

# Lely Cosmix P

## Concentrate Feeder



## Operator Manual

en-US - English Original

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## List of included amendments

Issue Date (yy/mm)	Revision	Chapter(s)	Remarks
24/04	-	All	Initial issue



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# Preference

## Manual contents

This manual contains the information for the correct operating instructions and maintenance of the Lely Cosmix P Concentrate Feeder. The information in this manual is for operators:

- The operator uses the information to clean, maintain and operate the machine.



Study and understand this information thoroughly before you do maintenance the machine. Failure to do so could result in damage to equipment or personal injury. Please consult your local Lely service provider if you do not understand the information in this manual, or if you need additional information. Store this manual in a safe place for future reference.

All information in this manual has been compiled with care. Lely shall not be liable for errors or faults in this manual. The recommendations are meant to serve as guidelines. All instructions, pictures and specifications in this manual are based on the latest information that was available at the time of publication. Your machine may comprise improvements, features or options that are not covered in this manual.

## Applicability

### Model designation

The table below shows the type numbers of concentrate feeder for which this manual is applicable.

Model	Type number
Lely Cosmix P Concentrate Feeder with Qwes ISO neck identification	5.2308.0000.1
Lely Cosmix P Concentrate Feeder with Qwes H/HR-LD identification	5.2308.0040.1

### Software version

The description, operation and procedures in this manual are based on the following software versions:

- Horizon 1.6 or higher
- CM\_v2.1.0 or higher

## Standard Torque Loading of Parts

All the nuts, bolts and screws used on the machine are torque tightened to standard torque loadings applicable to the construction materials used.

If a part has a non-standard torque loading, it is specified in the applicable part of the manual.

## Registration

The Type and Serial Number Plate is attached to the control box of the concentrate feeder, on the top. Always include the type and serial number of your concentrate feeder when you contact your local Lely service provider or order spare parts.

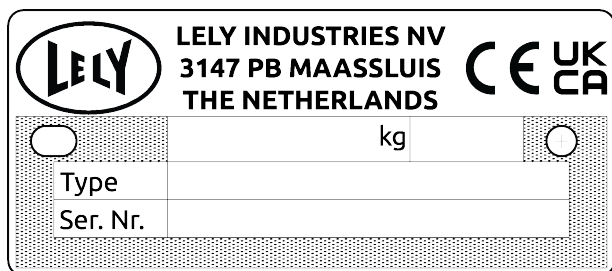


Figure 1. Type and serial number plate

We suggest you complete the table below with the type and serial numbers of your concentrate feeder. This makes sure you can easily find the information.

Type number	
Serial number	

## Personnel Requirements



**Risk of accident from insufficiently qualified personnel.**  
**Unqualified personnel working on the machine can be the cause of serious injuries and considerable damage to material.**

- All activities must only be carried out by qualified personnel.
- Keep unqualified personnel away from the machine.
- Only persons who can be expected to carry out their job reliably are authorized as personnel. Persons whose reactions are impaired, e.g. by drugs, alcohol, medications are not authorized to work with the machine.

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## Maintenance authorization



**Risk of accident from uncertified technicians.**  
**Uncertified technicians doing maintenance on the machine can be the cause of serious injuries and considerable damage to material.**  
**Only technicians certified by Lely Industries are authorized to do maintenance on the machine, except for the maintenance done by the operator as indicated in the operator manual. If people who are not certified by Lely Industries do maintenance on the machine, the warranty on the machine becomes invalid.**



## Contact Number Local Service Provider

We suggest you write the telephone number and email address of your local service provider contact in the table below. This makes sure you can easily find the information.

Telephone number	
email address	



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# 1 Cosmix P

## 1.1 Introduction

The Lely Cosmix P Concentrate Feeder supplies an exact portion of concentrates to cows to realize their maximum milk production or to cattle for optimal growth. The feed portion can be one feed type, or a mixture of two different types of concentrates.

An electronic tag on a collar on each animal enables the system to identify the animal via an unique number. There are two tag types:

- Qwes for identification with an ISO ID reader
- Qwes H/HR-LD for identification with an infrared ID reader

The machine is installed in the barn. The Cosmix P has an integrated protective fence so that also lower ranking animals can eat their portion of concentrate undisturbed.

The farm management application Horizon has information about each animal and based on this, determines the amount of feed to be dosed.

In combination with the Astronaut milking robot a closed system of milking and allocation of concentrates can be created.

## 1.2 Intended Use

The Cosmix P is designed to be used as an automated concentrate feeder for all dairy cows and beef cattle older than one year in the barn. When an animal is fed, the fence behind it lowers automatically, some time after the last feed portion is fed, the fence is automatically lifted so the animal can leave. Feed types that can be fed are dry concentrate feed in pellet form or prime material (raw material):

- Pellet diameter: 8 mm (0.3 in).
- Prime/Raw material particles: between 4 and 8 mm (between 0.16 and 0.3 in).

Feed types that have a high chance on bridging problems must not be fed.

Usage going beyond that does not constitute proper use. The manufacturer is not liable for damage resulting from improper use; the operator alone bears the risk.

Intended use also implies that the instructions and rules prescribed by the manufacturer are observed.



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## 2 Safety

### 2.1 Signal Icons

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The signal word for each message uses the following guidelines:



#### **Danger**

**Indicates a hazardous situation which, if not avoided, will result in death or serious injury.**



#### **Warning**

**Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**



#### **Caution**

**Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**



#### **Notice**

**Is used to address practices not related to physical injury e.g. property damage.**



#### **Tip**

**Indicates information that may help the reader, but not hazard related.**

## 2.2 Safety Instructions

YOU are responsible for the SAFE operation and maintenance of your machine. YOU must make sure that you and anyone else who is going to operate, maintain or work in the vicinity of the machine knows all the related SAFETY information in this manual.

YOU are the key to safety. Good safety practices protect you and the people around you. Make these practices a working part of your safety program. Make sure that EVERYONE who operates, maintains or works near the machine obeys the safety precautions. Do not risk injury or death by ignoring good safety practices.

- Owners must train operators before they operate the machine. This training must be repeated at least annually.
- The operator must read, understand and obey all safety and operating instructions in the manual.
- A person who has not read and understood all safety and operating instructions is not permitted to operate the machine.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment and persons.
- Only use approved spare parts and make sure that they are only installed by authorized technicians.



***The hazards in the operating zone and working area pose a risk of fatal injury to unauthorized persons.***

***Unauthorized persons who do not satisfy the requirements described herein are not aware of the hazards in the work area. Unauthorized persons are therefore at risk of serious or fatal injury.***

- ***Keep unauthorized persons away from the operating zone and work area.***
- ***If in doubt, approach unauthorized persons and ask them to leave the operating zone and work area.***
- ***Stop work as long as unauthorized persons are within the operating zone and work area.***

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### 2.2.1 General safety

- Read and understand the manual and all safety signs before you connect power supplies to operate, maintain or adjust the machine.
- Only trained persons are permitted to operate the machine.
- A first-aid kit must be available near the concentrate feeder. Store in a highly visible place.
- A carbon dioxide or foam fire extinguisher must be available near the machine. Store the fire extinguisher in a highly visible place.
- Install all protective covers and guards before you operate the machine.
- Wear the correct protective clothing (safety shoes).



- Disconnect and isolate the electrical power supply, release pneumatic pressure and wait for all moving parts to stop before you clean or do maintenance on the machine.
- Know the emergency medical center number for your area.
- Review safety related items with all operators frequently (annually).
- Contact your nearest Lely service provider if you have any questions.

### **2.2.2 Electrical safety**

- Only an authorized electrician must install the electrical power supply for the machine.
- Make sure the electrical grounding of the electrical system and all parts of the machine meet the local rules and regulations.
- Have any damaged electrical lines, conduits, switches and components replaced immediately.

### **2.2.3 Operating safety**

- Read and understand the applicable manual and all safety signs before you connect power supplies to operate, maintain or adjust the machine.
- Only trained persons are permitted to operate the machine.
- Disconnect and isolate the electrical power supply, release pneumatic pressure and wait for all moving parts to stop before you clean or do maintenance on the machine.
- Install all covers and guards before you operate the machine.
- Keep hands, feet, hair and clothing away from all moving parts.
- Keep unauthorized persons, especially small children away from the machine at all times.
- Before the pneumatic pressure is supplied to the machine, make sure all parts are tight and that all hoses and fittings are in good condition.
- Always be alert for unexpected movement of the cow. Cows can transmit large forces to parts of the machine.
- Contact your nearest Lely service provider if you have any questions.
- Review safety related items with all operators frequently (annually).

### **2.2.4 Maintenance safety**

- Only trained persons are permitted to maintain the machine.
- Tie the gate of the M-box to the frame before you switch off the air supply and do work on the machine.
- Disconnect and isolate the electrical power supply, close off the air supply and release pneumatic pressure before you do work on the machine.
- Wear protective clothing, safety shoes and gloves when you maintain the machine.
- Make sure all covers and guards are installed when maintenance work is complete.

## 2.3 Safety Decals

### 2.3.1 Location and explanation of safety decals

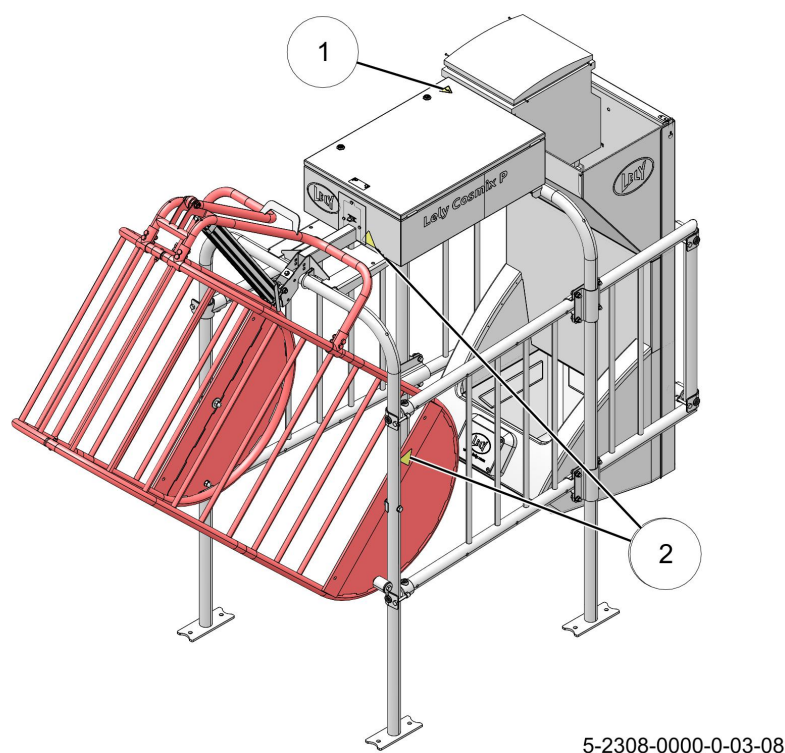



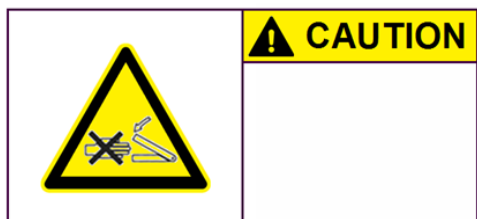


Figure 2. Locations of the safety decals

KEY: 1. Decal Electrocutation hazard - 2. Decals Pinching hazard

No.	Decal	Explanation
1	 <p>Electrocution hazard decal (except Canada and USA)</p>  <p>Electrocution hazard decal (Canada and USA)</p>	<p><b>Caution: Electrocution hazard</b></p> <p>Risk of electric shock. Contact will cause electric shock or burn. Disconnect power before servicing.</p>
2	 <p>Pinching hazard decal (except Canada and USA)</p>  <p>Pinching hazard decal (Canada and USA)</p>	<p><b>Caution: Pinch point</b></p> <p>Moving parts can crush or cut. Keep hands clear.</p>

### 2.3.2 Maintenance of Safety Decals

Safety decals show important and useful information that will help you to safely operate and maintain the machine.

Obey the instructions below to make sure that all the decals stay in the correct position and condition.

- Keep the safety decals clean and legible at all times. Clean the safety decals with soap and water. Do not use mineral spirits, abrasive cleaners or other similar agents that may damage the safety decals.
- Replace safety decals that are missing or that are illegible.
- Safety decals can be purchased from your local Lely service provider.

### **2.3.3 Installation of Safety Decals**

1. Make sure that the installation surface is clean and dry.
2. Make sure that the temperature of the mounting surface is not less than 5 °C (41 °F).
3. Find the correct position for the decal before you remove the backing paper.
4. Remove a small part of the cover paper.
5. Put the decal in the correct position on the installation surface and carefully push the small part of exposed adhesive surface of the decal onto the installation surface.
6. Slowly remove the cover paper and attach the rest of the decal to the installation surface.
7. Puncture small air pockets in the decal with a pin and use the cover paper to smoothen the decal.

