Syntax)</em></td>
</tr>
<tr>
<td>CSV</td>
<td>Text file with values that are separated by a comma or similar symbol <em>(Comma Separated Values)</em></td>
</tr>
<tr>
<td>DP</td>
<td>Herd management program <em>(DairyPlan)</em></td>
</tr>
<tr>
<td>LKV</td>
<td>Landeskontrollverband [National control association] (Germany)</td>
</tr>
<tr>
<td>MLP</td>
<td>Milk yield test</td>
</tr>
<tr>
<td>MView</td>
<td>Milking system user interface</td>
</tr>
<tr>
<td>Ø</td>
<td>Diameter</td>
</tr>
<tr>
<td>øi</td>
<td>Inside Diameter</td>
</tr>
<tr>
<td>øo</td>
<td>O.D. outside diameter</td>
</tr>
<tr>
<td>%</td>
<td>Percentage</td>
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### Units

<table>
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<th>Description</th>
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<tr>
<td>°</td>
<td>degrees (angles)</td>
</tr>
<tr>
<td>°C</td>
<td>Degrees Celsius/ Centigrade</td>
</tr>
<tr>
<td>s</td>
<td>Second</td>
</tr>
<tr>
<td>” (in)</td>
<td>inch (= 25.4 mm)</td>
</tr>
<tr>
<td>mm</td>
<td>Millimetres</td>
</tr>
<tr>
<td>m</td>
<td>meters</td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
</tr>
<tr>
<td>kPa</td>
<td>Kilo-pascal</td>
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</table>
11.5 Quick guide

11.5.1 Start sampling

Stop automatic operation

- Close entry gates to all milking boxes.
- Wait until the animals have left the milking boxes.

Set up and connect the sampling device

Set up the sampling device

The sampling device must be set up on the floor so that the robot can move freely.

Attention!

Risk of collision

The robot can collide with the sampling hose and connection cable.

- Run the connection cable and sampling hose under the robot rail so that the robot can move freely.

- Place the bottle rack in the positioning device.
Fit the sample tank in the milking system (Metatron)

- Connect the sample tank to the sampler and connect to the sampling device.

Connect the cable to the automatic milking system

**Attention!**

**Risk of collision**
The robot can collide with the connecting cable.
- The connecting cable must be fed beneath the robot rail so that the robot can move freely.

- Connect the 5-pole plug on the connecting cable to the connector on the left beneath the control unit for the corresponding milking box.

- The green indicator lamp on the sampling device will light.

- Press the "RESET" button.
  - The filling nozzle will be heard moving to the start position.
Appendix
Quick guide

Settings on the user interface of the automatic milking system

- **Entering settings**
  - Open menu item
  - RDM
    - Robot Data Manager
    - Herd / Sampling / Sampling specification
    - Set number of milk samples per animal
    - Set number of bottles in the bottle rack

Start automatic operation

- **Start sampling**
  - Open menu item
  - RDM
    - Robot Data Manager
    - Herd / Sampling / Operations
  - Click on the button. (X)

- Switch entry gates to all milking boxes to automatic mode.

Note the box data

Note the following data so that the data export can be checked:

- Sampling start time
- ID of the first cow in each box
11.5.2 End of sampling

Stop automatic operation

- Close entry gates to all milking boxes.
  - Wait until the animals have left the milking boxes.

Stop sampling

- Stop sampling

  RDM
  Robot Data Manager
  Herd/sampling/sampling specification

  - Click on the button. (X)

Create the sample file

- Export sampling data.

For further information, see section "Sample data export".

Start the system clean

- Start system clean

  RDM
  Robot Data Manager
  System/cleaning/operation

Disconnect and remove the sampling device

- Carry out the steps described for setting up and connecting the device, but in reverse order.

Resume automatic operation

- Switch entry gates to all milking boxes to automatic mode.
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