



LELY DAIRY EQUIPMENT

Milk, feeding and barn solutions



Create the future for your dairy farm



www.lely.com

innovators in agriculture

Lely really cares for the environment.

Your Lely distributor

LHQB99014.EN.A

Lely, Astronaut, Astri, Atlantis, Attis, AWS, C4C, Calm, Caltive, Capsule, Commodus, Compedes, Cosmix, Discovery, F4C, Fertliner, Gravitor, Grazeway, Hibiscus, Hubble, InHerd, Juno, L4C, Lely Center, Lelywash, Lotus, Luna, Nautilus, Orbiter, Quaress, Qwes, SAE, Shuttle, Splendimo, Storm, T4C, Tigo, Vector, Viseo, Voyager, Walkway and Welger are registered trademarks of the Lely Group. The right of exclusive use belongs to the companies of the Lely Group. All rights reserved. The information given in this publication is provided for information purposes only and does not constitute an offer for sale. Certain products may not be available in individual countries and products supplied may differ from those illustrated. No part of this publication may be copied or published by means of printing, photocopying, microfilm or any other process whatsoever without prior permission in writing by Lely Holding S.à r.l. Although the contents of this publication have been compiled with the greatest possible care, Lely cannot accept liability for any damage that might arise from errors or omissions in this publication.

Table of contents

| | |
|---|-----------|
| Making your business ready for the future | 4 |
| A sustainable, profitable and enjoyable future in farming | 6 |
| Milking equipment | 8 |
| Lely Astronaut A4 automatic milking system | 10 |
| Lely T4C – Time for Cows management system | 16 |
| Lely Grazeway selection box | 20 |
| Lely Nautilus milktank | 22 |
| Milking Hygiene – clean on the inside and outside | 26 |
| Caring – comprehensive udder care | 30 |
| Feeding equipment | 32 |
| Lely Vector automatic feeding system | 34 |
| Lely Juno automatic feed pusher | 40 |
| Lely Cosmix feeder | 46 |
| Lely Calm automated calf feeder | 50 |
| Lely Caltive concept | 54 |
| Barn equipment | 56 |
| Lely Discovery barn cleaner | 58 |
| Lely Luna cow brush | 62 |
| Lely L4C – Light for Cows | 64 |
| Lely Walkway automatic foot-bath | 68 |
| Lely Treatment Box | 72 |
| Lely Commodus cubicle | 76 |
| Lely Compedes soft bed | 80 |
| Customer services | 82 |
| Lely service | 84 |
| Lely Original wear parts | 86 |
| Lely Finance | 88 |

Making your business

As an agricultural entrepreneur you are facing challenges every day. Agriculture faces enormous challenges over the coming decades, to keep pace with rapid population growth and to deliver food at progressively more competitive prices. All this will need to be achieved in a sustainable way, by halving our carbon footprint.

At Lely we work on technical revolutions that will help you evolve successfully, offering you products ranging from forage harvesting machines to milking, feeding and barn equipment. With the cow as the clear-cut starting point of all our developments, these products will allow you to successfully increase your scale of operations, while safeguarding optimum animal welfare. By partnering with Lely on your journey, you will also benefit from a unique set of instruments to manage milk quality, feed/milk conversion ratio as well as the individual cow in the herd.

The farming community is characterized by entrepreneurs who are fully aware that they will leave their business to future generations. At Lely this is no different. We continue to develop our knowledge and products for the future, so that you can successfully cope with new challenges.

Evolve.



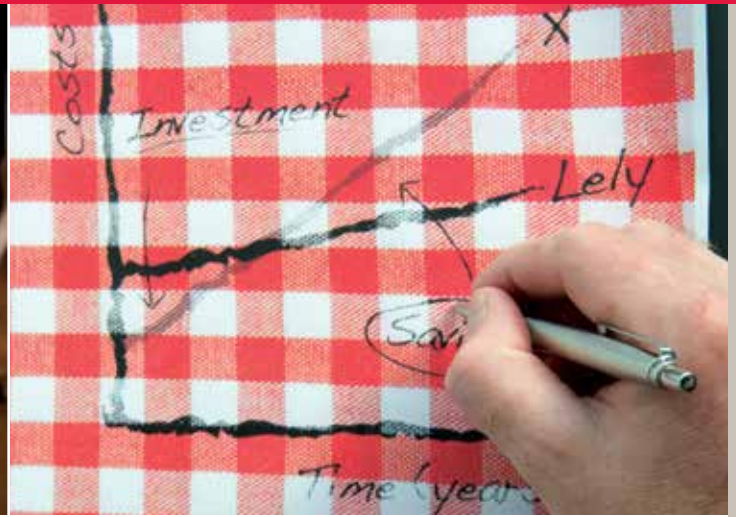
ready for the future





A sustainable, profitable and enjoyable future in farming

Our history clearly shows that each decade we have been able to introduce a product into the sector with a significant impact on the methods of working in agriculture. Our vision emphasizes the increasing importance of sustainable farming, while continuing our focus on developing products that improve both the financial as well as social well-being of our customers.



What does our vision stand for?

Sustainable – Preserving the environment for generations to come. This means acting as a company in a responsible way, making cow and man key in all we do, developing long lasting products, saving energy resources and helping the farming sector to develop into an energy-neutral operation.

Profitable – Providing innovative products and concepts to enhance traditional farming. To sustain and improve our customer's income through cost savings, low running costs and higher efficiency to ultimately improve their profit.

Enjoyable – Developing products that are reliable, easy to operate and well designed. Robust machines ensure unrivalled productivity, providing sheer working pleasure to contractors and dairy farmers alike.

The cow is key

Lely's objectives are not primarily focused on automating operations. We are making efforts to build a well-conceived concept around the cow (i.e. the starting point). A perfect example of that strategy is the so-called I-flow concept of the Astronaut A4 robot, which ensures an easy assess entrance and exit for cows.

We offer you the lowest cost of ownership

When considering an investment, whether it is a milking robot or consumables, please do not just look at the initial cost of investment, but also at

all costs in the years to come! Thanks to our focus – throughout product development – on reliability and durability we offer you a range of products with the highest trade-in value, ensuring the lowest energy and water consumption, as well as limited service requirements.

Because we want you to rely on us

Thorough checking of the quality of all materials used is a crucial aspect of production. In addition, the majority of our products will be tested for key operational functionality before leaving the factory. In practice, proper operation and service are just as important as efficient product development and accurate manufacturing. Therefore, Lely invests a great deal in training our service people. Our certified service engineers – unique in the dairy sector – are available 24 hours a day/7 days a week. In addition, we have experts in farm management, which can help you achieve maximum results with your herd.

Freedom to enjoy your social life

It is the motivation behind our product development; to ease your workload during the daily routine and to take your dairy operation to new heights of consistency, economy and efficiency, while respecting animal welfare as well as the environment. We understand that better machines help you to be more productive and we understand that, if routine activities are taken over by reliable solutions, you have more time to enjoy a fulfilled life.

Milking equipment

20 years ago in 1992, Lely introduced the Lely Astronaut milking robot. This groundbreaking product was acknowledged as the most important invention of the 20th century for dairy farmers. Ever since we continued to innovate using specific know-how from our dedicated people at Lely along with feedback from our customers, this has resulted in an impressive range of products. All of our 'milking equipment' is developed to assist the farmer in optimizing all essential factors around the milking process.

Lely Astronaut A4 automatic milking system

Just like all our dairy solutions, the Lely Astronaut A4 milking robot has been developed from a clear-cut starting point: the cow. Page 10.

LELY ASTRONAUT A4



Lely T4C – Time for Cows management system

This smart system allows you to spend your valuable time on the cows that really require your attention. Page 16.

LELY T4C



Lely Grazeway selection box

The Lely Grazeway selection box is the simplest and most effective solution with easy installation to handle grazing efficiently. Page 20.

LELY GRAZEWAY



Lely Nautilus milktank

No compromises are made; the cooling process starts as soon as the first drop of milk arrives in the milk tank. Page 22.

LELY NAUTILUS



Milking Hygiene – clean on the inside and outside

Being part of the food supply chain is a great responsibility. Lely has developed a range of cleaning products especially for milking equipment. Page 26.

MILKING HYGIENE



Caring – comprehensive udder care

A range of high quality udder care products that are based on years of experience. Page 30.

CARING





Lely Astronaut A4 automatic milking system – the natural way of milking

Milking is a routine job that needs to be executed with the highest quality and consistency. With the Lely Astronaut it's as though you have hired the most consistent, reliable employee imaginable – and he's ready to work 24/7 for years to come!

Benefit as farmer

Being one of the main operations on your dairy farm – milking – is taken care of by a Lely Astronaut A4 robot, you now have the time to enjoy a better lifestyle. Organizing your working day the way you like it allows you to be more flexible and no longer have to stick to fixed milking times. The time saved can now be allocated to monitoring your herd and to optimize all the essential decision making factors that go into making your farm a more profitable business. Two decades of robotic milking have made it clear to our customers that by allowing the cow to make her own decisions, both comfort and productivity are optimized. The cows make their own choice for either resting, being milked or fed, ensuring maximum performance for all cows across the herd. Cow production increases of more than 10% are common after the installation of a Lely Astronaut robotic milking system. Especially heifers which benefit from more milkings per day. By using advanced robot technology in the barn, farmers achieve flexibility for other activities and an increase up to two million litres of milk per fte, all in a cow friendly manner.

Why opt for the Lely Astronaut milking robot?

Dairy farmers who allow their cows to move freely in the barn achieve the best results. Just like human beings, cows do not like to be pushed around. Due to Lely's free cow traffic concept, your cows can eat, drink, rest and be milked in the Lely Astronaut robot throughout the day, while all data can be viewed at the touch of a button using the T4C management programme. If you decide on a Lely 24 hour/7 days a week milking robot, you will enjoy the peace of mind that comes with our 24 hour/7 days on farm support network. Lely is the only one that is able to offer you a fully-fledged service contract, based on a pay-per-kg milk basis. Lely Astronaut robots stand out from their competitors. Durability and ease of operation are always key to high performance with the unique Lely Astronaut arm. The procedure of pre-treatment and cleaning, total freedom for the cow in the box, as well as revolutionary breakthroughs in milking technique are all included in the most advanced milking technology currently available in the market place: the Lely Astronaut A4. We boast many years of practical experience and excellent results on both large and small dairy farms.