## 3 Specifications

### 3.1 Specifications and requirements

General operational conditions	
Ambient temperature	-15 to +40 °C (5 to 104 °F)
Humidity	5 - 99% non condensing
Capacity	
Capacity feed hopper	50 l (13.2 gal)
Number of feed hoppers	1 or 2
Feed type	
Concentrates*	Pellet diameter: 8 mm (0.3 in)
Prime material (raw material)*	Size: 4 - 8 mm ( 0.16 - 0.3 in).
*) Feed types that have a high chance on bridging problems must not be fed. See Examine the feed type suitability.	
Control box	
PCB	ADS3830
Software version	CM_v2.1.0 or higher
Cow identification readers	
ISO ID reader neck	Qwes ISO
LD reader	Qwes H/HR-LD
Pressurized air supply	
Pressure input*	6 to 7.75 bar (87 to 112 PSI)
Connection	6 mm tube
Connected to	Central unit or air compressor unit
*) if necessary a pressure reducer (optional) must be installed	
Power supply	
Power supply	100 - 240 VAC

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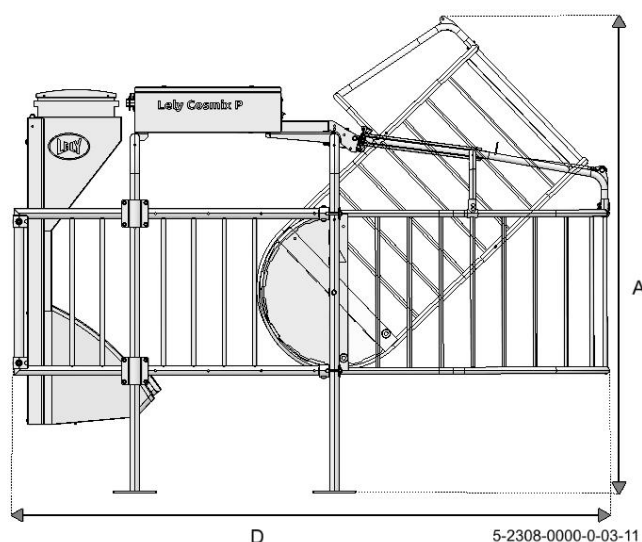
Earthing
Earthing of the machine must comply with current earthing regulations for barns (obey local rules and standards)
The earth wire must be connected to the earth point
An authorized electrician must approve the final electrical installation (including earthing) and supply an official report that is given to the Lely service provider before the installation is used

## NOTICE

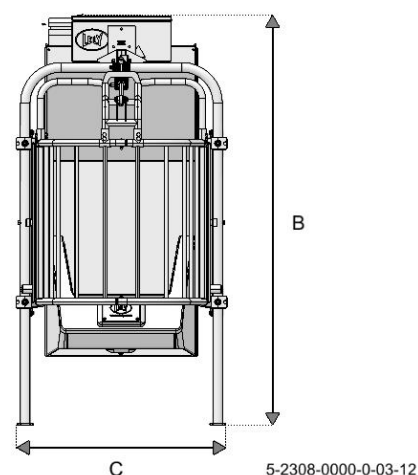
Warranty on electronics will not be given if the earthing is not correctly installed.

Network connection	
Cable type at least	LAN CAT.5e Ethernet cable, S-FTP 200 MHz (foil-screened twisted pair with overall screening (copper braiding)) with steel RJ-45 connector.
Maximum cable length	100 meters (109 yd) (use a switch if the distance is more than 100 meter (109 yd))

## 3.2 Dimensions and weight



KEY:  
A: 240 cm (94.49 in)  
D: 303.5 (119.5 in)



KEY:  
B: 208.5 cm (82 in)  
C: 105.5 cm (41.9 in)

- Weight: approx. 268 kg (591 lb).

### 3.3 Examine the Feed Type Suitability

#### 3.3.1 Provide an Indication if the Feed is Suitable for the Hopper



Figure 3. Fill a cup



Figure 4. Press the feed down



Figure 5. Wipe off the excess of feed



Figure 6. Carefully tilt the cup



Figure 7. Wipe the surface clean, reposition of feed particles



Figure 8. Wipe the surface clean

1. Fill a cup with feed (see figure 3 on page 3-3).
2. Press the feed down with medium force (see figure 4 on page 3-3).  
If the feed level is below the cups edge, fill it up and press it down again with (reasonable) force.
3. Wipe off the excess of feed above the cups edge (see figure 5 on page 3-3).

4. Place the cup on a flat surface and carefully tilt the cup on its side (see figure 6 on page 3-3).
5. Wipe away the feed on the surface that falls out of the cup. (see figure 7 on page 3-3).  
After wiping away the excess of feed in front of the cup, the feed will repositioning in the cup.
6. Wipe again the excess of feed that falls out of the cup (see figure 8 on page 3-3).
7. Determine the angle ( $\alpha^\circ$ ) of the feed in the cup (see figure 9 on page 3-4).
8. Determine the feed suitability (see table 1 on page 3-5).



Use a protractor ruler to determine the angle of the feed in the cup.

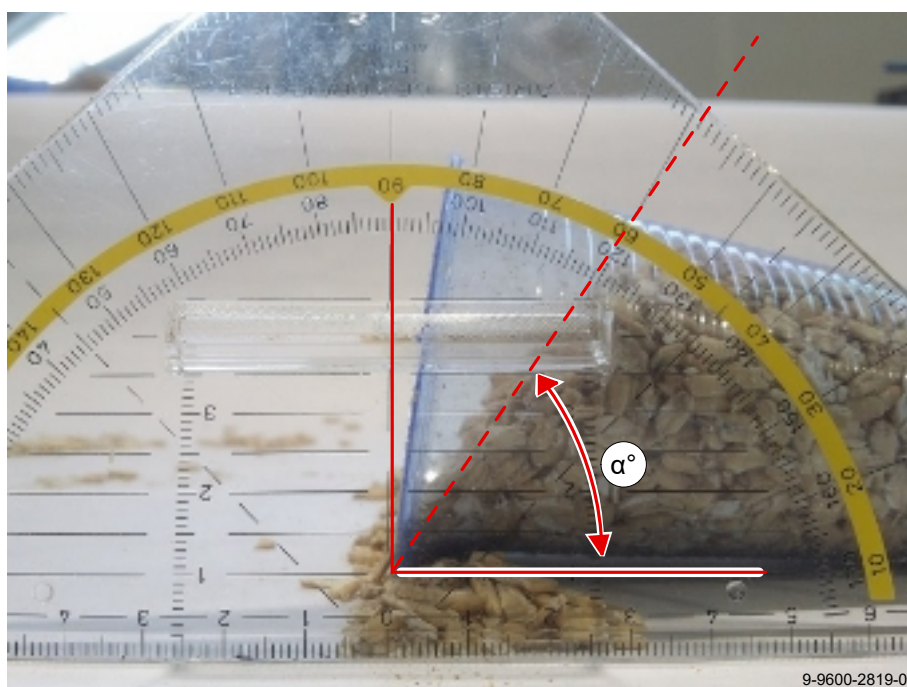


Figure 9. Determine the feed angle



### 3.3.2 Examine the Feed Suitability

#### Different types of Feed



Figure 10. Different type of feeds

KEY: From left to right, the feed types become more difficult to feed.

#### Risk indication and Feed Suitability

The steeper the angle ( $\alpha^\circ$ ), the more likely it will cause bridging problems in the feed hopper. The angle vs risk analysis (see Provide an Indication if the Feed is Suitable for the Hopper on page 3-3) can be made on this test (see table 1 on page 3-5).

Table 1. Angle vs risk indication

Angle ( $\alpha^\circ$ )	Risk	Bridging
Angle ( $\alpha^\circ$ ) < 45°.	Very low.	No bridging problems are expected.
45° ≤ Angle ( $\alpha^\circ$ ) < 65°.	Low.	The chance of bridging problems in the hopper is low.
65° ≤ Angle ( $\alpha^\circ$ ) < 75°.	Medium.	Occasional bridging problems can be expected. <ul style="list-style-type: none"> <li>The farmer should be aware of increased risk.</li> </ul>
75° ≤ Angle ( $\alpha^\circ$ ).	High.	Bridging problems are very likely. <ul style="list-style-type: none"> <li>The farmer should be aware of substantial risk.</li> <li>Using a different feed type is advised.</li> </ul>



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## 4 Description and operation

### 4.1 Introduction

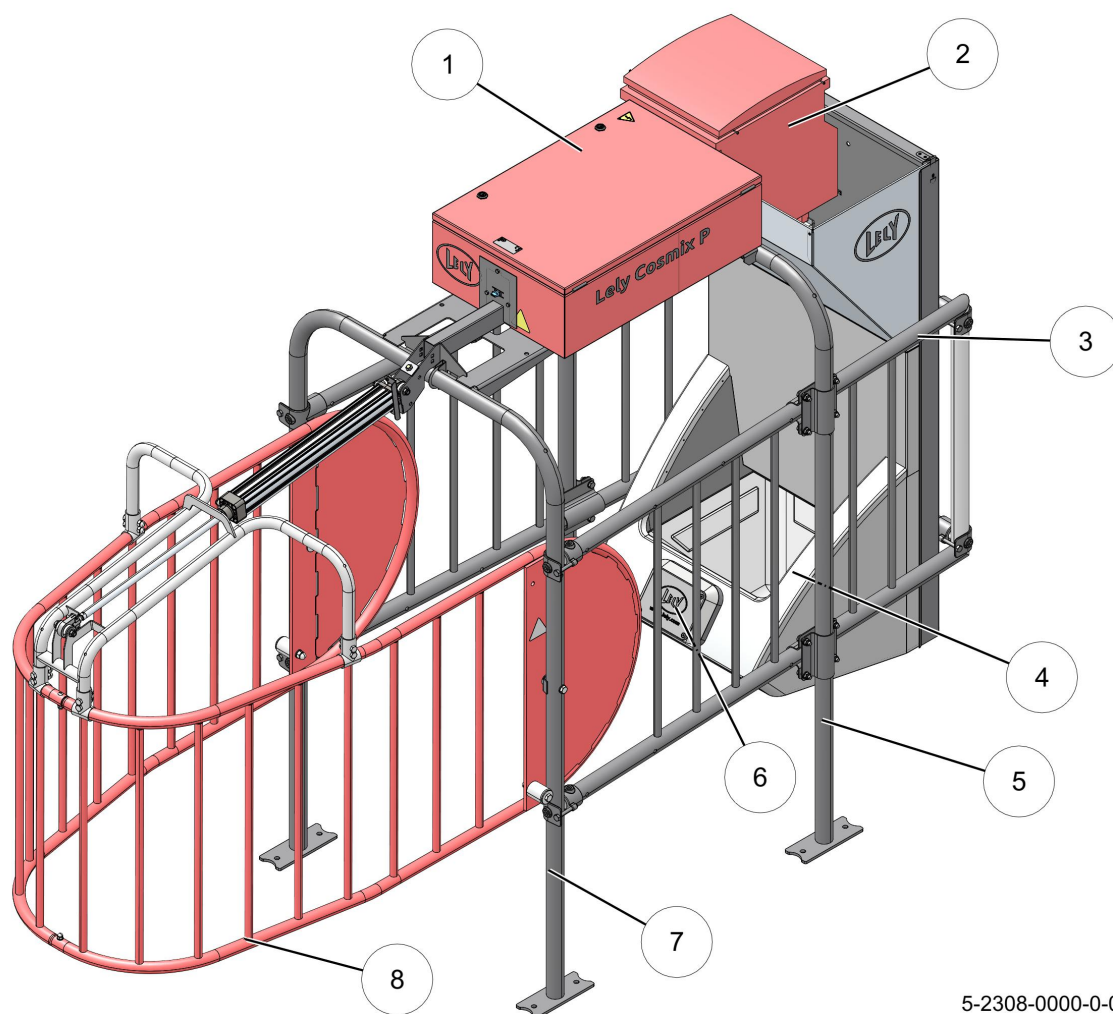
The machine has the following main parts:

- Frame and fencing
- Feed hopper(s) (1 - 2)
- Feed bin
- Control box
- Cow identification reader for Qwes ISO or Qwes LD identification.

The machine is installed in the barn.

The machine is connected to the Lely network.

The machine gets input from and sends output to the Horizon Farm Management application.

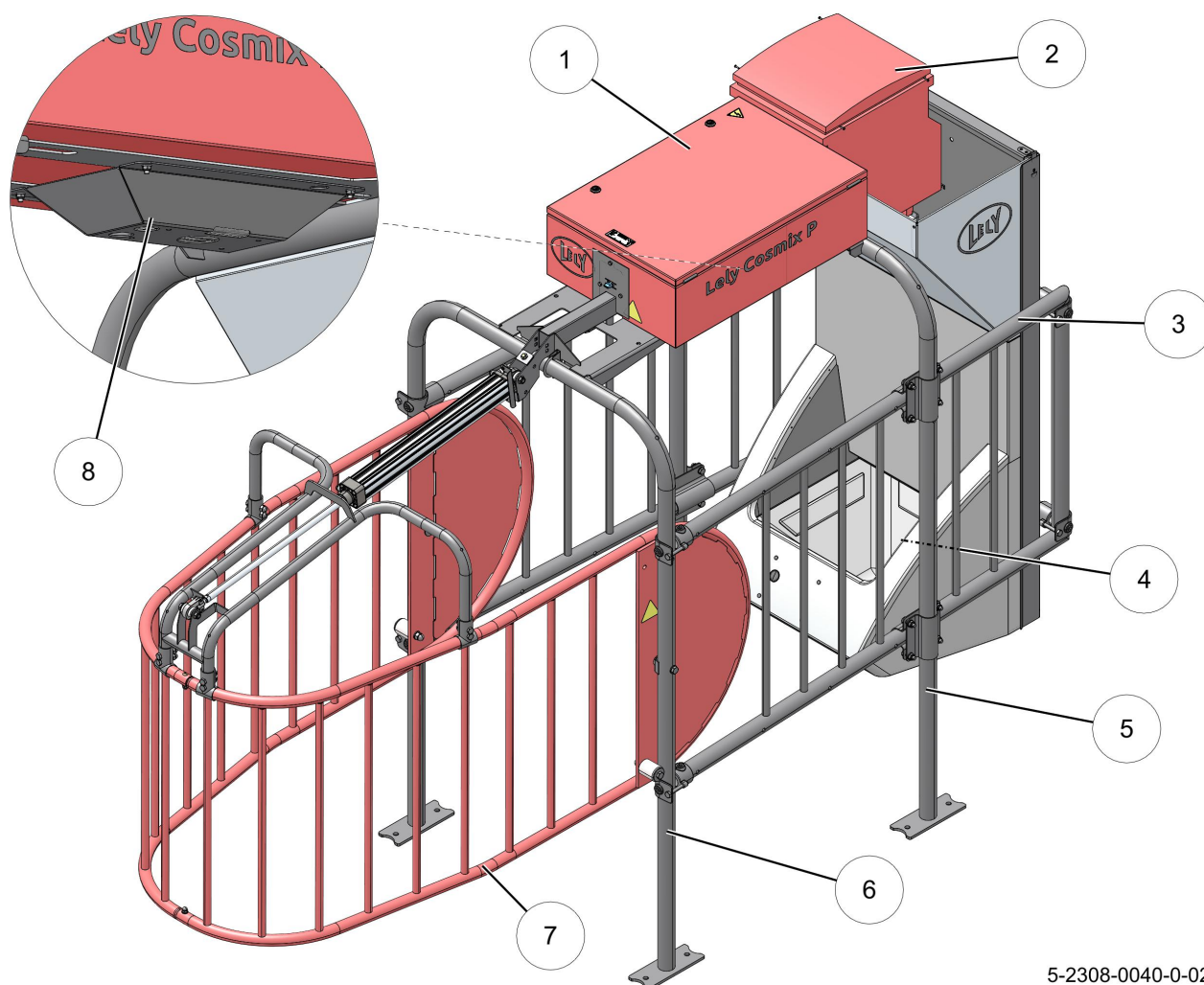


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Figure 11. Main components with Qwes ISO identification

KEY: 1. Control box - 2. Hopper in Feed unit - 3. Side fence - 4. Feed bin - 5. Front portal - 6. ID reader FSK ISO - 7. Rear portal - 8. M-box

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Figure 12. Main components with Qwes LD identification

KEY: 1. Control box - 2. Hopper in Feed unit - 3. Side fence - 4. Feed bin - 5. Front portal - 6. Rear portal - 7. M-box - 8. Qwes LD reader

## 4.2 Frame and fencing

The machine has the following frames and fences:

- Front portal.
- Rear portal.
- Side fence (2×).
- M-box.

The two side fences are connected to the front and the rear portal.

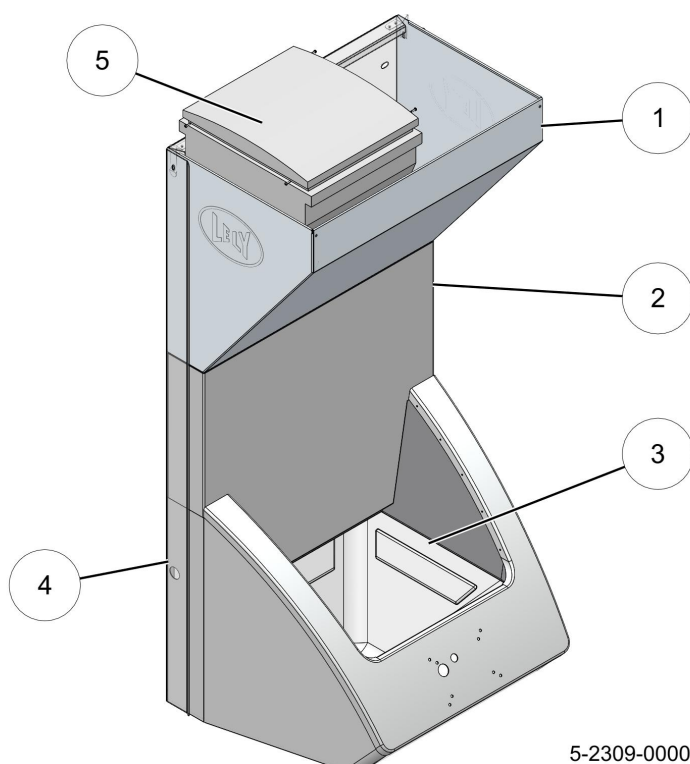
When the cow visits the machine the M-box is lowered behind her to prevent her from being hindered by other cows while eating.

## 4.3 Feed Unit

### 4.3.1 Feed unit

The feed unit can have 1 or 2 feed hoppers. The feed unit has the following parts:

- One or two feed hoppers.
- A stainless steel feed bin.
- A rear plate, cover plate and a front plate.



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Figure 13. Feed unit

KEY: 1. Cover plate - 2. Front plate - 3. Feed bin - 4. Rear plate - 5. Hopper

### 4.3.2 Feed hopper

The machine has one or two feed hoppers. Each feed hopper has a hopper, a dispenser and a drop pipe. In most cases the hoppers are filled by tube feeders that are connected to silos.

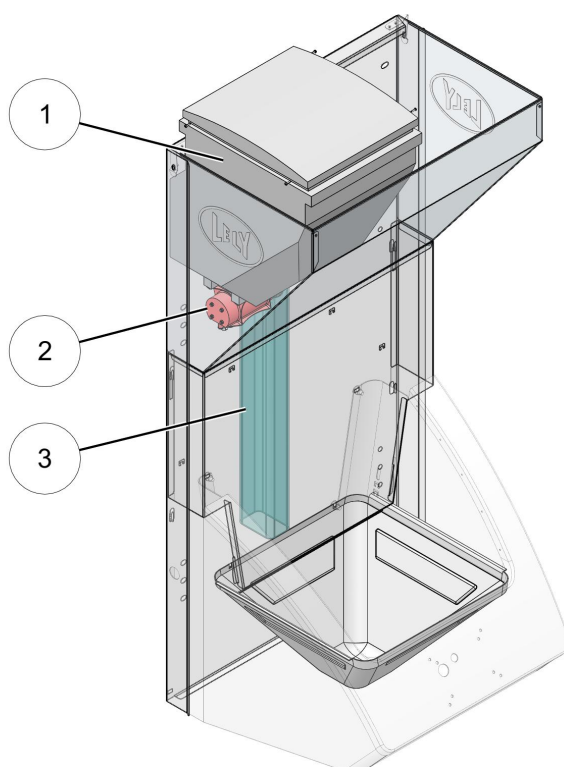
#### NOTICE

Lely does not supply tube feeders and silos.

The dispenser gives exactly the same volume each feed portion. It has a cylinder that retracts to fill with feed and extends to release the feed in the drop pipe. The weight of the volume of a feed portion must be calibrated when the feed type changes and when the silo is filled up with each new feed delivery.

The amount of concentrate to be fed to a cow is based on calculations made in Horizon. The proportion of each feed type and the total amount that is fed can be set per cow, group or herd.

The dosed feed falls through the drop pipe into the feed bin.



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Figure 14. Feed unit

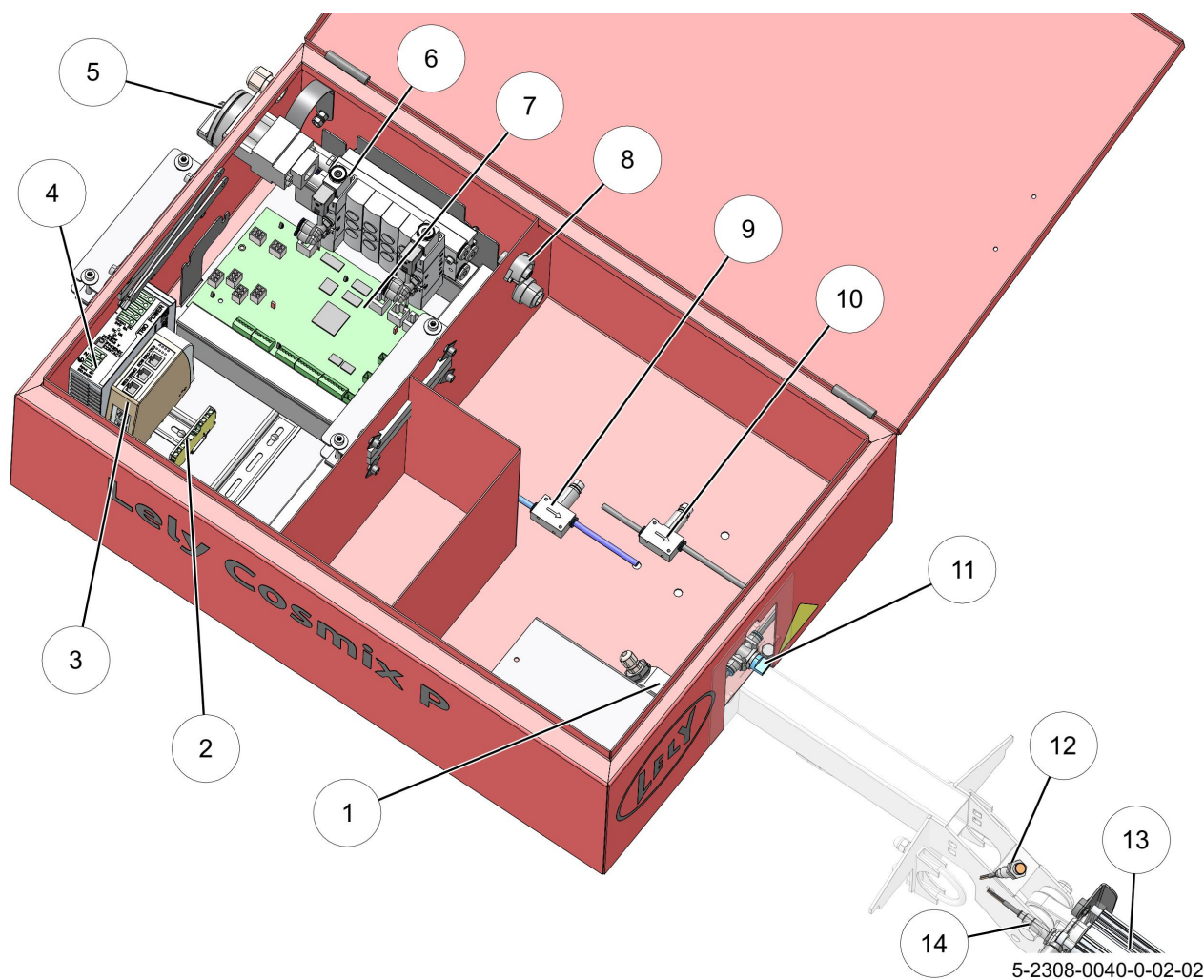
KEY: 1. Hopper - 2. Dispenser - 3. Drop pipe

## 4.4 Control Box

### 4.4.1 Control box

The control box controls the identification of cows, the lowering and lifting of the gate (M-box) and the supply of feed.





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Figure 15. Control box

KEY: 1. Photocell - 2. Earth connector - 3. Network switch (optional) - 4. Power supply (24V) - 5. On/Off switch - 6. Air valves block - 7. ADS3830 pcb - 8. E-Link connector - 9. Pressure reducer - 10. Pressure reducer - 11. Manual air valve - 12. Gate (M-box) up sensor - 13. Pneumatic cylinder - 14. Gate (M-box) down sensor

#### 4.4.2 ADS3830 PCB

The ADS3830 pcb receives the signals from the photocell and sensors up and down on the M-box. The pcb communicates with the ID reader.

The control software that runs on the pcb communicates with Horizon.

The ADS3830 pcb controls the valves that supply air to the cylinders of the dispensers and M-box. The pcb is installed in the control box.

#### 4.4.3 Air valves block

The air valves are solenoid valves and supply pressurized air to the cylinders of the feed hopper(s) and to the cylinder of the M-box.



The air valves are installed on a valve terminal. A standard configuration has one solenoid valve for the dispenser and one for the M-box cylinder and four blanking plates. If an additional feed hopper is installed, an additional air valve is also installed. The valves are controlled by the ADS3830 pcb.

#### **4.4.4 Photoelectric sensor**

The photoelectric sensor has a housing that contains an emitting element (infrared LED) and a receiving element (photodiode). It is installed on a bracket on the base plate of the control box.

The photoelectric sensor gets input when a cow is in the concentrate feeder.

The photoelectric sensor sends output to the ADS3830 pcb.

#### **4.4.5 Manual air pressure On/Off valve**

The manual air pressure On/Off valve can be used to take the air pressure of the machine during maintenance or in an unforeseen situation. When the valve is closed the M-box slowly lowers from its lifted position. When the M-box is in the lowered position when the valve is closed it is possible to lift the M-box manually.