Freedom for you.



The cow is key.



Highest milk quality assured.

Lely I-flow concept – increases milk production

A revolutionary feature of the Lely Astronaut A4 is the walkthrough design of the milking stall called the I-flow concept. As practice and research shows cows are not really capable of making tight turns. Allowing the cow to walk straight in and out of the box eliminates any unnecessary discomfort. The cow friendly design allows for continuous interaction with the rest of the herd thus eliminating unnecessary stress. Farmers which have used the Lely Astronaut A4 robot with the I-flow concept for more than a year report an increased milk production which exceeds their expectations.

The Lely Astronaut arm – muscles and brains!

Since 1992 Lely has proven its concept of the robust robot arm; the arm remains underneath the cow and controls the entire milking process. The robustness of the arm ensures that even if the cow should stand on it, this does not cause any damage. In the event that teat cups are kicked off, they will be reconnected in a matter of seconds without contamination. We ensure the fastest possible teat attachment as well as full control of the whole milking process, with all functional components situated as closely as possible to the teat cups.

Lely brushes – designed for more than cleaning

The brushes will remove the dirt and manure, located on the teat. It is the only cleaning system that cleans the area around the teats where teat cups may come in contact, as well as the bottom of the udder close to the teat. The brushes also provide a quick and most effective tactile stimulation, which is important for the cow's necessary release of the hormone oxytocin. Better stimulation will improve the connection time, the milk speed and therefore the robot capacity.

Lely retractable feeding trough – encouragement to leave the cow box

By removing the feed trough in front of the cow after milking, she is 'encouraged' to exit the box earlier, since there is nothing restricting her path and she can't get more feed. A faster exit allows for a quicker entrance for the next cow. Although this advantage may look minimal, gaining five seconds per milking can easily result in 15 minutes per day or one extra cow.



I-flow quick entrance/quick exit

Thanks to the I-flow concept of the cow unit the cow walks straight in and out of the unit without making turns. This is making it easier on the cow which shortens the learning curve and increases the throughput.

The Lely Astronaut arm

A well proven concept; the unique arm remains underneath the cow and controls the entire milking process.



The Lely 4Effect – tailor-made per quarter

It is perfectly clear that cows differ from one another. Each cow prefers different settings to ensure optimal milking. The Lely 4Effect pulsator is the first revolutionary breakthrough in milking technology over the past 30 years, because vacuum and pulsation settings can be adjusted at quarter level. This ensures a truly individual treatment of the cow and, hence, 'tailor-made milking'. This effect is optimized by the position of the pulsation system, which is safely hidden in the arm and positioned as closely as possible to the udder. This results in optimal milk speed per quarter, shorter milk times, lower dead milking times per teat and an increase of the robot capacity.

Lely MQC and Lely MQC-C – milk as a flow of information

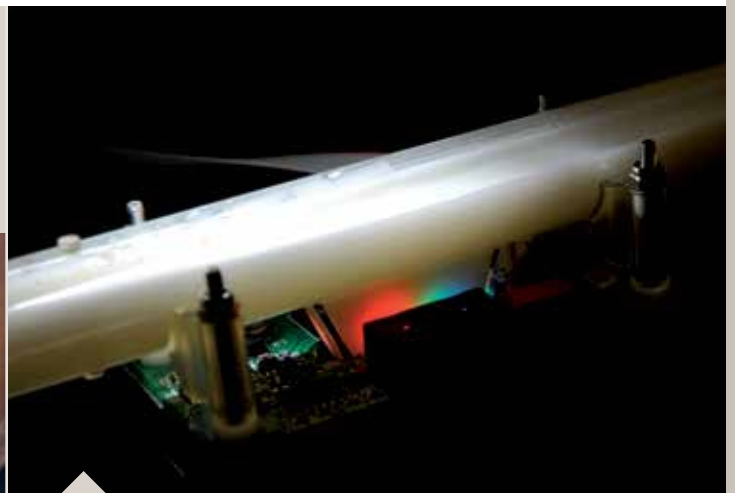
Animal wellbeing and an excellent milk quality are keys to successful robotic milking. The more information we can retrieve from changes in the milk quality, the easier it is for dairy farmers to identify cows with potential problems. That's why Lely started working on measuring milk quality right from the start and the company has maintained its position as a leading manufacturer, making this cutting edge technology available to farmers worldwide.

Lely MQC measures essential parameters such as: fat and protein, conductivity, milk colour, milk time per quarter and dead milk time. Lely MQC-C measures the somatic cell count during each milking. At the end of each milking, the information is directly available in your T4C management system.

Lely is the first to offer a standard in-line fat and protein measuring system. Every milking, fat, protein and lactose are analysed allowing you to monitor herd performance. The result is healthier cows which leads to lower costs due to maximum productivity and lower veterinary costs.

Optimal brush cleaning

The only available premilking cleaning system that is washed with a chlorine-free detergent between every cow milked, preventing cross contamination.



Milk as a flow of information

Lely MQC measures for each quarter essential parameters such as:

- Milk colour.
- Conductivity.
- Milk time.
- Dead milking times.
- Milk speed per quarter.
- Temperature.
- Fat and protein.

Lely T4C management programme – time for your cows

Lely T4C is an indispensable tool to manage your herd. Information is presented to you in the shape of hard and fast management information. Extra's that go with T4C are the possibilities to use DLM (dynamic feeding/milking module) and the RM (Reproduction Module) to optimize your herd performance. Both programmes are unique in the market place! For more information, see page 16-18.

Lely Taurus – reconditioned Lely milking robots

Lely Taurus Certified robots are used Lely Astronaut milking robots that have been reconditioned and upgraded at the factory and that are ready to milk again for many years. The Taurus robots have a known history, can be upgraded to the wishes of the new owner, are thoroughly tested, are low priced and come with a one year guarantee.

Marsh – extended risk management

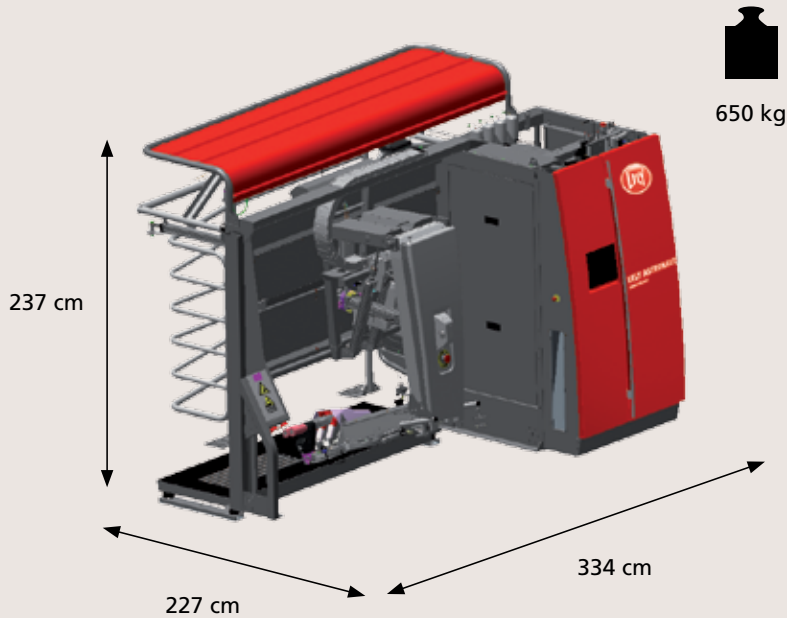
All dairy farmers are exposed to the risk of damage and loss resulting from technical failures or external factors. Some small actions may have considerable consequences, such as expensive repairs. A standard insurance does not cover all costs you could incur. For this purpose, a tailor-made insurance especially for the users of the Lely Astronaut milking robot is developed. This all-risk insurance includes a number of combined insurances covering most frequent risks.



Time for Cows (Lely T4C) presents information to you in the shape of hard and fast management information.

Dimensions and weight Robot Unit:

- Height: 237 cm (93.31 inch).
- Length: 334 cm (131.50 inch).
- Width: 227 cm (89.37 inch).
 - Arm extended: approx. 198 cm (77.95 inch).
 - Arm retracted: approx. 180 cm (70.87 inch).
- Weight: approx. 650 kg (1,433 lb).

**Dimensions and weight Central Unit:**

- Height: 206 cm (81.10 inch).
- Length: 123 cm (48.43 inch).
- Width: 102 cm (40.16 inch).
- Weight: approx. 320 kg (705.5 lb).

**Key benefits**

- I-flow concept for less stress and a higher milk production.
- Flexibility to manage your dairy.
- Freedom to enjoy your social life.
- Most efficient use of your labour.
- Freedom for cows.
- Increased production.
- A solid investment.
- Most advanced technique available.

Users say:

"It gives me real peace of mind to be able to monitor literally each and every cow in the herd."
The Netherlands

"Our cows became used to the Lely Astronaut milking robot even quicker than I was! The production has risen and our herd is remarkably calmer than before."
France



Lely T4C management programme – the centre to stay in charge of your herd

Our farm management software Lely T4C provides you with all the information you need at hand to manage your herd in a time-effective way. It connects your Lely Astronaut robots, Lely Vector feeding system and other Lely devices; all in one programme. You manage your complete farm from one central point. Time for Cows (Lely T4C) facilitates effective management by exception.

The Lely T4C management programme takes a central place in your herd management as it is much more than only the programme for the management of the milking on your farm. Besides that Lely T4C provides information about every milking that has been done, it is also the starting point of feed, reproduction and grazing management.

In combination with the Lely Grazeway selection box, you can easily control the routing of your cows while combining grazing with the milking robot. Reproduction management is made easy, with our integrated heat detection and reproduction module. With the new Lely Vector automatic feeding system, both concentrates and roughage, can be optimized. The benchmark-option gives you the possibility to compare yourself with other Lely farmers worldwide as indicator for of your herd's performance. With the handy dashboard you have an overview of the performance of your herd at a glance. From there you can easily zoom in on the details below. Every event, from birth till the day the cow leaves the farm, is stored in the Lely T4C management programme.

Fertility – monitor her breeding cycle

Fertility is known as a major time consumer and has a large influence on the economical results of

a farm. Reliable detection of cows in heat (oestrus) is a key factor for successful breeding in herds and commonly accepted as the single most important factor for reproductive improvement in most of the dairy farms.

Reproduction Module – follow the performance

The fertility status of the herd can be monitored with the special Reproduction Module in Lely T4C. This module shows the reproduction status and the results from the past. This way you can manage the herd's reproduction and easily find the points for improvement.

Based on the activity of the cow and the history generated, the heat is automatically registered. A cow is marked automatically pregnant by the absence of a clear heat-activity increase after insemination. Pregnancy checks by the veterinarian are no longer needed. This saves both time and money.

Management on the spot

The E-link Manager gives you an overview of Lely T4C information to manage your herd at the milking robot. Lely also provides the possibility to use a PDA module to enter data into T4C at any place and any time, in or outside the barn.



Users say:

"I trust Qwes heat-detection and health monitoring better than my own eyes."

Denmark

Key benefits

- Insemination at correct time.
- Optimal reproduction.
- Reduce calving interval.
- Earliest signs about potential health problems.

Lely Qwes health and reproduction monitoring – the power of knowledge

Lely has developed a unique tool to determine health problems and heat at the earliest stage. The Lely Qwes-systems provide unparalleled accuracy for 24/7 monitoring of cow reproductive and health status.

Accurate cow activity measuring

The Lely Qwes-H system is a collar mounted cow identification and activity sensor. Activity levels are measured by a sophisticated acceleration sensor which measures movement duration and intensity instead of just steps. The Lely Qwes-HR provides additional functionality by measuring the cow's rumination activity – an early indication of the cow's health. Both systems monitor cows' activity in two hour time blocks and thus provide a highly accurate high-resolution view on an individual cow's behaviour. The tag is attached to the upper part of the cow's neck with a strap and weight in a way that prevents false movements and protects the tag from mechanical damage. The strap and buckle are designed for convenient attachment and removal, enabling easy transfer of the tags among cows if needed. The Lely Qwes-HR tag includes an acceleration sensor, specially tuned rumination microphone, a microprocessor and memory. The tag records a general activity index and analyzes the vocal signals to calculate rumination time.

The tag creates an activity index, allowing you to inseminate at the correct time. Therefore reproduction is optimized, the calving interval is minimized and semen costs are significantly reduced.

Changes in rumination are the earliest signs that can provide warning about potential problems. The earlier a farmer can obtain information about a potential health problem, the cheaper it will be to deal with the problem. Also the effect on a cow's performance and general herd appetite can be measured. Rumination activity can also provide an incomparable insight into the effectiveness of veterinarian treatment. In addition, the system automatically alerts of low activity cows, often an early indication of suspected illnesses and potential lameness.

Dynamic feeding

The Lely T4C management programme gives you the opportunity to reduce your feed cost because of higher feed efficiency. With the optional dynamic feeding module (DLM), the system automatically changes feed allocations per cow based on optimum cost benefit ratio. You can avail yourself of unique resources enabling you to maximize your profits; this is no longer about the cows producing most milk but rather about the cows yielding the best economic results.

Dynamic feeding uses the individual feed efficiency of an animal by recording how an animal responds in milk yield to a specific amount of concentrates. By also taking into account the milk return (kg of milk and solids), costs of concentrates, costs of roughages and dry matter intake, the system searches the economically optimal amount of concentrates fed at which profits are maximised.

Dynamic milking

Dynamic milking allows cows to be milked more often when necessary and less frequently when possible. By increasing or decreasing the interval between two milkings and measuring the milk yield at the next milking, the optimal interval for each cow is determined continuously. This calculation takes place within the set boundaries allowing a minimum and maximum number of milkings per day. By also taking into account milking speed, treatment time per milking and milk return (kg of milk and solids), robot output – and hence financial return per robot – is increased.

Compare and improve

The Benchmark within T4C gives you the opportunity to compare your results with the results from other farmers around the world, your Lely Center area and the average in your country. A real way to compare how your farm is performing and where other farmers might be doing better – a true pointer to improvement.





Lely Grazeway selection box – offering your cows a choice

Pasture grazing and automatic milking go very much hand in hand. Lely likes to stimulate cows to go outside, so we have developed the Lely Grazeway selection box as a tool for you to handle grazing efficiently.

Freedom to choose

The Lely Grazeway selection box gives you the opportunity to combine automatic milking with optimal grazing. Before the cow leaves for the pasture, she is recognized at the Grazeway to determine if she is still to be milked or is allowed out to graze. The Grazeway offers you full control of grazing.

Optimal grazing with a robot

The Lely Grazeway is installed at the end of the exit point of the barn, where the cows go to the pasture. While entering the open selection box, the cow is recognized by its neck or leg responder. Selection criteria are set through the Lely T4C management programme in order to make use of the Lely Grazeway as a truly flexible grazing tool.

Paddock grazing

A-B-grazing: The Lely Grazeway offers you the ease of selecting different paddocks on a time related schedule. Cows will automatically be sent to the next paddock after a set time period.

Easy to install and operate

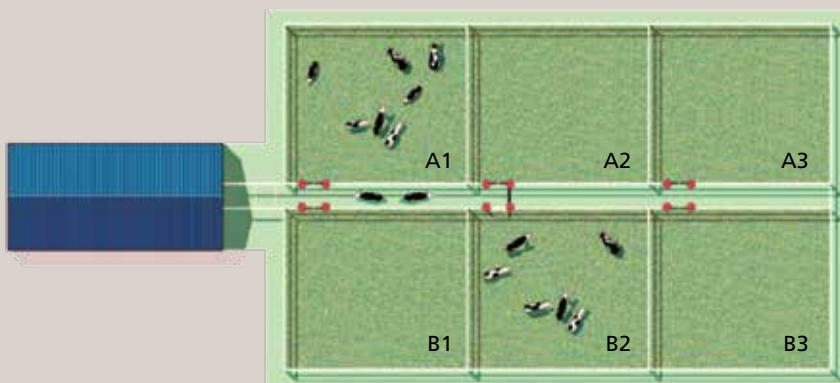
Due to the double gate system, cows are always guided to the right place, even when they are following close to each other. The galvanized steel selection box is a pneumatically operated system, just like the Lely Astronaut milking robot. The Lely Grazeway is compatible with the same compressor and steering device of the milking robot. Besides selecting for grazing, the Lely Grazeway is also used for cow selection inside the barn. Here it can select special production groups at different locations away from the robot, or it can select cows that need special treatments. The Lely Grazeway selection box is the simplest and most effective solution with the quickest installation.

Key benefits

- Efficient management of grazing.
- Pneumatic operation.
- Double gate system.

Specifications

| | |
|---------------------------------|--|
| Amount of separation directions | 3 |
| Recognition | Qwes H, Qwes HR, Qwes ID, Qwes leg, Qwes act |
| Grazing systems | paddock grazing, 100% grazing |
| Pneumatic selection system | |



Selection of different paddocks e.g. the A-B grazing system.





Lely Nautilus milk cooling tank – because you care for premium milk quality

Nautilus milk cooling tanks are specially designed for use in combination with the Lely Astronaut robotic milking system. The Nautilus is highly reliable, simple to clean and economical to use. Above all it gives you the ultimate solution for easy control and monitoring of the whole process from milking the cow to storing and cooling, all in one integrated system, thus providing maximum safety.



Cooling as of the first drop

With the Lely Nautilus milk cooling tanks we offer advanced reliability and hygiene which are key factors for high quality milk. The Lely Nautilus is specially designed for use in combination with the Lely Astronaut robotic milking system.

Downtime negligible

Downtime of the robot for cleaning the tank is reduced to the absolute minimum. The flexible cleaning system gives you guaranteed superb hygiene. Smart detail: after cleaning, the milk tank will automatically start up the cooling process.

Uncompromised quality

No compromises are made; the cooling process starts as soon as the first drop of milk arrives in the milk tank and ice formation is prevented. The cooling capacity of the Nautilus tank is attuned to the volume of milk present in the tank. Obviously,

only the best materials are used for the Nautilus tank. The 360° rotating spray heads are unique and the best on the market. As Lely cares for the environment, the best refrigerant available R134, a cooling gas, is used. Due to the welded rings of the evaporator, the lifetime of the evaporator is longer and the flow of the cooling gas is optimized. Further more low electricity and water consumption make the Nautilus milk cooling tank economical to run.

Totally in control

The Nautilus tank only has one simple-to-use control system. The control unit regulates and monitors the Lely Nautilus milk cooling tank, controlling the cleaning of the tank, the cooling of the milk and agitation. Your mobile phone is supervising the milk quality directly. Moreover, as the milk cooling tank is integrated to Lely's T4C management programme it stores historical data regarding cooling and cleaning temperatures for traceability purposes.

Users say:

"The best cooling and communication with the Lely milking robot."

Sweden



Specifications

Lely Nautilus milk cooling tanks are available in sizes ranging from 4,000 to 30,000 litres. Models from 4,000 to 8,000 litres are available with either integrated or separate cooling units. Larger milk cooling tanks are delivered with separate cooling.

To further customize your Lely Nautilus milk cooling tank there is also available:

- Heater for the cleaning water.
- Manual milk volume measuring.
- Heat recovery system for cooling gas and warming water.

To ensure good milk quality and economic operation it is very important to optimise the size of the tank and the condensing unit, please contact your local Lely Center facility for more information.



Key benefits

- Communication from tank control to mobile phone.
- Automatic start-up of the milk tank after cleaning.
- Cooling adjusted to volume.
- Excellent cleaning due to unique spray head.
- Environment friendly.
- Traceability of historical data.
- Highly economical to run.
- Easy to operate.

NAUTILUS

Especially for optimal cleaning of the Lely Nautilus milk cooling tank two consumable products have been developed:

- RECA Alkaline* is a powerful chlorinated alkaline cleaner and disinfectant for bulk milk tanks. It is very effective for the removal of fat and protein residues. We recommend the use of RECA Alkaline in alternation with RECA Acid for optimum results.
- RECA Acid* is a powerful acidic cleaner for bulk milk tanks. RECA Acid removes lime and milk stone. We recommend the use of RECA Acid in alternation with RECA Alkaline for optimum cleaning results.

*) Warning: Do not use this product on the Lely Astronaut milking robot.