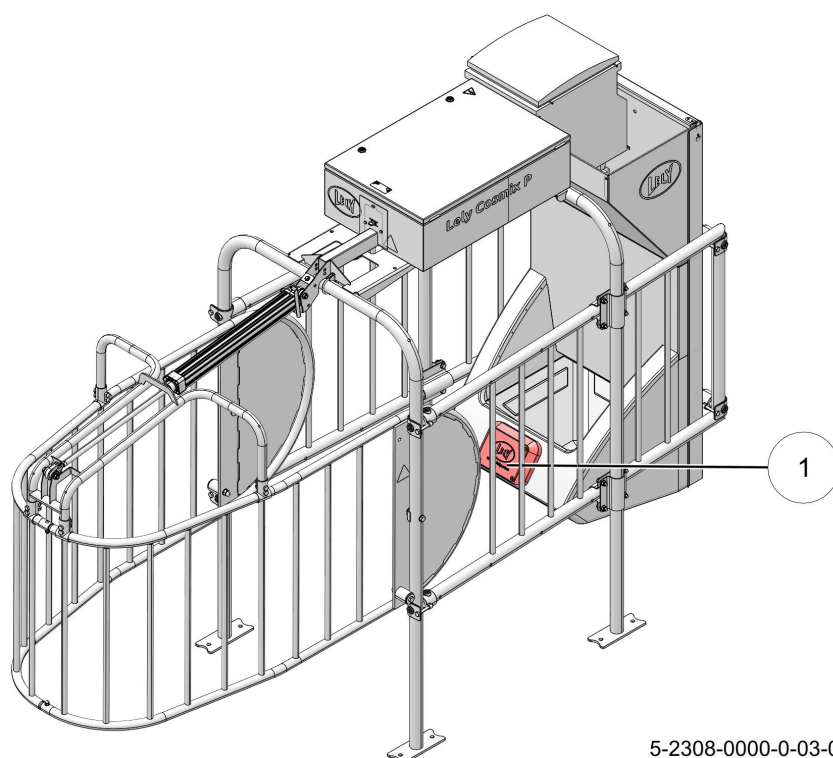
The feed dosing stops when the valve is closed.

### **4.5 Cow Identification (ID) Readers**

#### **4.5.1 Qwes ISO neck ID reader**

The Qwes ISO cow identification system has two components:

- The cow neck tag (Qwes ISO LD neck, Qwes ISO neck tag).
- The ID reader (ISO).



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Figure 16. Qwes ISO neck ID reader

KEY: 1. ISO ID reader

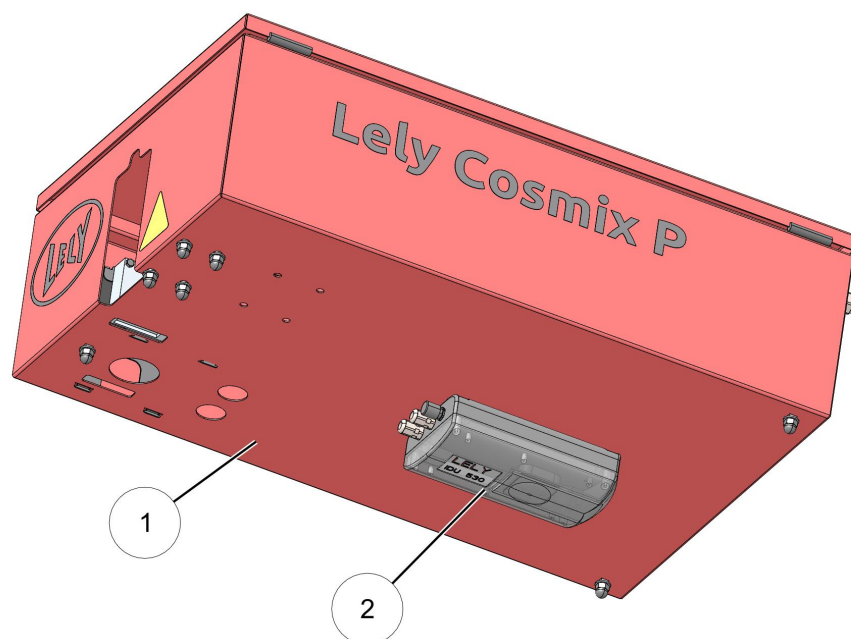
The cow tag is installed on a collar on the neck of the cow.

The ID reader is a sealed plastic box with an internal antenna (MIMI). The box is installed on a mounting plate that is installed on the front plate under the feed bin.

#### 4.5.2 Qwes H/HR-LD identification

The Qwes H/HR-LD cow identification system has two components:

- The cow tag (Qwes HR-LDn, Qwes H-LD or Qwes HR-LD).
- The Infrared LD reader (IDU 530).



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Figure 17. IR LD reader

KEY: 1. Bottom of the control box - 2. LD reader

The reader (IDU 530) is a plastic box installed in a stainless steel bracket below the control box . It has the following components:

- Infrared receiver and an RF transmitter.
- Indicator LEDs for cow presence and data transfer.
- PCB.

The transmitter, receiver and indicator LEDs are connected to the PCB, the PCB is connected to the ADS3830 PCB.

## 4.6 Operator Interface

### 4.6.1 Operator interface

The settings of the machine are made in the Farm Management Application Horizon. For calibration there is a web interface.

Lely technicians can use an E-Link Classic and change the machine settings.

## 4.6.2 The farm management application Horizon

### 4.6.2.1 Horizon

The Farm Management Application Horizon is used to:

- Setup the machine
- Set the amount of concentrate the machine supplies for every individual cow
- Show information about the feed consumption

The Horizon app receives data requests from the machine.

The Horizon app sends data (new and updated) to the machine.

### 4.6.2.2 Dashboard of Horizon

The Horizon application is displayed in a browser on a PC. The dashboard has the following parts:

- Header
- Navigation bar
- Data page

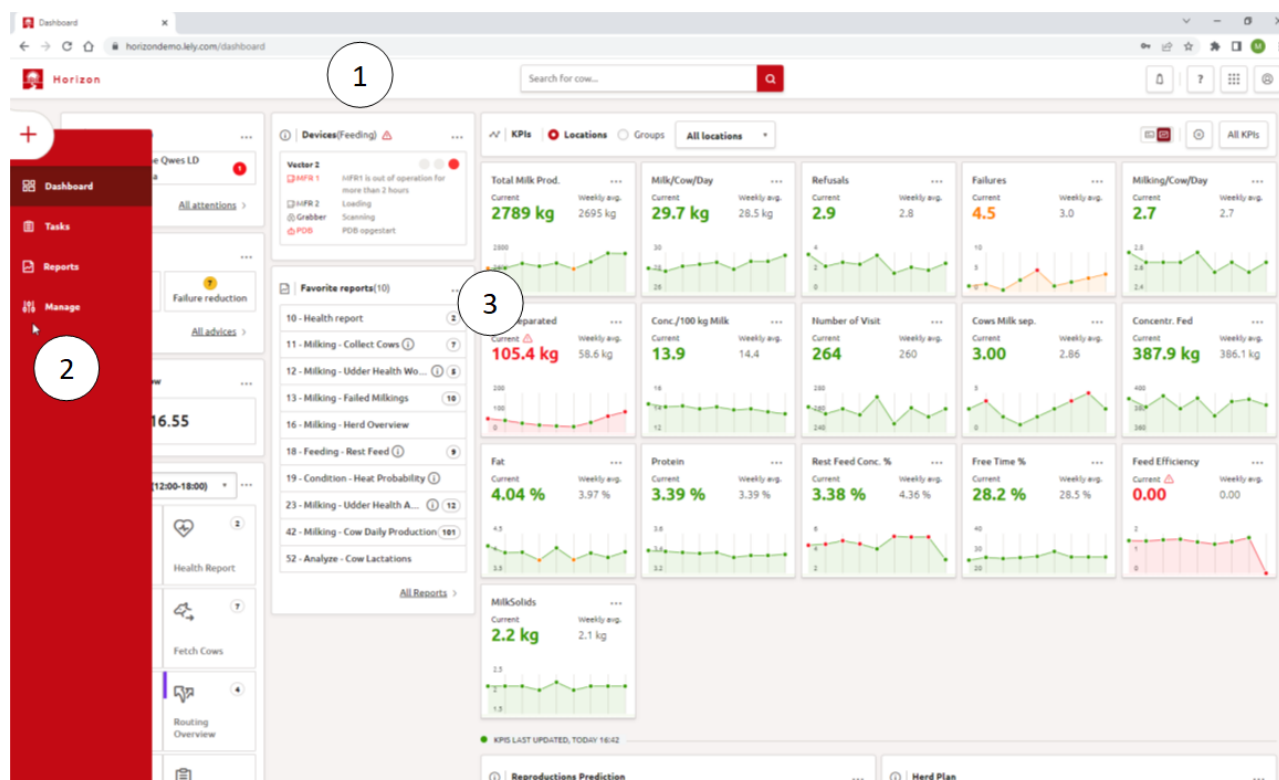


Figure 18. Horizon

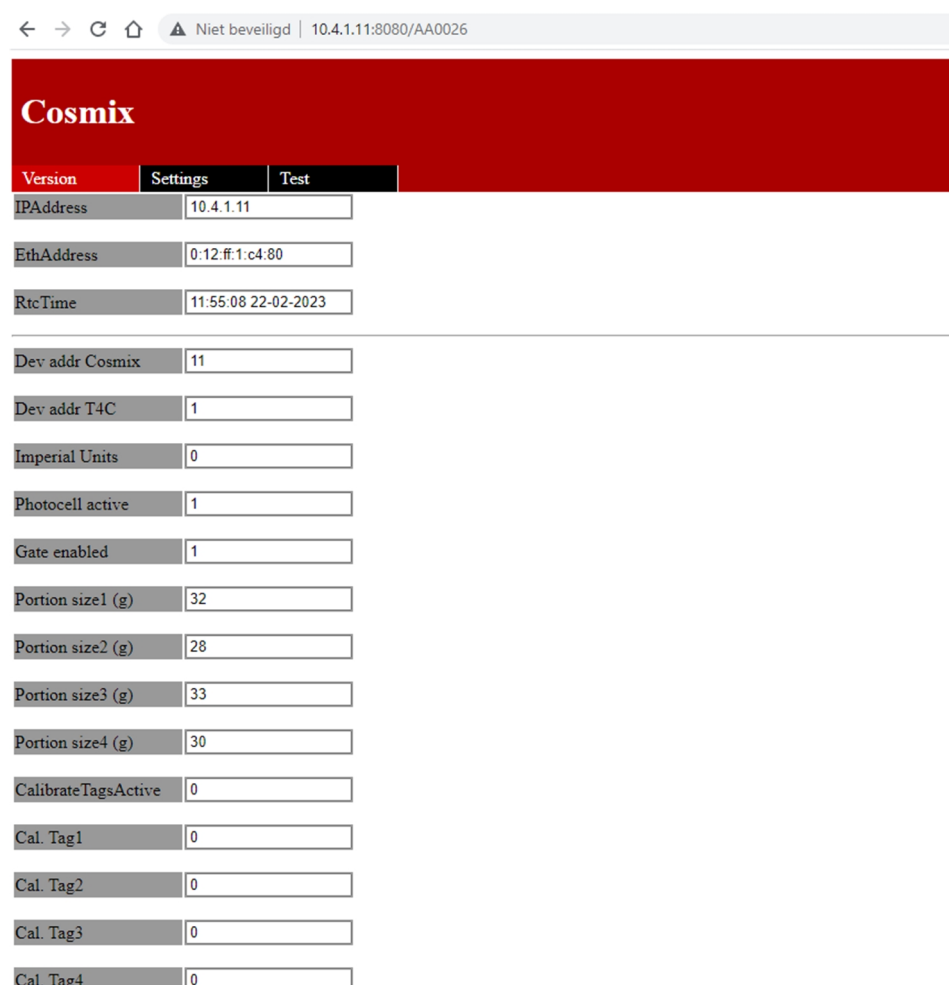
KEY: 1. Header - 2. Navigation bar - 3. Data page

### 4.6.3 Web interface (for calibration)

The web interface of the ADS3830 pcb is accessible with an internet browser on a PC connected to the Lely network (for example on the PC you use for Horizon). You can start this web page by typing: 10.4.1.11:8080

11 in this example is the number of the machine, this is usually the number for the first concentrate feeder, replace the machine number by the number of the machine you want to calibrate.

The web interface enables changes to be made to all the device settings except the IP-address. Only use the settings of this web page to calibrate the feed dispenser(s), other settings can be used by Lely technicians.



The screenshot shows a web browser window with the address bar displaying "Niet beveiligd | 10.4.1.11:8080/AA0026". The page title is "Cosmix". Below the title is a navigation bar with three tabs: "Version", "Settings", and "Test". The "Settings" tab is active. The settings are organized into two sections. The first section contains three rows: "IPAddress" with value "10.4.1.11", "EthAddress" with value "0:12:ff:1:c4:80", and "RtcTime" with value "11:55:08 22-02-2023". The second section contains 16 rows of settings, each with a label and a value in a text input field: "Dev addr Cosmix" (11), "Dev addr T4C" (1), "Imperial Units" (0), "Photocell active" (1), "Gate enabled" (1), "Portion size1 (g)" (32), "Portion size2 (g)" (28), "Portion size3 (g)" (33), "Portion size4 (g)" (30), "CalibrateTagsActive" (0), "Cal. Tag1" (0), "Cal. Tag2" (0), "Cal. Tag3" (0), "Cal. Tag4" (0).

Figure 19. Web interface

## 4.7 Operation

### 4.7.1 Identification

#### Qwes ISO LD neck identification system

When the cow moves her head to the feed bin, the antenna in the ID reader reads the tag. The ID reader sends the data of the tag to the ADS3830 pcb.