Milking Hygiene – clean on the inside and outside

Forming part of the food chain is a great responsibility and care for a clean environment is a must. The Lely Astri range and the Lely Essentials range are based on reliable and tailor-made solutions which interlink seamlessly with the well balanced system of the Astronaut milking robot. The entire product range meets regulations for food safety and environment. All products meet the international standards of biodegradability.

Automatic cleaning cycle Lely Astronaut

When commissioning a new Lely Astronaut milking robot, the service mechanic structures your products in the process. Every day, the Lely Astronaut milking robot carries out three automatic cleaning operations using two with alkaline and one with acid*. Both products can be used for all waste water systems on dairy farms.

Automatic cleaning cycle Lely Nautilus

RECA Alkaline and RECA Acid have been specially developed for the (Lely Nautilus) milk cooling tank. It is important that you use cleaning agents according to Lely's specifications*. When in doubt, please contact your Lely advisor. All cleaning agents

of the Lely Astri range have been totally tested and approved by Lely.

Clear indication

The Lely Astronaut milking robot generates an alarm as soon as the chemical drum with alkaline or acid is empty. Lely advises the Lely Astri range because it meets all technical specifications as well as prevailing legislation and keeping hygiene quality to a maximum.

*) Do not use chlorine or other acids than phosphoric acid and citric acid products in the Lely Astronaut milking robot.



Lely brush cleaners

Lely Astri-L cleaners have been specially developed for cleaning and reducing microbiological stress on the brushes and rollers. The product is exceptionally active within a short time thanks to the special volatile substances that penetrate thoroughly into the brushes. The product does not cause damage to either robot or brushes.

Lely Astri-L does not leave any harmful residues behind (its individual ingredients have been FDA-approved) and – provided the advised concentration is used – does not irritate the teats.

Brushes are cleaned with Astri-L in between each individual milking. This ensures optimal results in guarding contamination and milk quality. Thus supporting animal health and control of bacterial counts in the milk.

Lely Astri-L is supplied in clearly recognisable green containers with a capacity of 22 kg.

Lely Industries N.V. is not liable for, and does not cover under warranty, any damage or harm due to the use of other cleaning products not meeting the Lely specifications.

The safety data sheets of the Lely Astri products and the Lely specifications are available at www.lely.com.

Users say:

“A true advantage: the service people are always on time and my products are always available. All in all: they are available and reliable.”
The Netherlands



Lely Essentials Foam Alkaline and Lely Foam Unit

The Lely Foam Unit is a strong, compact foam system developed for cleaning activities on the dairy farm. The Lely Foam Unit is quickly installed in any stall or robot area and is easy to use. The concentration of the detergent is easy to adjust using the dial. Thus, it is possible to select the appropriate concentration for each type of contamination and surface. After use, it is possible to rinse the Lely Foam Unit with clean water.

The Lely Foam Unit is delivered including a red foam hose, strong foam head and suction tube (including filter and cap) for the detergent. The Lely Foam Unit is suitable for cleaning, for example, walls and floors in (milking) stalls/robot areas and the outside of the Lely Astronaut milking robot or other milking equipment. The red foam hose has a length of 20 meters, so it is possible to reach various places. During use, the detergent is primed continuously via the transparent suction tube and is mixed with tap water to the chosen concentration. The Lely Foam Unit produces a thick, strong foam which adheres to the surface for a long time. The Lely Foam Unit is a low-pressure cleaner which uses water pressure only.

Lely Essential Foam is a detergent which is developed for safe and effective cleaning. It is developed for effective cleaning of milking robot areas and (milking) stalls. Lely Essentials Foam is effective for the removal of protein and fat deposits. The extra surfactant assure effective contact time in combination with thorough penetration of the dirt resulting in ease to clean. The detergent has a pleasant lemon scent and is biologically degradable. This product can be used in the Lely Foam Unit. The Lely robot is not recommended to be cleaned with high pressure. When applying the product, a strong foam is produced which has very good adhesive properties. This results in better cleaning, because the foam adheres to the dirt longer.

Lely Essentials Foam is supplied in 22 kg cans.



Lely Peroxide test

The Lely Peroxide test has been developed to measure the concentration of Lely Astri-L or Lely Astri-Brush on the Lely brushes. This to make sure that the correct concentration is used.

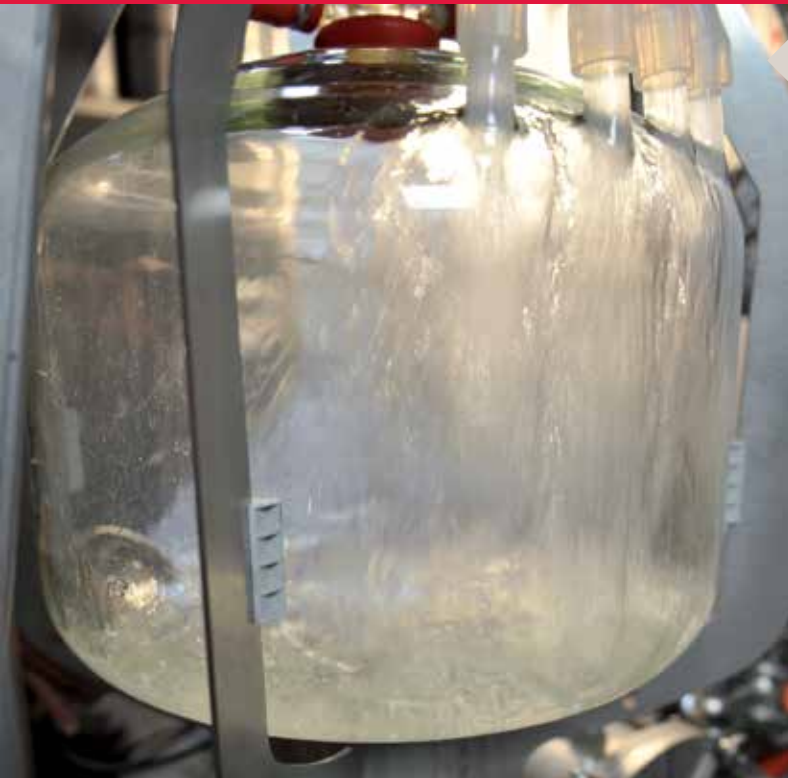
Lely Peroxide test is supplied in a tube of 100 test strips.



Lely Astri-Cell

Lely Astri-Cell is a fluid for measuring the somatic cell count in the milk by means of the MQC-C sensor system of the Astronaut milking robot. This sensor system measures the SCC of each milking. The test in MQC-C is based on the insights of the CMT testing method, known as the California Mastitis Test. Adding Lely Astri-Cell to the MQC system provides accurate information about the somatic cell count of the milk and, hence, an indication of milk quality and udder health. The product contains a carefully selected and developed capillary substance with unique properties and ensures a reliable chemical reaction with the cell walls of the leukocytes (white blood cells).

Lely Astri-Cell is supplied in the form of a concentrated product (1 litre).



Lely Astri-Cid acid cleaner

Lely Astri-Cid is a concentrated fluid cleaning agent on phosphoric and citric acid basis which has been specifically developed for the main cleaning process in the Lely Astronaut milking robot. The product is composed of special, highly active acids for removing inorganic dirt such as lime and milk-stone.

This is crucial to the prevention of corrosion and scaling of the Lely MQC (Milk Quality Control System), i.e. the heart of the Lely Astronaut milking robot. Deposits will result in deviations in measurement and wrong interpretations. Lely Astri-Cid does not have a negative impact on rubber joints and silicone; in addition it has excellent properties to reduce the bacterial count.

Lely Astri-Cid is supplied in a clearly recognisable red container with a capacity of 24 kg.

Lely Industries N.V. is not liable for, and does not cover under warranty, any damage or harm due to the use of other cleaning products not meeting the Lely specifications.

The safety data sheets of the Lely Astri products and the Lely specifications are available at www.lely.com.

Lely Astri-Lin cleaning agent

Lely Astri-Lin is a fluid, concentrated, chlorine-free heat cleaning agent on an alkaline basis which has been specifically developed for the main cleaning process in the Lely Astronaut milking robot. This product has excellent cleaning properties to remove milk fat as well as protein. This cleaning agent has been extensively tested for the Lely Astronaut milking robot and does not harm the machine.

The main benefit of this product is that it is chlorine-free. Products containing chlorine (gas) cause damage to stainless steel as well as corrosion of critical parts of the Lely Astronaut milking robot. Tests have shown that corrosion causes damage to critical parts, which eventually leads to leakage.

- Lely Astri-Lin is a chlorine-free product.
- Lely Astri-Lin has a very high pH value and, hence, ensures very effective cleaning.

Lely Astri-Lin is supplied in recognizable blue cans which contain 25 kg detergent.

Lely Industries N.V. is not liable for, and does not cover under warranty, any damage or harm due to the use of other cleaning products not meeting the Lely specifications.

The safety datasheets of the Astri products and the Lely specifications are available at www.lely.com.



Lely Astri-TDS laser lens cleaner

Lely Astri-TDS is a fluid cleaning agent on an acid base for cleaning of the electronic lens as well as the caps of the laser detector in the Lely Astronaut milking robot. If the lens of the laser is not cleaned, it takes longer before the teats are detected, which reduces the output of the Lely Astronaut milking robot. Lely Astri-TDS removes deposits of hard water, urine, milk-stone and iron from the laser lenses. This product has been extensively tested on the robot's specific material as well as organic residues.

Lely Astri-TDS is supplied in 1 litre bottles.





Caring – comprehensive udder care

Caring stands for a range of high-grade udder care products, based upon many years of experience. Your Lely Center organisation will be happy to provide advice on the best udder spray for your specific situation so that good udder health within your herd is assured. Together with its partners, Lely has developed special udder spray products which can be used for the Lely Astronaut milking robot and which fit in with the conditions on your dairy farm. Please contact your local Lely Center for more information about udder hygiene and the comprehensive product range.

Lely Astri-IO udder care

Lely Astri-IO udder care has been developed especially for the Lely Astronaut milking robot. The spray has been composed of high quality skin conditioners and is based upon PVP iodine so this highly active disinfection product ensures good teat condition. Skin remains soft and hydrated because of glycerine. Lely Astri-IO ensures proper protection of the teat canal after milking.

Lely Astri-IO is supplied in blue containers with a capacity of 57 kg.

Lely Astri-Din udder care

The Lely Astri-Din udder care agent – on a lactic acid basis – has been specifically developed for the Lely Astronaut milking robot. Lactic acid has proven to be a highly effective disinfectant substance for eliminating cross contamination. Lely Astri-Din provides excellent protection of the teat canal and ensures additional care elements – such as glycerine and sorbitol – which maintain and support the natural regulation of moisture and fat of the skin. Lactic Acid has the same pH value as the teat skin and ensures outstanding cosmetic effectiveness. It protects the skin against all weather conditions and the mechanical strain of milking.

Lely Astri-Din is supplied in blue containers with a capacity of 59 kg.

Lely Quaress-Iodine

Lely Quaress-Iodine is a ready-to-use disinfectant to be used in the Lely Astronaut milking robot. Lely Quaress-Iodine is based on Iodine: an antiseptic with a very broad spectrum to ensure a good disinfection of the teats. Lely Quaress-Iodine protects the whole teat by forming a protective film. The product contains emollient and moisturizing components like lanolin, sorbitol and glycerin. These properties improve the suppleness of the skin and make it more resistant to drying up. Lely Quaress-Iodine can be used to better protect the cows against pathogens, because of the bactericidal properties.

Lely Quaress-Iodine is supplied in blue containers with a capacity of 60 kg.

Lely Quaress-Lac

Lely Quaress-Lac is a ready-to-use disinfecting udder spray that is suitable for use in the Lely Astronaut milking robot. Lely Quaress-Lac is based on lactic acid and salicylic acid (LSA). The combination of these components works effectively against bacteria. In addition to good disinfecting, Lely Quaress-Lac also helps to maintain the softness of the skin. The product contains propylene glycol which is a good moisturizer for the udder skin. The active substances remove dead skin and also improve suppleness of the skin. Lely Quaress-Lac has a good cosmetic performance and is not irritating for the skin.

Lely Quaress-Lac is supplied in blue containers with a capacity of 60 kg.

**Lely Quaress-Lac plus**

Lely Quaress-Lac plus is a concentrated disinfectant that is developed for the Lely Astronaut milking robot. Lely Quaress-Lac plus is based on lactic acid and decanoic acid. The combination of lactic acid and decanoic acid makes this product a powerful udder spray that is effective against bacteria. Additionally the lactic acid helps to increase the suppleness of the teat.

Lely Quaress-Lac plus also contains a variety of softening and moisturizing properties such as propylene glycol and lauricidin. These components improve the teat condition and protect the skin also in cold weather.

This product is very suitable for use at the start-up of the Lely Astronaut milking robot.

Lely Quaress-Lac plus is supplied in blue containers with a capacity of 15 kg. This concentrated product needs to be mixed with 45 litres of water before use.



Feeding equipment

Costs of feed are among the most important cost factors in cattle farming and therefore feeding efficiency is of paramount importance. Optimal yields can be achieved by ensuring the correct output of cows (kg milk fat and milk protein, longevity, animal health, etc.). It is generally known that frequent feeding leads to an increased milk production and has a positive effect on cows' health. Lely automation provides means to further optimise production, cow health as well as feeding efficiency. In addition, you – as a dairy farmer – can save time and operate more flexibly.

Lely Vector automatic feeding system

The Lely Vector feeding system allows for 24/7 flexible fresh feeding of cows, being able to feed cows accurately, precisely and with minimum labour requirements. Page 34.

Lely Juno automatic feed pusher

The Lely Juno feed pusher makes it possible to push feed to the feed fence all through the day and night. Due to the continuous supply of feed, cows' feed intake increases, the animals become more active and milk yields will increase as a result. Page 40.

Lely Cosmix feeder

Due to the Cosmix feeder station it is possible to feed all individual cows according to their needs. The correct quantity, every day and at any time! Page 46.

Lely Calm automated calf feeder

The Lely Calm ensures automatic feeding of the correct quantity of milk – with a perfect temperature and composition – spread across the day. This results in healthier calves, improved growth, increased feeding efficiency as well as saving on labour. Page 50.

Lely Caltive concept

Coupled to the Lely Calm automated calf feeder, Lely has launched the Lely Caltive concept, an extremely well-balanced calf feeding programme which starts and boosts calf growth to a maximum level. Page 54.

LELY VECTOR



LELY JUNO



LELY COSMIX



LELY CALM



LELY CALTIVE





Lely Vector automatic feeding system – flexible, fresh feeding

Efficient high quality milk production largely depends on the way you can feed the cows consistently, timely and sufficiently. Lely has developed a unique economic concept that can take care of this and will do even more; it allows for 24/7 flexible fresh feeding of cows, being able to feed cows accurately, precisely and with minimum labour requirements. The Lely Vector automatic feeding system is a concept that was developed in close co-operation with our customers and allows for optimal results while maintaining maximum respect for your cows.

Optimum flexibility – feeding without compromises

Taking care of feeding cows is an important daily routine. It is in your mind 24/7. With the Lely Vector automatic feeding system, you are only required to pay attention to feeding the cows once every three days! In addition, with the Vector system you are

completely flexible in the feeding strategy you like to implement. It is the perfect solution for every farm, also offering flexibility to adapt to future expansion.

Flexibility in feeding routine

- Quick and easy feed type changes – the open kitchen offers freedom without borders.
- Changing rations in no time – every group its own ration, only when needed.
- More precise feeding – the animals will get exactly what they need.
- Flexibility in changing groups – moving cows to another group without any hassle.



Flexibility in your daily routine

- Freedom to plan your work as well as your social life – the system can stock feed for three days in advance.
- Not dependent on external labour – routing and rations in your own hands without doing it yourself.
- Feeding based on the need of the cows – the feed height sensor knows when fresh feed is needed.
- Pushing feeds 24/7 – less leftovers since the animals can always reach the feed.



Flexibility for every farm, now and in the future

- Fits in a narrow feed alley without extra support or profiles – more freedom and reduction of construction costs.
- More barns but only one feeding system – as an autonomous vehicle the robot can navigate and feed in more barns.
- Easy to adjust routes – changes in barn or group set-up without problems.
- Ready for future expansion – 250-300 cows per robot, two robots per kitchen for even more capacity.



Fresh feed – multiple times a day

Your cows make your money and therefore they deserve their feed just like you want it yourself: in well measured, fresh portions, straight from the kitchen. The Lely Vector system allows for 24/7

fresh feed and it is brought to the cows multiple times a day (but there is more; because the mixer is filled alternate with small bites of different feeds, the ration only requires a short mixing time).

Fresh, well mixed portions

- Excellent mixing in short time – light mixing results in a higher dry matter intake.
- Everything tastes good – no sorting of feed and less leftovers.
- Small fresh meals – less heated up feed.
- Safely stored in the kitchen, for several days – the feed remains stored in blocks which prevents drying out.
- Higher feed intake – constant delivery of fresh feed will encourage to consume more, especially the low ranked cows.



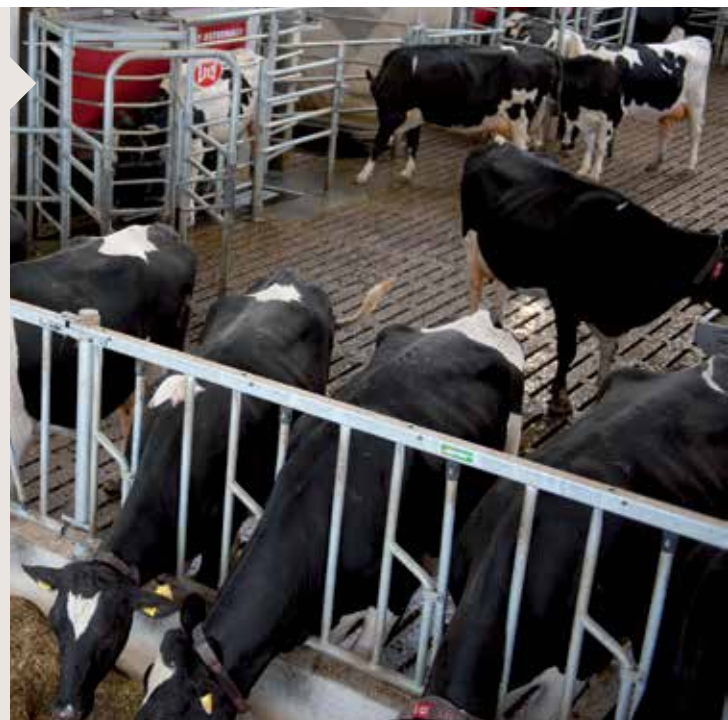
The highest return on your feed investment

Farming is increasingly a business whereby the difference in financial results is decided by the way in which you manage the margins. Cows become healthier by consistent feeding and a higher feed intake for all cows results in better performance