## Qwes HR LDn identification system

The photoelectric sensor on the control box detects the presence of a cow and activates the LD reader. A number of LEDs start flashing in the reader. This activates the cow tag which will send a radio signal back to the IDU 530 reader. The data is sent to the ADS3830 pcb. After that the LD reader will stop reading the tag to preserve the battery.

### 4.7.2 Feeding

The control system identifies the cow and synchronizes its information with the data in Horizon. Based on the information for the specific cow, the feed credit is calculated. If the cow has feed credit the control system opens the lock from the dosing unit(s) to provide the specific mix of concentrates for the cow.

Before the concentrate feeder starts feeding, two conditions must be met:

- The cow has feed credit for the connected feed types.
- The cow is allowed to eat in the concentrate feeder (no block time).

#### Feed credit

The amount to be fed must be higher than 0 kg (0 lb) for at least one of the connected feed types. Also, the amount must be higher than the minimum portion size set in Horizon.

#### Allowance to eat

Cows are allowed to eat if:

- The visit is not in one of the blocking periods set in Horizon.  
To set these advanced block times in Horizon select **Manage** go to the panel **Milk** and select **Milk access**. At the bottom on the right you can find the **Cosmix settings** and activate the advanced block times. Once activated, you can set the allowance before and after milking.
- Robot Feeding is switched on. However if the feed types in the milking robot and Cosmix are different, or have a different name, Robot Feeding must be set to off.  
To set Robot Feeding on or off in horizon select **Manage** go to the panel **Devices** and select **Device Configuration**. Select or deselect **Robot Feed** for one or two feed stuffs.
- The cow is not due to be milked, which means that it is not necessary to attract the cow to go to the milking robot (and to eat her portion of concentrates in the robot).  
To adjust the near to be milked interval in Horizon select **Manage** go to the panel **Milk** and select **Milk access**. At the bottom on the left you can find the setting **Near to be milked interval**: this is a setting for both the Cosmix and the Grazeway.

Consult your FMS advisor for the best settings for your farm.

### 4.7.3 M-Box

When the cow steps into the concentrate feeder and has feed credit, the M-box is lowered behind the cow. The M-box is raised again 30 seconds after the last portion of the credit is supplied. This allows the cow to finish her portion. The cow steps out of the concentrate feeder.

### 4.7.4 End of visit

At the end of the visit, the dispensed amount of feed (eaten amount) is stored in the local database and sent to Horizon.

#### **4.7.5 Interaction between the components of the concentrate feeder**

The concentrate feeder is connected to the Lely network. After installation, the concentrate feeder is given a device ID and an IP address. These settings are used in the Horizon software.

##### **The Horizon software**

In Horizon the feeding criteria are set. Horizon supplies the ADS3830 PCB database with the necessary data. When a cow enters the concentrate feeder for the first time, the ADS3830 PCB requests the cow data from Horizon. Once the cow is in the database on the ADS3830 PCB, Horizon automatically synchronizes the cow data after each change of data.

##### **The E-Link manual controller**

The E-Link Manual Controller is used by the service technician to set the initial settings (after installation) and to test and monitor the concentrate feeder.

##### **The Cosmix web interface**

The web page is used to calibrate the feed dispenser(s).

Service technician use the web page to set the initial settings (after installation) and to test and monitor the machine.



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## 5 Operating Instructions

### 5.1 Operation in Horizon

#### 5.1.1 List details about the rest feed in Horizon

#### NOTICE

Make sure the connection with Horizon is still working properly if:

- Two or more concentrate feeders are installed and
- The amount of rest feed in Horizon raises quickly.

1. In the navigation bar select: **Reports**.  
Lines with available reports appear.

#### NOTICE

Make sure feed types that are fed in the concentrate feeder have a unique name. This makes it possible to report feeding details from the concentrate feeder separate from the milking robot.

2. Select report number 18. Feeding - Rest Feed.  
Rest feed of each feed stuff is displayed for each cow.

#### NOTICE

Be aware that only cows that have rest feed are displayed in this report.

#### 5.1.2 List a feed overview in Horizon

#### NOTICE

The report Feeding- Feed Overview Astronaut/Cosmix displays information about all cows.

1. In the navigation bar select: **Reports**.  
Above the lines with available reports that appear, you can find several tabs.
2. Select the tab **Feeding** or **Device**.  
You can find the overview on both tabs.

3. Select the report Feeding -Feed Overview Astronaut/Cosmix.

### 5.1.3 List an intake per device in Horizon

---

**NOTICE**

The report Feeding - Intake Overview Astronaut/Cosmix displays the total feed intake per device address and per feed type per day.

---

1. In the navigation bar select: **Reports**.  
Above the lines with available reports that appear, you can find several tabs.
2. Select the tab **Feeding** or **Device**.  
You can find the overview on both tabs.
3. Select the report Feeding - Intake Overview Astronaut/Cosmix.

## 6 Maintenance

### 6.1 Clean the machine

#### NOTICE

Do not use a high pressure cleaner or spout water on the control box and ID reader, this can cause serious damage to the electronics.

1. Use a wet brush or moist cloth to clean the machine.

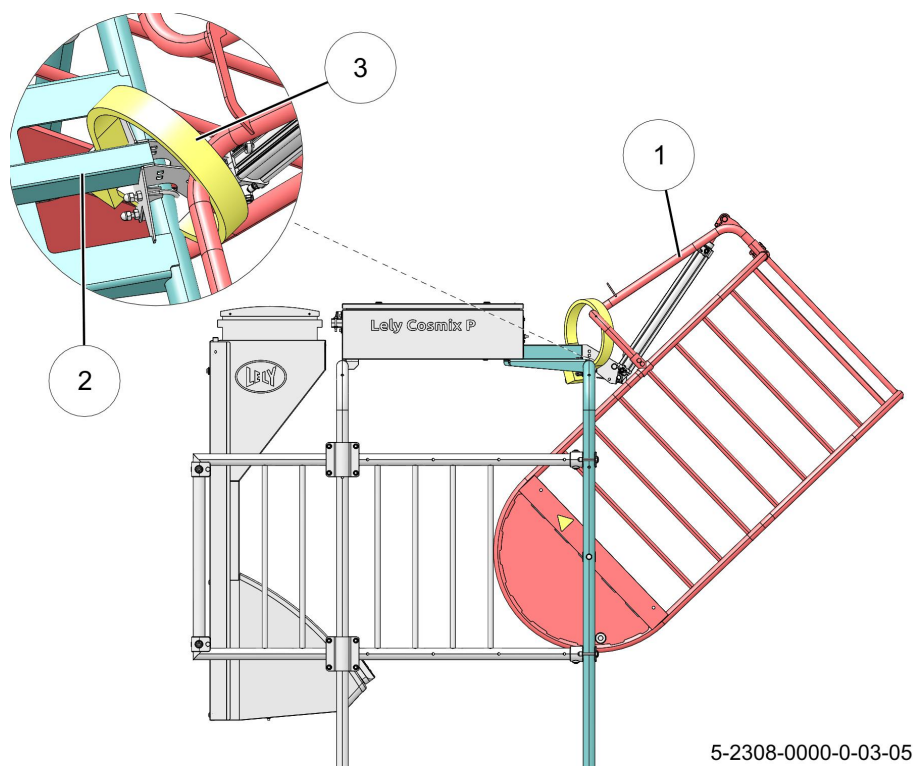
### 6.2 Clean the photocell

#### ⚠ WARNING

*Unexpected cow movement  
Risk of being crushed or trampled.  
Block the cow traffic.*

1. Block the cow traffic.

2. Tie the gate (1) to the middle bracket (2) of the frame to ensure the gate stays up while you do maintenance.

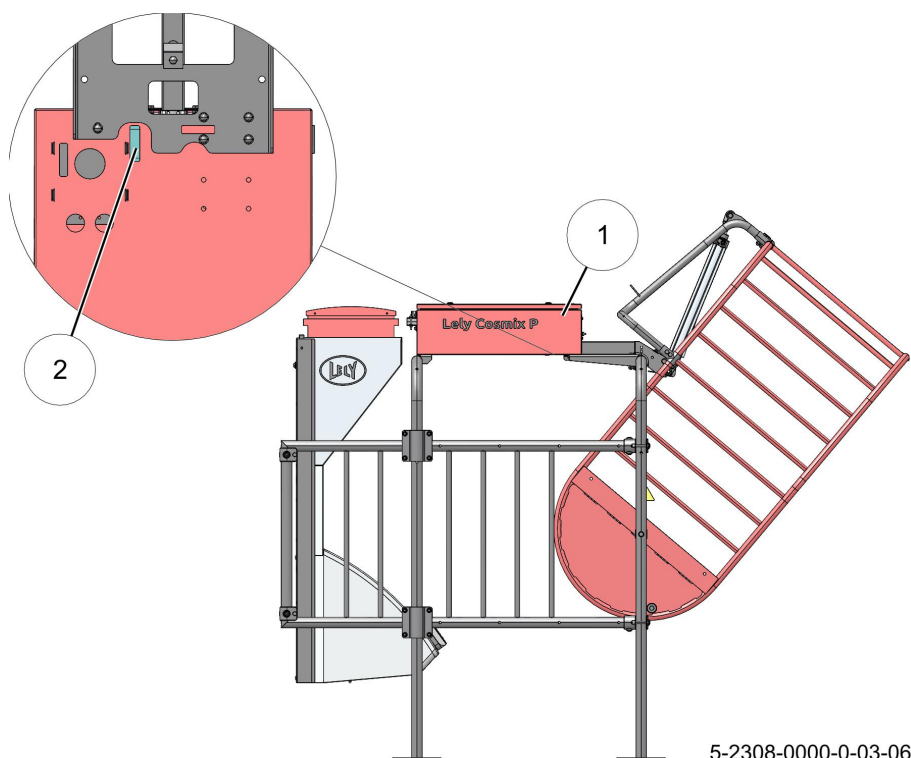


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*Figure 20. Tie the gate*

KEY: 1. Gate - 2. Centre bracket - 3. Rope or belt

3. locate the photocell (2) under the control box (1).



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Figure 21. Photocell

KEY: 1. Control box - 2. Photocell

4. Clean the glass under the photocell with a soft moist towel and a small quantity of lens cleaner liquid.
5. Remove the rope or belt (3) (see figure 20 on page 6-2) to release the gate.
6. Unblock the cow traffic.

## 6.3 Calibrate the feed portion of the dispenser

Necessary tools for this procedure:

- a scale to weigh the feed
- a cow tag and a second cow tag if a second feed hopper is installed
- a scoop to remove the feed from the bin
- a bucket
- a rope or belt to tie the gate

---

**NOTICE**

To supply the correct amount of feed, the feed portions must be calibrated every 3 months, or when the feed type in the hopper changes. The calibration weight is stored in the PCB.

---

1. Open a web browser on a PC connected to the Lely network.
- 

**NOTICE**

The IP-address for the first machine is 10.4.1.11 for the second 10.4.1.12 and so on. If this IP-address does not work, ask your Lely service technician for the correct IP-address.

---

2. Enter the IP-address: HTTP://10.4.1.xx:8080 (xx=11 or 12 and so on) in the address field of the web browser.



HTTP://10.4.11:8080



**Cosmix**

### 3. Select the tab Settings (1).

Version	Settings	Test
IPAddress	10.4.1.11	
EthAddress	0:12:ff:1:c4:80	
RtcTime	11:55:08 22-02-2023	
Dev addr Cosmix	11	
Dev addr T4C	1	
Imperial Units	0	
Photocell active	1	
Gate enabled	1	
Portion size1 (g)	32	
Portion size2 (g)	28	
Portion size3 (g)	33	
Portion size4 (g)	30	
CalibrateTagsActive	0	
Cal. Tag1	0	
Cal. Tag2	0	
Cal. Tag3	0	
Cal. Tag4	0	

Figure 22. Web page settings tab

KEY: 1. Settings tab

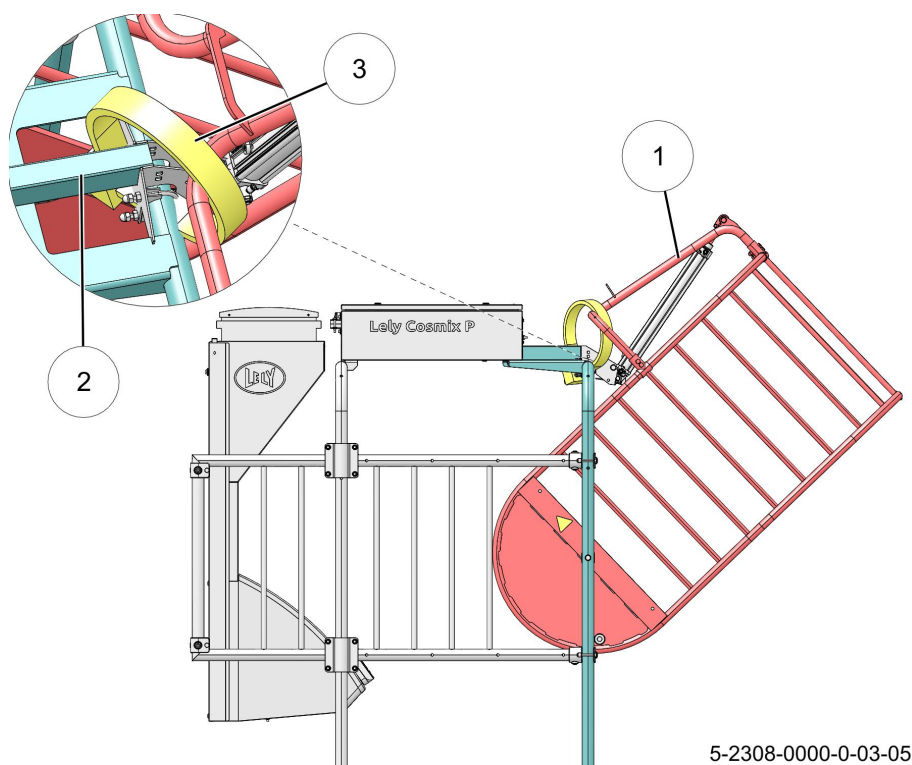
4. In the field **Cal. Tag1** type the cow tag you will use to start the calibration and push <Enter> on the keyboard.
5. If there is a second hopper installed, repeat step 4 for the field **Cal. Tag2**, and make sure you use a different cow tag.
6. In the field **Calibrate TagsActive** change the zero into 1 and push <Enter>. The calibration tags are now activated, when the ID reader detects the tag, 10 portions will be dosed.



**WARNING**

**Unexpected cow movement  
Risk of being crushed or trampled.  
Block the cow traffic.**

7. Go to the machine and block the cow traffic.
8. Tie the gate (1) to the middle bracket (2) of the frame to ensure the gate stays up while you do maintenance.



5-2308-0000-0-03-05

Figure 23. Tie the gate

KEY: 1. Gate - 2. Centre bracket - 3. Rope or belt

9. If any feed is present, empty the feed bin.
10. Stand in front of the feed bin, the photocell is activated and hold the calibration tag near the ID reader. The hopper will dispense 10 feed portions.
11. Put an empty bucket on the scale.
12. Reset the scale to zero.
13. Put the feed from the feed bin in the bucket.
14. Weigh the feed on the scale, and make a note of the weight (in gram or lb).
15. If a second hopper is installed repeat step 10- 14 with the second cow tag.
16. Remove the rope or belt (3) (see figure 23 on page 6-6) to release the gate.
17. Unblock the cow traffic.
18. Again open the web page on a browser on a PC connected to the Lely network.
19. Select the tab Settings.
20. Divide the noted weight by 10, and insert it in the field **Portion Size1** (in gram or lb) and push <Enter>.



21. If a second hopper is installed repeat step 20 for the field **Portion Size2** (in gram or lb) and push <Enter>.
22. In the field **Calibrate TagsActive** change the 1 into zero and push <Enter>. The calibration tags are now deactivated.



Make sure you always save the settings on the web page by pushing <Enter> on the keyboard.

---



If you are sure the calibration tag(s) is only used for calibration and will not be put on a cow, you can leave the tags always active.

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## 7 Troubleshooting

### 7.1 Troubleshooting table

Symptom	Possible cause	Solution
A particular cow is not fed.	Responder number is not known in Horizon	Enter the correct responder number without leading zeros.
	The cow has no feed credit in Horizon	Make sure the cow has feed credit.
	The cow number is greater than 32000	Adjust the cow number.
	Other	Call your local Lely service provider.
The feed is delivered too fast.	Cow recognition and feed delivery starts when the cow is away from the feed unit.	Call your local Lely service provider.
Error message.	Feed hopper and/or feed pipe and dispenser is clogged	<ul style="list-style-type: none"> <li>• Clean the feed pipe (see Clean the feed pipe on page 7-2).</li> <li>• Unblock the feed hopper (see Unblock the feed hopper on page 7-8).</li> </ul>
M-box does not open/close.	<ul style="list-style-type: none"> <li>• Sensor defect.</li> <li>• Wrong software.</li> <li>• Cylinder flow reducer(s) closed too far.</li> <li>• Sensor(s) not flush with nut (s).</li> </ul>	Call your local Lely service provider to test and: <ul style="list-style-type: none"> <li>• Make sure the sensor triggers the input on the ADS3830 PCB (LED comes on)</li> <li>• Update the software.</li> <li>• Open cylinder flow reducer(s) further.</li> <li>• Install sensor(s) flush with nut (s).</li> </ul>
M-box closes too fast and opens too slow.	Pressure reducer not correct adjusted  Pressure reducers swapped.	Call your local Lely service provider to test and: <ul style="list-style-type: none"> <li>• Make sure the pressure reducer is properly adjusted.</li> <li>• Swap pressure reducers.</li> </ul>
The cow is eating with the M-box open.	M-box in error state.	Switch the main switch off and after a few seconds on.

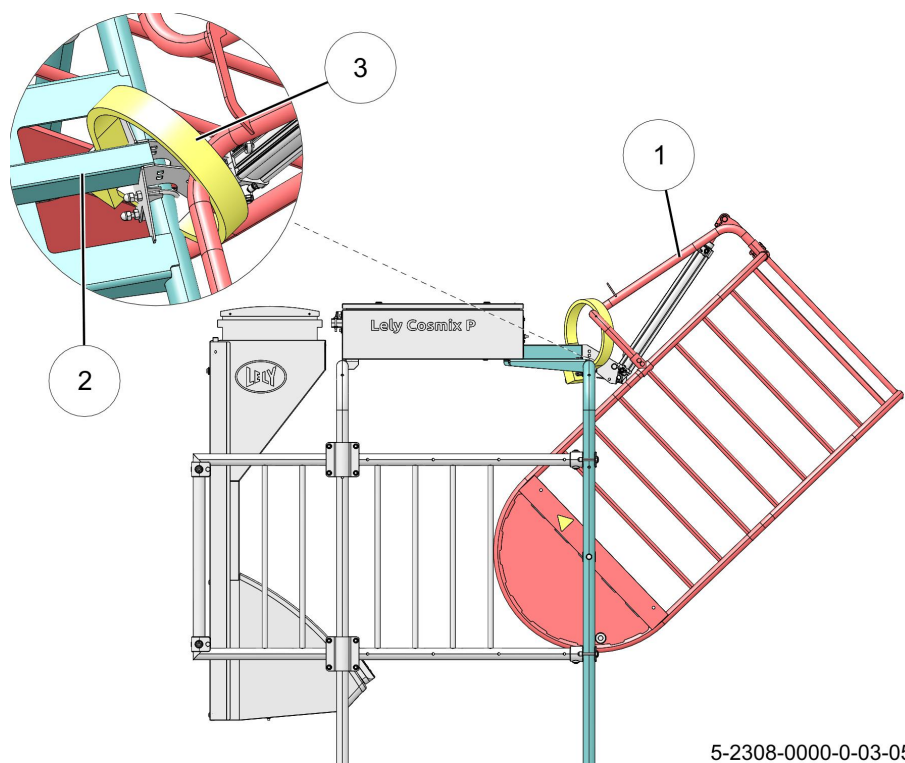
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## 7.2 Clean the feed pipe



**Unexpected cow movement**  
**Risk of being crushed or trampled.**  
**Block the cow traffic.**

1. Block the cow traffic.
2. Tie the gate (1) to the middle bracket (2) of the frame to ensure the gate stays up while you do maintenance.



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Figure 24. Tie the gate

KEY: 1. Gate - 2. Centre bracket - 3. Rope or belt

3. Disconnect the power and turn the on/off switch (1) to off.

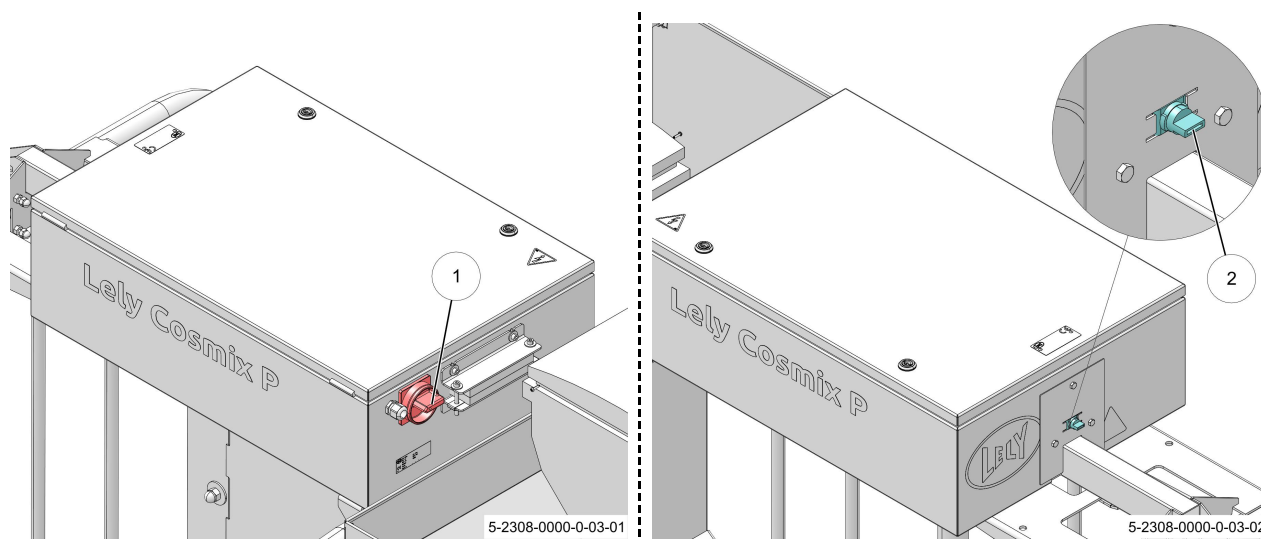


Figure 25. Power switch and air supply valve

KEY: 1. Power switch - 2. Air supply valve

4. Close the air supply valve (2) installed on the outside of the control box.
5. Redirect cables and tubes that will be in the way when you lift the cover plate a bit.