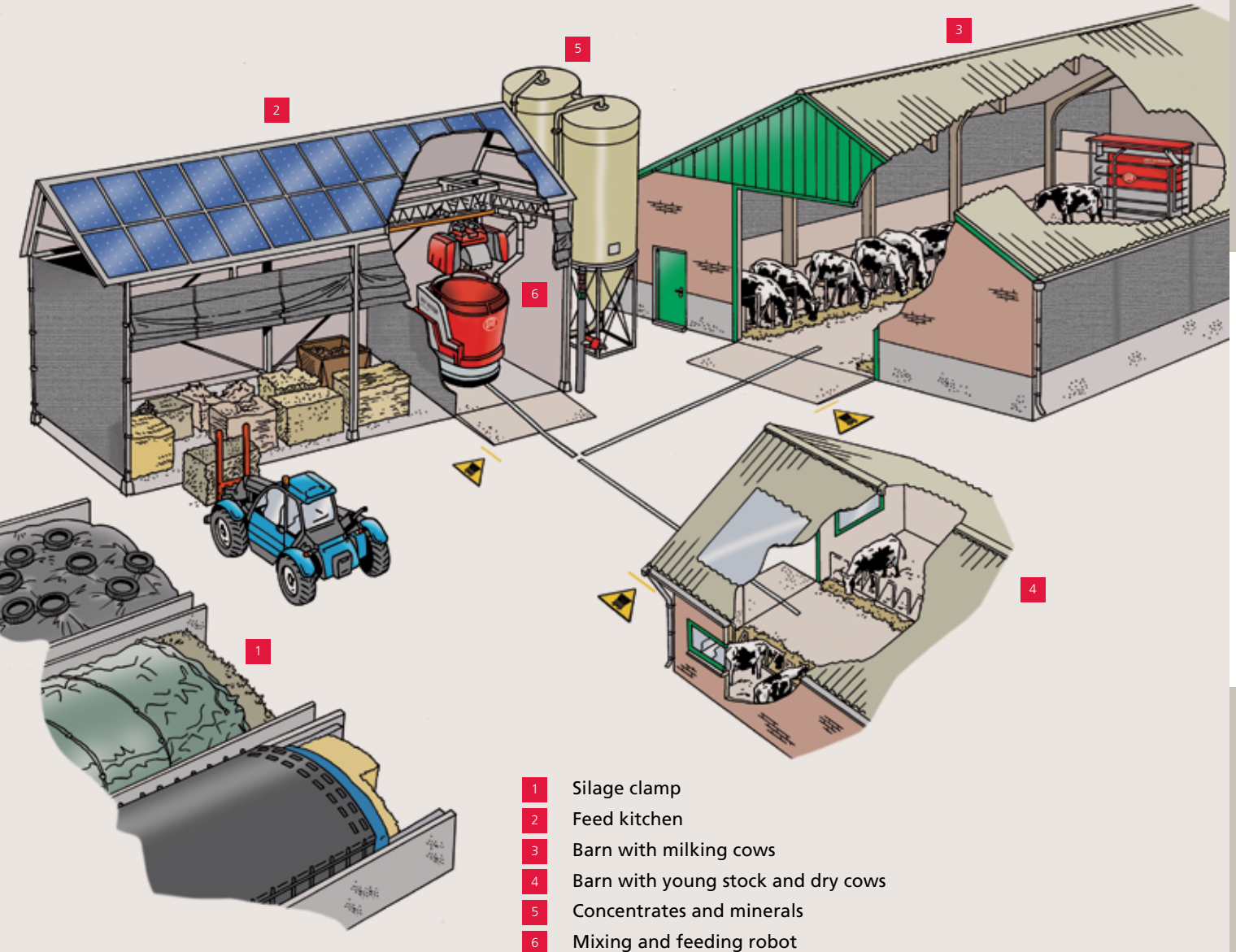
of the low ranking cows. More fresh feed will reduce leftovers which means more efficient use of roughage. In addition, a significant saving in energy-consumption is achieved.

Feeding, make your strategy profitable

- Suitable for all group sizes – even small groups will get their own, specially mixed, ration.
- Feeding according to feed conversion ratio – the Vector system can provide the best feed for the best cows automatically.
- Low running costs – electrically powered: clean, quiet and energy saving.
- Saving of eight hours labour a week – reported by existing customers!
- Improved feed efficiency – results shown by precise reporting.
- More milking robot visits – fresh feed served multiple times per day will stimulate cow activity.



Lely Vector – a comprehensive and intelligently engineered system



Feeding equipment

Specifications

Dimensions mixing and feeding robot

| | |
|--------------------------------------|------------------|
| Length | 246 cm |
| Width | 162 cm |
| Weight | 1,281 kg |
| Height with sliding door open/closed | 278 cm/193 cm |
| Mixer volume | 2 m ³ |

Capacity and requirements

| | |
|-----------------------------------|---------|
| Max. capacity one robot (animals) | 250-300 |
| Max. number of groups | 16 |
| Surface floor | Flat |
| Max. inclination | 5% |

Required min. width feed alley

| | |
|--------------------------|--------|
| Feeding at both sides | 325 cm |
| Feeding at one side | 310 cm |
| Corridor without feeding | 275 cm |

Feed kitchen; required dimensions feed blocks

| | |
|----------------------------|--|
| Shape | Straight cut blocks |
| Max. depth (grabber width) | 105 cm |
| Feed | Well-cut or shredded product, advise feed length between 10 and 20 cm. |

Mixing and feeding robot

The mixing and feeding robot of the Lely Vector system is a self-contained, battery-operated vehicle which is capable of automatically feeding a self-mixed ration.

Vertical mixer auger

Ensures superb mixing. The counter-blade makes it possible to mix straw hay as well as other feed types.

Antenna

For wireless communication between components of the Lely Vector system.

Distributor

Distributes the feed along the feed fence. The amount of feed will be determined by the driving speed.

Ultrasound sensor

Ensures that the mixing and feeding robot follows the feeding fence at pre-determined distances.

Emergency stop and pause button

To stop or switch off the system immediately if necessary.

Load cells

Compile the right ration and to determine the right amount of feed to dose.

Collision bumper

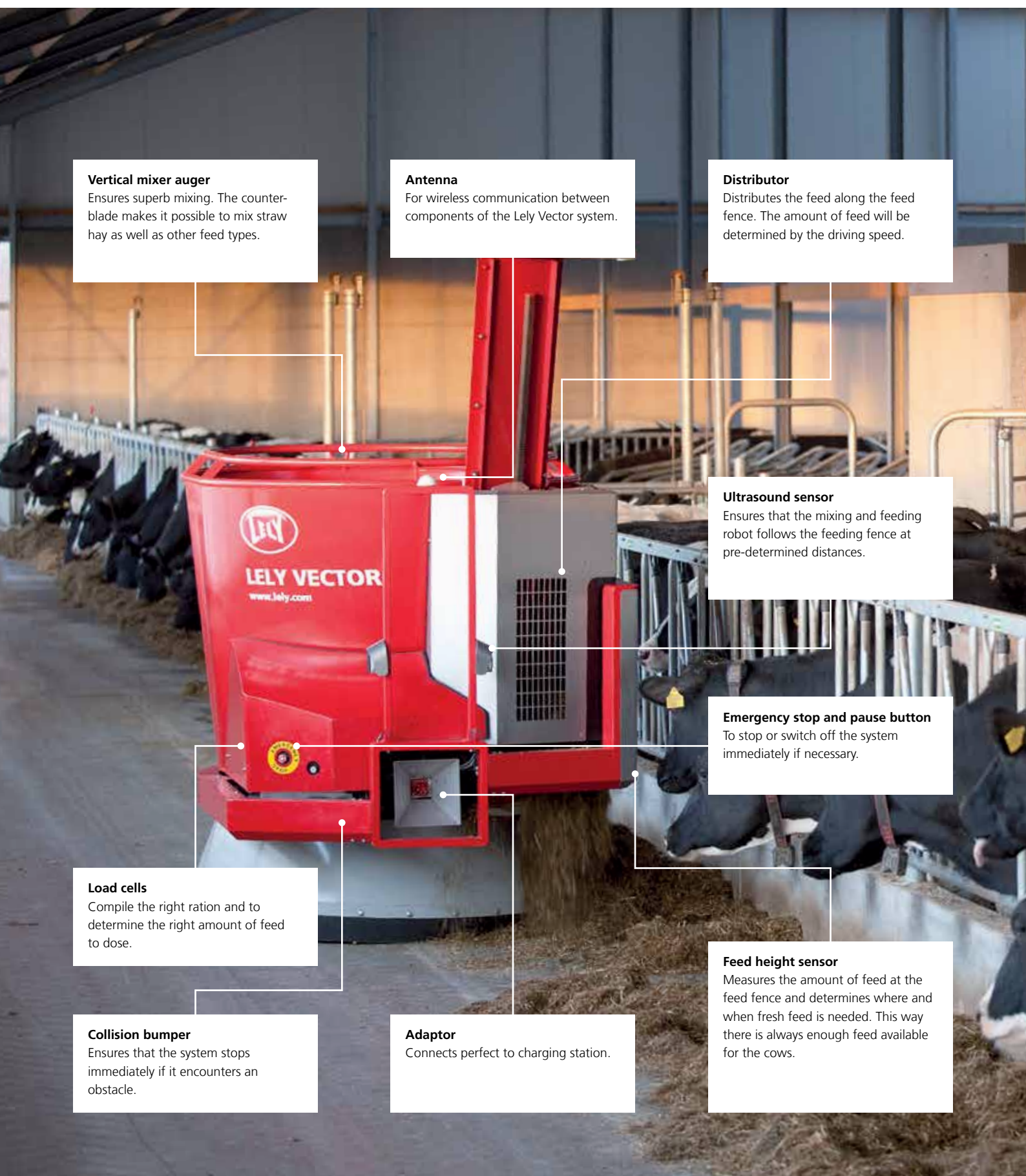
Ensures that the system stops immediately if it encounters an obstacle.

Adaptor

Connects perfect to charging station.

Feed height sensor

Measures the amount of feed at the feed fence and determines where and when fresh feed is needed. This way there is always enough feed available for the cows.



Feed kitchen

The feed kitchen is the area in which the feed is stored, selected, picked and loaded in the robot for mixing. Depending on the width and depth of the kitchen it can easily stock feed for three days.

Feed grabber

Selects and picks the feed and loads it in the mixing and feeding robot. It surveys the sector of the feed storage area that was marked out for a particular type of feed, where it fetches this feed from the highest point.

Concentrate dispenser

Controls the dosing of the concentrates which are stored in bulk. Quantities can be determined and dosed in the forage with utmost precision.

Safety door

The total system meets stringent international standards. The feed kitchen will only be opened when it needs to be filled.

Mineral and additive dispenser

Minerals and additives can also be mixed through the roughage in smaller quantities.

Lely Vector automatic feeding system

Flexible

- Flexible in feeding strategy.
- Flexible in your daily routine.
- Flexible for every farm and future expansion.

Fresh

- Fresh from the clamp.
- Fresh from the kitchen.
- Fresh at the feed fence.

Feeding

- Feeds well balanced rations.
- Feeds according to needs.
- Feed well spread at the fence.

Results in

- No stress in the herd.
- More cow activity.
- High feed intake.
- High feed efficiency.
- High milk production.

Users say:

"I am sure my herd's milk production will increase thanks to the Lely Vector automatic feeding system. Especially during the summer, constant fresh feeding is a huge benefit which will definitely pay back."

The Netherlands

"On this farm we save 600 hours and approximately 6.000 litres of diesel every year by having this new system."

Sweden

"I think it will be much easier for the future generation to take over when the work is so much easier, and it all feels a lot nicer actually."

Sweden

"Some years ago we operated a railed feeding system in our previous barn and compared to that, this system is so much more flexible. Using the Lely Vector system, we can even feed the cows in the barn of our neighbour."