*Sharp edges  
Risk of getting cut by sharp edges.  
Wear safety gloves.*

6. Wear safety gloves when you remove the cover plate.

7. Pull the springs (2) on both sides of the cover plate (1) and release the pin (4) from the slot.

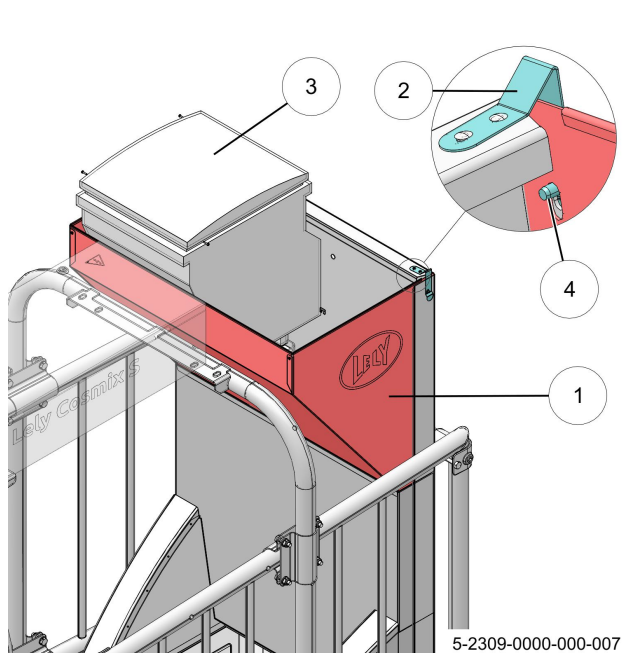


Figure 26. Release the cover plate

KEY: 1. Cover plate - 2. Spring bracket - 3. Hopper - 4. Pin

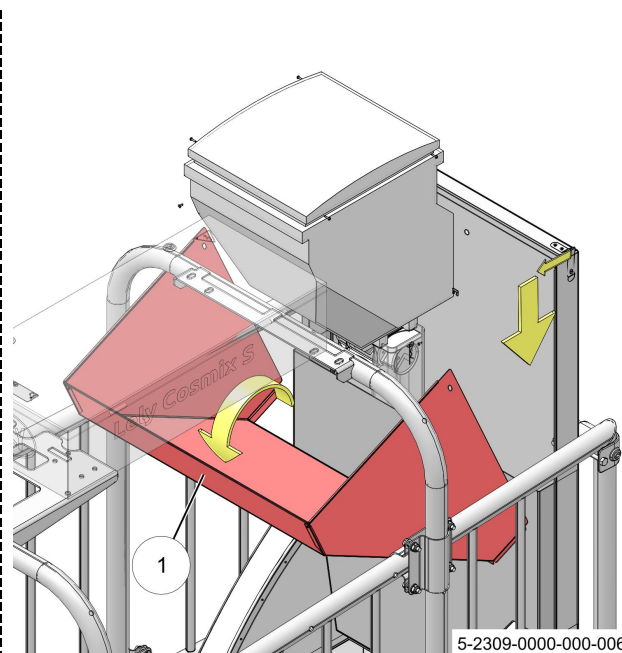
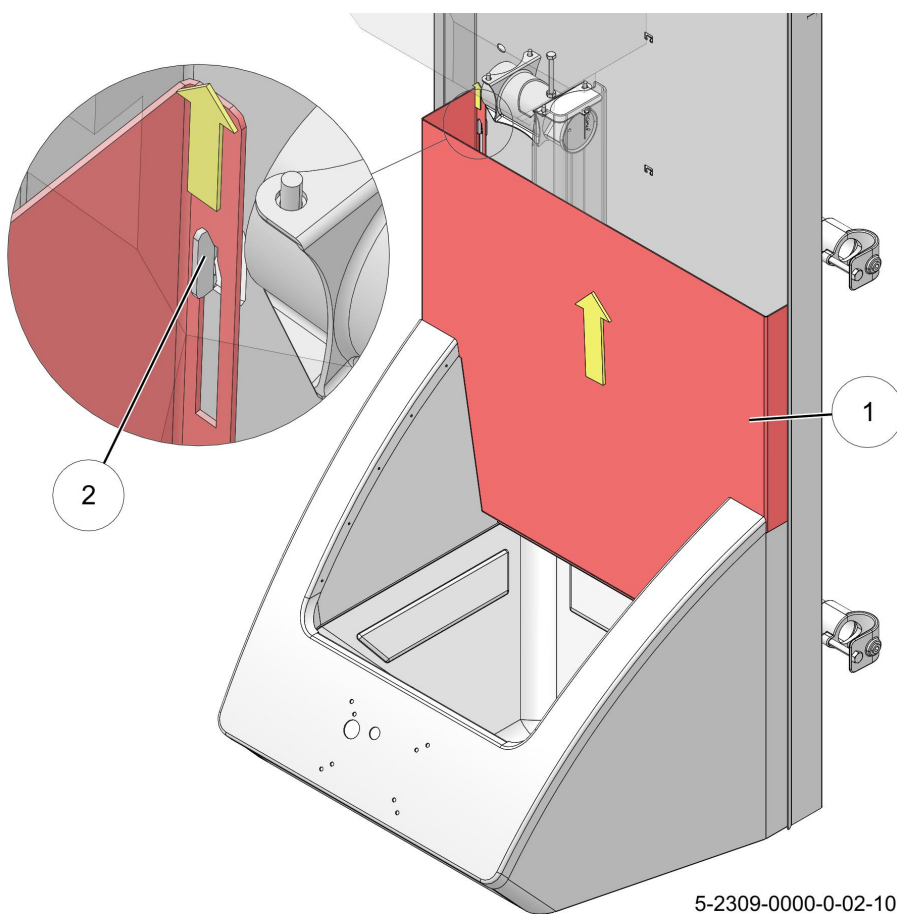


Figure 27. Remove the cover plate

8. Pull down and turn and remove the cover plate.

9. Lift and remove the front plate (1) from the hook (2) on both sides of the rear plate.



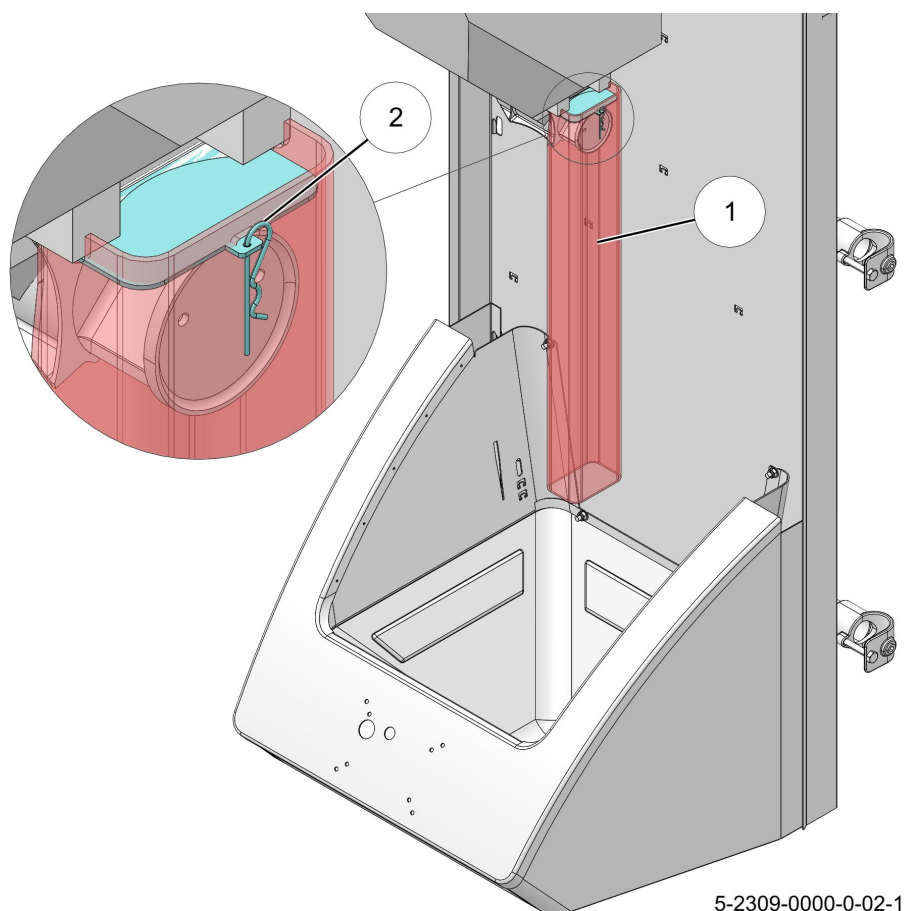
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*Figure 28. Remove the front plate*

KEY: 1. Front plate - 2. Hook

10. Remove the retaining spring (2) from the feed pipe (1) and remove the feed pipe.



5-2309-0000-0-02-11

*Figure 29. Remove the feed pipe*

KEY: 1. Feed pipe - 2. Retaining spring clip



**CAUTION**

*Risk of entrapment of your fingers.  
Serious injury of your fingers.  
Make sure you have switched off the power and closed the manual air pressure valve before you touch the slide.*

11. Clean the feed pipe and the slide (1), the slide is the moving part of the dispenser valve.

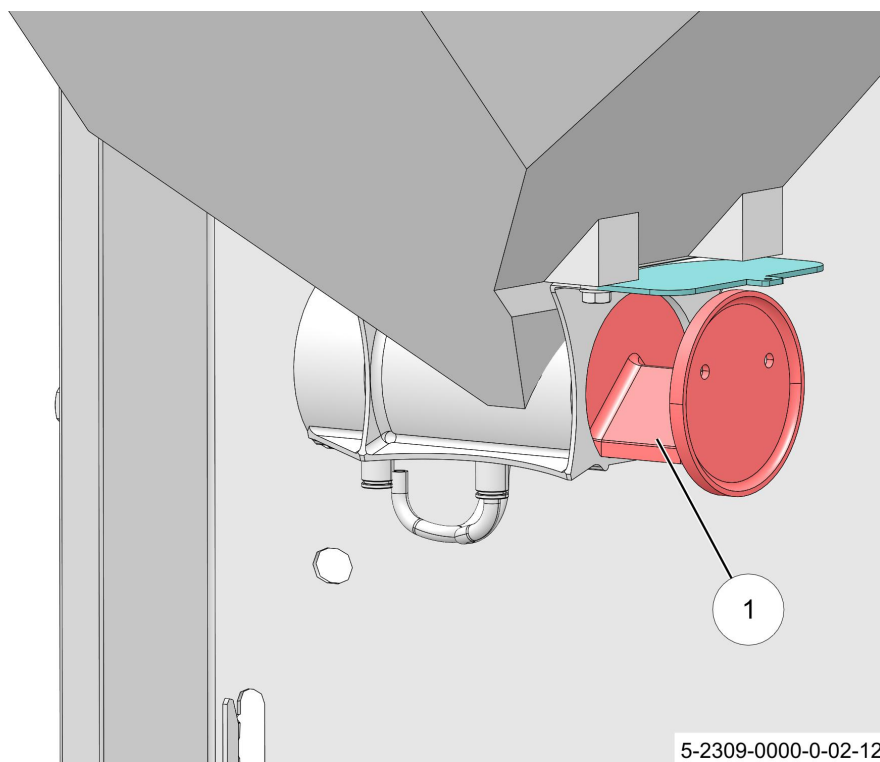


Figure 30. Dispenser valve

KEY: 1. Slide

12. Install the feed pipe (1) (see figure 29 on page 7-6) with the retaining spring clip (2).  
13. Install the front plate (1) (see figure 28 on page 7-5) on the rear plate (2).

14. Take the cover plate (1) inside the box in front of the feed box.

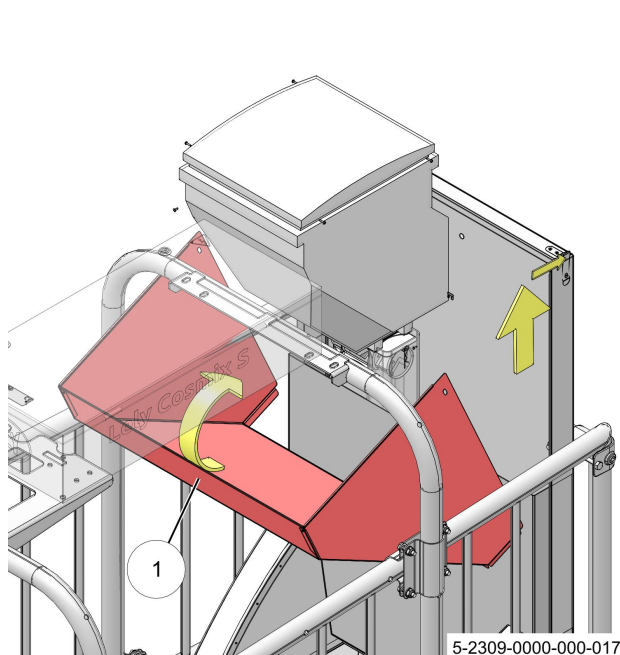


Figure 31. Install the cover plate

KEY: 1. Cover plate

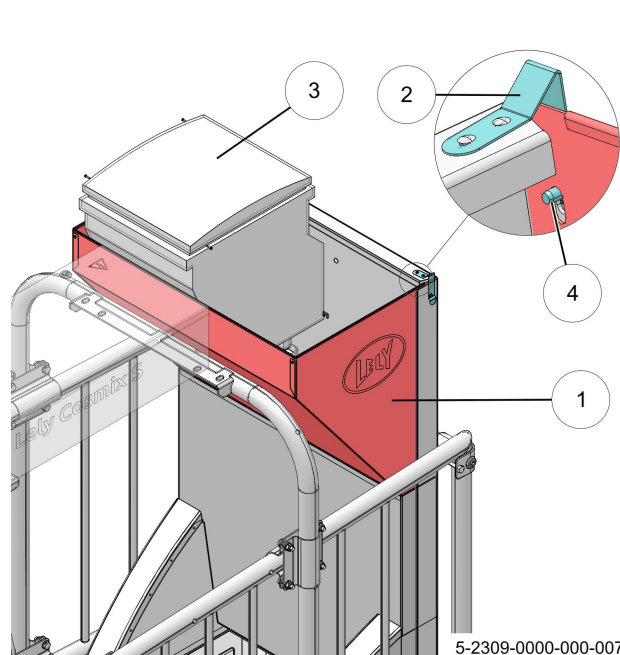


Figure 32. Secure the cover plate

KEY: 1. Cover plate - 2. Spring bracket - 3. Hopper - 4. Pin

15. Tilt the cover plate towards the feed hoppers.
16. Lift the cover plate and push it backward over the rear plate.
17. Install the cover plate (1) on the rear plate and click it in the spring brackets. Make sure the pins (4) secure the cover plate.
18. Open the air supply valve (2) (see figure 25 on page 7-3).
19. Turn the power switch (1) to on.
20. Remove the rope or belt (3) (see figure 24 on page 7-2) to release the gate.
21. Unblock the cow traffic.

## 7.3 Unblock the feed hopper

1. Switch off the auger that transports the feed from the silo to the feed hopper.



**Unexpected cow movement**  
**Risk of being crushed or trampled.**  
**Block the cow traffic.**

2. Block the cow traffic.

3. Disconnect the power and turn the on/off switch to off.

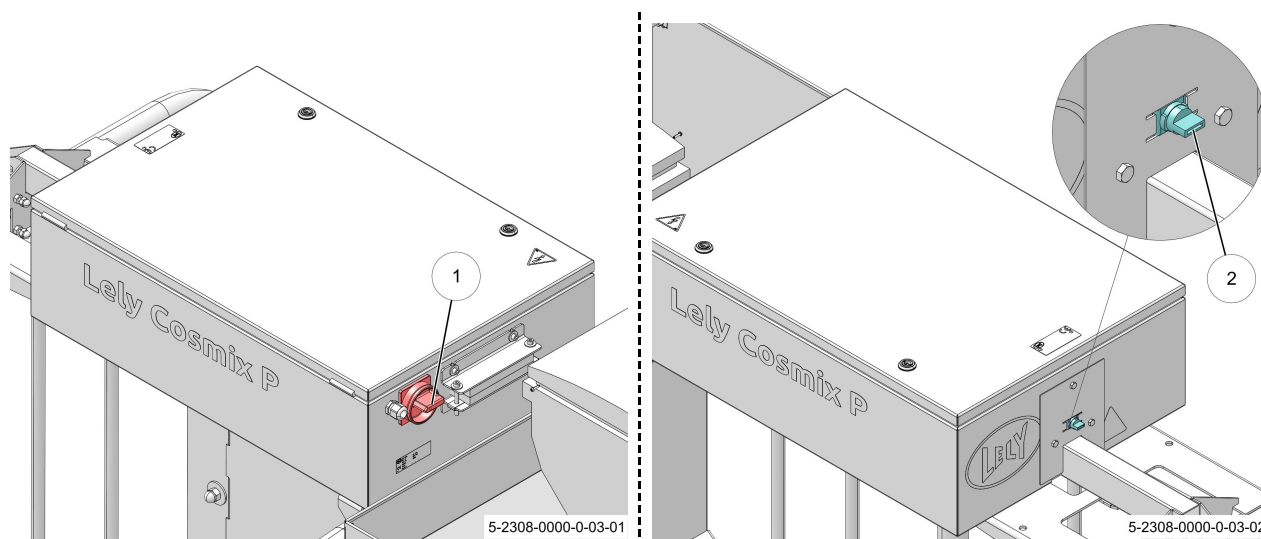


Figure 33. Power switch and air supply valve

KEY: 1. Power switch - 2. Air supply valve

4. Close the air supply valve (2) installed on the outside of the control box.
5. Use a proper scaffold or a double sided ladder and make sure the cows can not reach this and knock it over. Climb to the feed hopper cover.

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6. Carefully lift the cover (1) of the feed hopper and make sure the feed pipe (2) from the silo stays in its place.

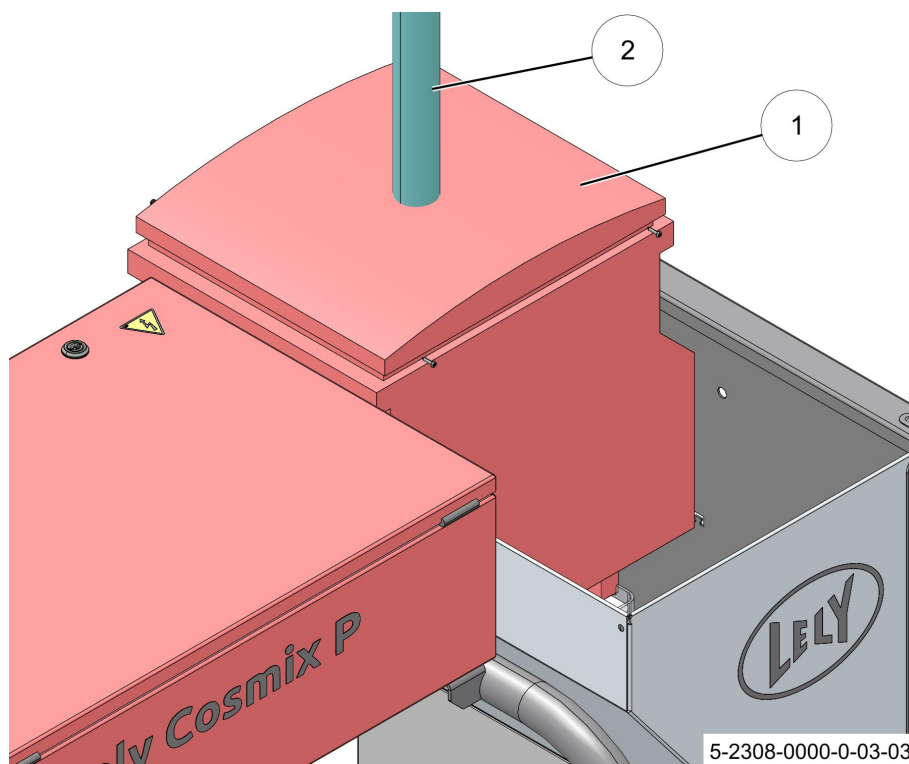


Figure 34. Feed hopper cover


KEY: 1. Feed hopper cover - 2. Feed pipe



*Risk of entrapment of your fingers.  
Serious injury of your fingers.  
Make sure you have switched off the power and closed the manual air pressure valve before you touch the slide.*

7. Find the blockage with your hand and remove it from the feed hopper.
8. Lower the cover on the feed hopper.
9. Open the air supply valve (2) (see figure 33 on page 7-9) installed on the outside of the control box.
10. Turn the power switch (1) to on.
11. Unblock the cow traffic.
12. Switch on the auger that transports the feed from the silo to the feed hopper.

## 7.4 Make Sure the cow has feed credit in Horizon

1. Read the cow number from the cow responder.
2. In Horizon: Type the number in the navigation bar (**Search for cow ...**) and push . An overview of cow data appears on the screen.
3. Select the tab **Feed** for **Today**, (select today in the drop down list).
4. In the table see if the amount **Feeding Today** is more than **Total eaten today**, for the feed distributed in the Cosmix.

## 7.5 Make sure the cow number is less than 32000

### NOTICE

The number of the cow is limited to 32000 by the Horizon software. This applies to all types of tags.

1. Read the responder number from the cow responder.
2. Make sure the number is less than 32000.



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## 8 Disposal

Disposing this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Decommissioning and disassembly of the product can be dangerous and must be done only by qualified recycling organizations. All components must be disposed in compliance with the local rules and regulations.

Lubricants and fluids must be disposed correctly to prevent pollution of the environment. Read the safety data sheets of the used lubricants and fluids for correct disposal. All lubricants, chemicals and fluids must be disposed in compliance with the local rules and regulations.



***Disposal to sewer of cleaning water with concentrated chemicals may cause damage to health and the environment and must always be prevented.***

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Contact your local authority or local Lely service provider for further details.

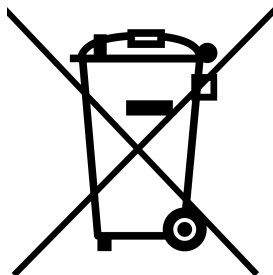


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## 9 WEEE



This symbol [crossed-out wheel bin WEEE Annex IV] indicates separate collection of electrical waste and electronic equipment in the European countries. We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation.

In accordance with the European Union WEEE (Waste Electrical and Electronic Equipment) Directive 2012/19/EC, we would like to notify you that this product might contain regulated materials, which upon disposal, according to the WEEE directive, require special reuse and recycling processing.

For this reason, Lely Industries N.V. has arranged that this product can be recycled at the local recycling/disposal companies to collect and recycle this product at no cost to you.

Additional local legislation may apply.

### NOTICE

Please note, only this product itself falls under the WEEE Directive. When disposing of packaging and other related shipping materials we encourage you to recycle these items through the normal channels.



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# 10 Declaration of conformity

## 10.1 EC Declaration of conformity

### EC Declaration of Conformity

EC DECLARATION OF CONFORMITY  
EG-KONFORMITÄTSEKHLÄRUNG  
DECLARATION DE CONFORMITÉ AUX NORMES DE LA CE  
DICHIARAZIONE CE DI CONFORMITÀ  
CERTIFICADO DE CONFORMIDAD CEE  
DECLARAÇÃO DE CONFORMIDADE CEE  
DEKLARASJON EU MASKINDIREKTIV  
VAATIMUSTENMUKAISUUSVAKUUTUS  
EU-KONFORMITÄTSEKHLÄRUNG  
EG-FÖRSÄKRAN OM ÖVERENSSTÄMMELSE  
GB – SAMR/EMISYFIRLYSING



ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ Ε.Ε.  
DECLARAȚIE DE CONFORMITATE CE  
EU MEGFELELŐSÉGI NYILATKOZAT  
ES-PROHLÁŠENÍ O SHODĚ  
DEKLARACJA ZGODNOŚCI WE  
ES – PREHLÁSENIE O ZHODE  
VASTAVUS EU DIREKTIIVIDELE  
ES ATITIKTIES DEKLARACIJA  
ЗАЯВЛЕНИЕ О СООТВЕТСТВИИ НОРМАМ ЕС  
EG - POTVRDA O SUKLADNOSTI  
ES IZJAVA O SKLADNOSTI

#### Wij fabrikant

We manufacturer  
Der Hersteller  
Nous, soussignés, le fabricant  
fabricante  
fabricante  
producent  
valmistaja  
produsent  
tilverkare  
framställand

**Lely Industries N.V.**  
Cornelis van der Lelylaan 1 • 3147 PB Maassluis • The Netherlands  
tel. +31 (0)88 - 12 28 221 • fax +31 (0)88 - 12 28 222  
www.lely.com

Európai, o kataszkusozásig  
fabricant  
gyártó  
výrobce  
producent  
výrobca  
tootja  
gamintojas  
производитель  
proizvodac  
naziv proizvajalca

verklaren geheel onder eigen verantwoordelijkheid dat de machine:  
herewith declare, on our own responsibility, that the machinery:  
erklärt hiemit eigenverantwortlich, dass die Maschine:  
déclarons que les machines désignées ci-après :

#### productbeschrijving

description of product  
Produktbezeichnung  
description du produit  
descrizione del prodotto  
nombre del producto  
designação de produto  
produktnavn  
tuotenimi  
produktnavn  
produktnavn  
vörurysing

Lely Cosmix P

περιγραφή του προϊόντος  
descrierea produsului  
termék megnevezése  
označení produktu  
opis produktu  
označenie výrobku  
toote kirjeldus  
gaminio aprašymas  
наименование изделия  
naziv proizvoda

#### typenummer

model number  
Typnummer  
numéro de modèle  
numero di modello  
modelo  
número do modelo  
modelnummer  
mallinnumero  
modelnummer  
gerätemümer

5.2308.0000.1

5.2308.0040.1

opis broja povrtkolu  
numărul modelului  
tipus száma  
numar modelu  
typové číslo  
többit number  
modello numeris  
koverp modelni  
broj modela  
števila artikla

waarop deze verklaring betrekking heeft, in overeenstemming is met de bepalingen van de volgende Richtlijn(en):

which this declaration refers to, is in accordance with the conditions of the following Directive(s):

worauf sich diese Erklärung bezieht, hergestellt ist gemäß den Bestimmungen der Richtlinie(n):

auxquelles la présente déclaration se rapporte, sont conformes aux dispositions de la ou des directives suivantes :

é conforme alle direttive  
de acuerdo con las directivas  
de acordo com a directiva  
oplyder følgende direktiver  
tättyä seuraavien direktivien vaatimukset  
oplyder følgende direktiver  
uppfyller följande direktiv  
uppfyller eftirlitandi tiskipánir

Machine directive 2006/42/EC  
Low voltage directive 2014/35/EC  
Electromagnetic compatibility 2014/30/EC

conform cu directivele  
rendelisezésnek megfelelően  
podle směrnice  
zgodny z dyrektywą  
v zhode so smernicami  
direktive (jargi)  
pagal direktyvas  
sootvetstvuyet trebovaniyam direktiv  
po smjernicama  
v skladu z direktivno

en in overeenstemming is met de volgende normen of andere normatieve documenten :

and is in conformity with the following standard(s) or other such specifications :

und den folgenden Normen oder vergleichbaren Spezifikationen entspricht :

et aux normes et autres spécifications suivantes :

é conforme alle norme  
de acuerdo con las normas  
de acordo com as normas  
oplyder følgende standarder  
tättyä seuraavien standardien vaatimukset  
oplyder følgende standarder  
uppfyller följande standarder  
uppfyller eftirlitandi staða  
πληροί τις προδιαγραφές

EN-ISO 12100:2010, EN 60204-1:2018,  
EN 61000-6-2:2016, EN 61000-6-4:2018  
EN 62368-1:2014

In conformitate cu standardele  
megfelel a szabványoknak  
odpovídá normám  
zgodny z norma  
zodpovedá normám  
normidele vastavus  
atitinka standartus  
sootvetstvuyet standartam normam  
u skladu sa standardima  
v skladu s standardi

#### handtekening en datum

signature and date  
Unterschrift und Datum  
signature et date  
firma e data  
firma y fecha  
assinatura e data  
underskrift og dato  
allekirjotus ja päiväs  
signatur og dato  
underskrift och datum  
underskrift og dagsetning

DocuSigned by:  
  
869396A882AF449...  
M. Brummel  
Managing Director Milking  
Lely Industries N.V.

DocuSigned by:  
  
22641B42562B472...  
A. Mateboer  
Competence Director PD  
Lely Industries N.V.

υπογραφή και ημερομηνία  
semnătura și data  
alskrás és dátum  
podpis a datum  
podpis i data  
podpis a datum  
allkir i kuupäev  
parafas ir data  
podpis i data  
podpis i datum  
podpis i datum

29-02-2024

## 10.2 UKCA Declaration of Conformity



### UKCA Declaration of Conformity



We manufacturer

**Lely Industries N.V.**

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tel. +31 (0)88 - 12 28 221 • fax +31 (0)88 - 12 28 222 • [www.lely.com](http://www.lely.com)

**Authorised representative in the UK:**

**Lely Atlantic Limited** • Unit 7 Quartz Point Stonebridgeroad • Coleshill • Birmingham • B46 3JL • United Kingdom

herewith declare, on our own responsibility, that the machinery:

Description of product

Lely Cosmix P

Model number

5.2308.0000.1  
5.2308.0040.1

which this declaration refers to, is in accordance with the conditions of the following Directive(s):

Supply of Machinery (Safety) Regulations 2008 (UK)

Electrical Equipment (Safety) Regulations 2016 (UK)

Electromagnetic Compatibility Regulations 2016 (UK)

and is in conformity with the following standard(s) or other such specifications :

EN-ISO 12100:2010, EN 60204-1:2018,  
EN 61000-6-2:2016, EN 61000-6-4:2018,  
EN 62368-1:2014

Signature and date

DocuSigned by:



869396A882AF449...  
M. Brummel  
Managing Director Milking  
Lely Industries N.V.

DocuSigned by:



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A. Mateboer  
Competence Director PD  
Lely Industries N.V.

29-02-2024

5.2308.8536.0 -



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