The Netherlands



Lely Juno automatic feed pusher – 24/7 fresh roughage with less labour

It is well known that continuous availability of fresh roughage results in increased dry matter intake and increased milk production. In addition, frequent feeding has a positive impact on general animal health. Quite often, labour is the limiting factor in making fresh feed available to cows around the clock. Thanks to the Lely Juno, this problem is a thing of the past.

The Lely Juno moves along the feeding alley automatically, thereby following the feed fence. When in operation, the machine pushes the feed towards the feed fence without disturbing the cows. Since the Lely Juno is a stand-alone machine, barn modifications are seldom required, and it can be used in almost any type of barn.

Lely Juno 100 and 150

In 2008 Lely successfully introduced the Lely Juno 150 feed pusher model. Three years later the introduction of a smaller, more compact and financially more attractive model followed: the Lely Juno 100. Because of its smaller diameter, the Juno 100 is also extremely suitable for barns with a smaller feeding alley.

For both models, the charging station serves as the point of departure and arrival for each round; it is installed at a suitable location in the feeding alley. Because of the various built-in sensors, the Lely Juno can drive diverse routes. In combination with pre-installed strips, the Lely Juno 150 can, unlike the Juno 100, also perform routings between two barns, and drive on open feeding alleys.

Key benefits

- 24/7 operation.
- Increased roughage intake.
- Higher milk yield.
- Equal quality rations available day and night.
- More peace in the herd.
- More balanced use of the Lely Astronaut robotic milking system.
- Cost saving.
- Labour saving and greater flexibility.
- Energy-friendly plus a limiting effect on CO₂ emission.



Lely Juno brings everything together

- Minimal labour, minimal use of energy, minimal maintenance, maximal output.
- A true high-tech solution, creating more flexibility on the farm.
- Improved cow traffic, resulting in less labour and improved animal well-being.
- Smart and flexible, pushing feed consistently.
- Better animal welfare with 24/7 close feed availability.



The benefits of the Lely Juno for you and your herd

24-hour operation and increased feed intake

Constant availability of feed stimulates cow traffic and increases the dry matter intake (+3.5%*), especially during the night; in addition, feed residues are reduced.

Improved animal well-being

Roughage pushed up throughout the day improves cow traffic and provides roughage around the clock.

Uniform quality roughage available day and night

The Lely Juno continuously pushes roughage towards the feed fence. The cows are thus given no opportunity to be selective since an equal quantity of roughage is available at the feed fence day and night.

More frequent use of the milking robot

When combined with a milking robot, the Lely Juno has proven that it increases the visiting rate to the robot (+10.9%*), day and night. Increased visits result in higher milk production, especially for lower-ranking cows. In addition, the milking robot is used more efficiently and fewer cows appear on the attention lists.

A quieter herd

Due to the regular pattern of the Lely Juno, low-ranking cows can also access fresh roughage, after the high-ranking cows have had their fill.

Cost savings

Improved feed intake means a reduction of waste roughage. The Lely Juno also saves on work, fuel, and wear and tear of equipment. The Lely Juno is equipped with an energy-efficient electric motor.

*) Result may vary depending on local conditions.

- Improved feed efficiency.
- Increased robot visits – 10.9%* – on robotic dairies.
- Improved milk production, especially from low-ranking cows.
- Increased feed intake.
- No labour, yet pushing 4 times more often.

Minimal use of energy

The Lely Juno is extremely energy-efficient and has a positive effect on CO₂ emissions. On a yearly basis, a tractor or shovel uses ten times as much energy and emits approximately four times as much CO₂.

Labour-saving and more flexibility

Based on three feed rounds of 10 minutes a day each, the Lely Juno will save you at least 183 hours, i.e. 22 eight hour working days a year! Moreover, the Lely Juno ensures unrivalled flexibility; you can let the Juno push the feed as often and whenever you like, twenty-four hours a day, seven days a week.



Feeding equipment



Barn specifications

Feeding alley

- Solid, level concrete floor, with or without coating.
- Limited slope.
- By outside navigation: a higher risk of rutting exists with a roadbed of bitumen in relation with warm or hot temperatures.

Feeding fence

- Vertical bars with maximum intervals of 60 cm.
- Tested: headlocks, horizontal bar, parallel, U-model.
- Horizontal bar at a height between (measured from the feeding alley floor):
 - Juno 100: 80 and 135 cm.
 - Juno 150: 80 and 150 cm.*

*) In combination with an optional high level sensor.

Users say:

“Now my low-ranked cows also have continuous access to good quality roughage.”

Canada

“With two cows per feed place the demand for constant feed availability is high. The Lely Juno feed pusher is the solution.”

Japan

“We’ve had the Juno for two years and we wouldn’t be without it. It is indispensable and one of the best things we have ever bought.”

Northern Ireland

“It’s just 15 minutes each time, but I’m so happy I can skip the last round around 23.00 hours.”

The Netherlands

Features

The Lely Juno is a battery-powered feed pusher, equipped with an energy-efficient electric motor. The rotating surface on the lower part of the Lely Juno pushes the roughage towards the feed fence, as the machine moves in a straight line. A heavy concrete block forms the ‘body’ of the feed pusher ensuring that the machine has sufficient mass to push the roughage. The Lely Juno is suited to all hardened and level feed passages; it can follow various types of feed fences and push roughage with a height of up to 65 cm.

Dynamic pushing

Optimisation of the Lely Juno software, allows to push dynamically.

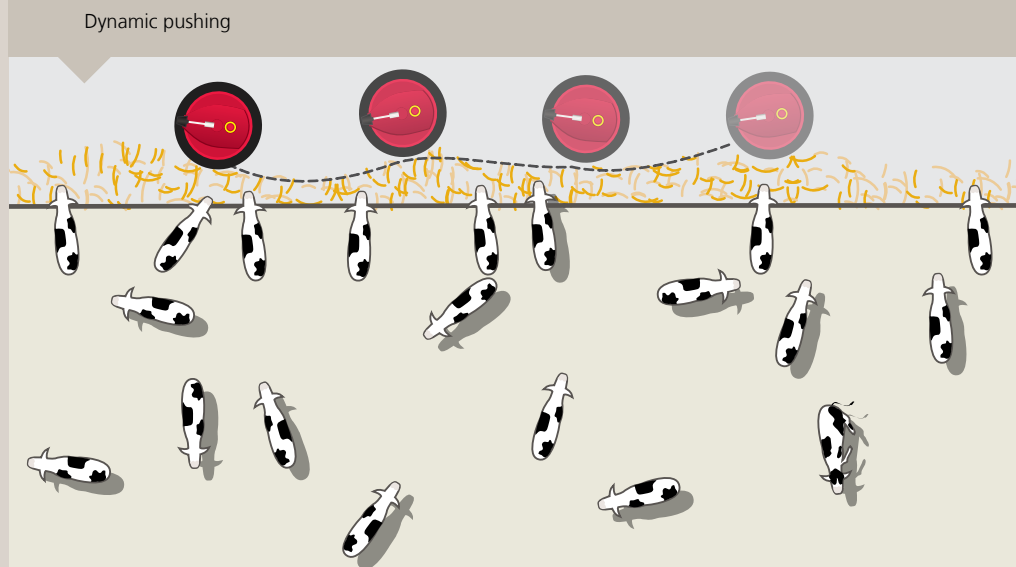
This means that the Juno decides by itself which distance, based on the amount of feed in the feeding alley, it will take to the feeding fence.

Smart software also saves you work here! Whatever feeding scheme you choose, the Lely Juno feed pusher takes care of pushing the feed the correct way in every situation.

Safety

The Lely Juno operates in the feeding alley, which is an easily accessible part of the barn, therefore, safety is of paramount importance.

Consequently, the feed pusher features a special mechanism: the collision detector. It makes sure that the feed pusher stops as soon as it hits an obstacle.





Specifications

| | Juno 100 | Juno 150 |
|--|---|---|
| Diameter (cm) | 111 | 156 |
| Height (cm) | 104 | 106 |
| Weight (kg) | 574 | 575 |
| Height (cm) of the push-blade | 57 | 51 |
| Drive | Electric motor | Electric motor |
| Wheels | 3 | 3 |
| Speed (m/min) | 12 | 12 |
| Batteries | 12V/55 Ah | 12V/55 Ah |
| Determination of direction of movement | Gyroscope and ultrasound | Gyroscope and ultrasound |
| Determination of distance covered | Sensors on rear wheels plus collision or reset point on the route | Sensors on rear wheels plus inductive sensor |
| Number of programmable routes | 16 | 16 |
| Route programming | Use of manual control (E-link) | Use of manual control (E-link) |
| Reset points (direction) | Charging station plus collision or reset point on the route | Metal strips; start/end near charging station |
| Space required for approaching the charging station (m) | 5 | 3 |
| Space required for departing from the charging station (m) | 1.00 | 1.50 |
| Minimum width of feed alley (m) | 1.25 + width of feed | 2.00 + width of feed |
| Maximum width of feed mass (cm) | 200 | 200 |
| Maximum height of feed mass (cm) | 65 | 65 |
| Start interval | Flexible, max. 48 times a day | Flexible, max. 48 times a day |
| Charging unit: w x d x h (cm) | 28 x 27 x 21 | 36.90 x 26 x 62.30 |
| Outdoor use | No | Yes |



Lely Cosmix feeder – if cows deserve a little more

Feeding cows individually is an acceptable way of managing the body condition score. By managing the supply of concentrate in this way, you will maximise general health, milk yield and fertility of your cows and improve milk/feed efficiency.

Cost effective feeding

The Lely Cosmix feeder provides accurate information about the additional concentrate feed and the intake of cows. Additional concentrate feeders are used to balance the ration for low and high yielding cows, or to distribute extra feed types to cows that require it. The Lely Cosmix is fully compatible with Lely's Astronaut milking robots and is connected to Lely's T4C management programme. It allows regular concentrate feeding parallel to the concentrates supplied in the milking robot, stimulating a stable rumen pH. Moreover, it allows you to regulate the feeding based on milking times resulting in a higher stimulation of cows to visit the robot more often. Cows are not allocated any concentrate through the Cosmix when they need to be milked. Once milked the allocation will continue.

Balanced per cow

When a cow enters the Lely Cosmix, she is identified through her neck or leg identification tag. Because each animal's daily ration is continuously calculated, the Lely Cosmix will immediately assess if the cow should eat, and how much. No feed is wasted, because feed is dispensed according to her eating speed.

Additional concentrate for your dry cows as well

Dry cows are often placed in a calving barn or straw pen during the last transitional weeks before calving. These cows cannot be fed in the robot but it is of paramount importance that they receive sufficient concentrate. Therefore, it is ideal to install an additional Cosmix feed station here.

The Lely Cosmix is robust and reliable, consisting of stainless steel and durable materials, provides you a long-lasting solution for individual feeding on your farm.

Feeding minor feed quantities with increased precision

The feed is dispensed into specially shaped feed troughs. This allows you to feed very small portions with increased precision. Another feature is that the dispensing position avoids the risk of moulding and cake wastage is reduced to a minimum.



Users say:

"Lely Cosmix offers my best cows, just the little extra they require."
Denmark



Key benefits

- Well balanced concentrate supply.
- Improves robot visit frequency.
- Stimulating stable rumen pH.
- Integrated in the T4C network.
- Individual feeding.
- Feeding tuned with robot milking intervals.
- Durable and long-lasting.

Specifications

| | |
|-------------|--|
| Voltage | Cosmix S (24 V or 230 V), Cosmix P (230 V), Cosmix M (solar power) |
| Recognition | Qwes H, Qwes HR, Qwes ID, Qwes leg, Qwes act, Qwes I |



Lely Cosmix P – integrated protection gate

The Lely Cosmix P is fitted with a unique protection gate (M-box). The design and shape of this gate is such that other cows cannot trouble the cow standing in the feeder station. Research has shown that a concentrate station with a protective gate reduces aggression within the herd. More importantly, the risk is reduced of a cow being chased away from the feeder station by a higher ranking cow. The Cosmix P reduces competition and avoids stress and injuries, e.g. of the udders.



Attractive options

The Lely Cosmix feeder comes with one feed type as standard. It can however be fitted with a further three feed types as an optional. The four feedtype dispensers are then neatly built-in one next to another.

Another option: control of the feed augers by the Lely Cosmix. This is cost-effective because no additional sensors are needed to start and stop the augers.

Lely Cosmix P – feeding even more cows

Since the cows can take their feed in a protected environment, the Lely Cosmix P provides the possibility to dispense larger portions – or feed at a faster rate – without the animals being chased away. Consequently, total feeding capacity is doubled. Thanks to the design of the Lely Cosmix P with a low entrance threshold to enter, the feeder is easily accessible for all cows.

Lely Cosmix S – flexibly adjustable side gates

The Lely Cosmix S has adjustable side gates. This allows you to adapt the system to your herd or barn situation allowing for even greater flexibility.



Lely Cosmix M – the mobile concentrate station

The fluctuating availability and quality of grass throughout the seasons always is an unreliable factor for pasture grazing in the dairy farming business. In spring time, there is usually an abundance of high-grade grass but during the summer and winter the performance of the animals is usually affected. The mobile concentrate feeder Lely Cosmix M, working on solar energy, dispenses extra concentrates to grazing cows, day and night.

Lely Cosmix M – better steering at cow level

The Lely Cosmix M is very labour efficient. There is no need to provide additional feed in the field every day. Adjusting the concentrate rations to



individual cows can take place with much more precision. Large or small rations can be spread across the day, which is much better for the rumen function. You also rule out both overfeeding and underfeeding of concentrates.

Lely Essentials Mineral Block

Lely Essentials Block are sodium and seaweed lime based blocks. Therefore there will be no luxury consumption, as is the case with molasses. In addition, the seaweed lime with its high porosity provides good conditions for the microflora in the rumen and contains high available calcium and magnesium.

Besides the seaweed lime the mineral blocks contain a unique formulation of mineral buffers, antioxidants and easily absorbable trace elements. Easy absorbable components like calcium, phosphorus, magnesium, sodium, zinc, selenium, manganese, iodine, copper and cobalt, are essential and supports the immunity, fertility and metabolism of the animal.

Lely Essentials Block fits perfect on a robot farm where free cow traffic is desirable. Because the cow can regulate his own consumption the mineral blocks provide an optimum mineral intake for every individual animal. At the same time the blocks are also a good indicator of the mineral consumption at herd level: if the consumption is too high or too low, the mineral supply in the ration can be adjusted.

Lely Essentials Blocks will be available in three different versions:

- Lely Essentials Block-Lac for lactating cows.
- Lely Essentials Block-Dry for dry cows.
- Lely Essentials Block-Grow for young stock.

For optimum use, place Lely Essentials Block in the right place and on the correct height in the barn or pasture. Always use a Lely blockholder.





Lely Calm automatic calf feeder – peace of mind to rearing

Anyone in pursuit of a sustainable cow with a high lifetime production must first optimize the rearing of young cattle. The Lely Calm automatic calf feeder guarantees the optimal growth and development of these young animals. Calves can still enjoy their natural behaviour and drink whenever they want, in a controlled way, while labour is reduced to the minimum. After all, today's calves are tomorrow's high performance cows.

Rearing without stress

When a calf drinks from its mother, it usually drinks adequate portions spread over the day. However, in today's dairy farming when a calf is fed manually, this is restricted to once or twice a day. This is why Lely introduced the Lely Calm automatic calf feeder, which supplies the correct portion and concentration of feed spread over the day, resembling the natural behaviour of the calf. The Calm calf feeder offers the calves an outstanding start, while giving labour savings and many economic benefits. The accurate and small portions spread over the day substantially enhance the development of the digestive organs of the calf. Calves are weaned gently by gradually reducing their milk portions. Slowly reducing the milk yield will ensure that the calves automatically increase their intake of roughage. The optional Caltive concentrate feeder together with Lely Caltive Concentrate will further improve the weaning process. The quicker and the more your calves will learn to eat concentrate the less they will get milk. The concept will save more expensive milk powder and speed up the weaning process by turning your

calves quicker to ruminants. Monitoring your calves only takes a few minutes per day with the Calm calf feeder. The Lely Calm is an absolute must for each dairy farm that puts animal welfare at the top of its priority list.

The Lely Calm is the perfect way of preparing for a milk producing life with a milking robot. The animals learn from a young age to get their milk; this makes them assertive and, above all, they become accustomed to automatic feeders and all the noises that they make. The dairy farmer will profit from this when a heifer walks into an automatic milking system for the first time.

A Lely Calm automatic calf feeder will pay for itself by means of healthier calves, increased growth, increased feed efficiency and labour savings. A Lely Calm offers labour-savings of 60 to 70%; it will pay for itself in three years. The Calm calf feeder is a reliable calf feeder with minimal maintenance.



Users say:

"It's just a joy to rear calves on a Lely calf feeder and it fits well into my daily routine."
New Zealand

"I am not running myself ragged anymore. The unit is easy to clean and the calves love it!"
UK

A la carte

As soon as a calf enters a milk station, it is recognised by its electronic transponder and, according to the calf's feeding plan, the Lely Calm calf feeder decides if it is allowed to drink, and how much. A minimum and maximum portion of milk per visit can be set for each calf, then the calf feeder will automatically determine the ration per calf. If the calf is indeed allowed to drink, the calf feeder immediately prepares a fresh portion of milk at the predetermined temperature.

Hygiene

The Lely Calm cleans itself automatically resulting in better machine hygiene and can be improved further by installing extra options such as the fly protection screen or anti-moisture element.

Perfect overview

The Calm calf feeder gives you the flexibility to check the performance of the calves whenever you want. The hand held terminal of the Calm has a large display. With several function keys, fast buttons and records you can quickly find or change information. The Lely Calm can be connected to Lely's T4C advanced management programme, giving you a clear overview and ease of control of all your calves through your PC. It also allows you to generate reports and graphs of milk rations per calf. You can choose for feeding only fresh milk, only powder milk or a combination of both.

Lely offers two Calm feeder models:

| | calves | drinking stations | milk powder |
|-----------|--------|-------------------|-------------|
| Lely Calm | | | |
| Compact+ | 50 | 1-2 | 35 kg |
| Vario+ | 120 | 1-4 | 35 kg/50 kg |



Key benefits

- Time saving.
- Quicker growth rate.
- Better rumen development.
- Labour flexibility.
- Individual calf management.
- Stable and exact milk temperature.
- Flexible feeding schedules.
- Weaning without stress.
- Suitable for all farm sizes.

For further information we kindly refer to our series of knowledge brochure Successful calf rearing.





Lely Caltive Concept – for the best start

Installation, maintenance, adjustments, calibration, rearing advice and a complete assortment of calf milk and calf concentrates have been bundled – together with the Lely Calm automatic calf feeder – in one single concept; the Lely Caltive concept. Calves need to grow in such a way that they achieve optimal growth and ruminal development within 8 weeks. Carefully balanced feeding assures better development of the rumen papillae in the early weeks ensuring better development and calf growth.

Lely Caltive Booster

Lely Caltive Booster is composed of dead yeast cells, Mannan Oligosaccharides (MOS) plus a mixture of ethereal oils and herb blends.

- It improves the immunity of the calf.
- It helps to decrease damage of the intestinal wall mainly caused by E.coli and salmonella.
- It stimulates the rumen bacteria and the development of the rumen papillae resulting in better and quicker growth of the young animal.

Lely Caltive Milk

Lely Caltive Milk contains a high percentage of selected whey proteins and probiotics.

- Whey proteins are highly digestible and stimulate feed intake.
- The probiotics improve both immunity and health of the calf.
- The milk replacer ensures optimal growth and development resulting in healthy and active calves.

Lely Caltive Concentrates

Lely Caltive Concentrates is a completely new type of concentrate. Quite soon, young calves will prefer the concentrates above the milk, because of the proper fragrance and flavour, the presence of Mannan Oligosaccharides (MOS), dead yeast cells and a high amount of hemicelluloses (= highly digestible cellulose).

- It ensures development of the rumen papillae at a very young age.
- The hemicelluloses are taking care of a balanced, safe rumen development.
- The concentrates take care of optimal growth and development mainly as a result of increased feed intake.

Lely Caltive concentrate feeder

Three feeding places allow for easy access to the feeder and with the lid opening on top, the feeder can be refilled easily. The turn button on top of the feeder allows dose settings to be easily adjusted to the level that keeps feed fresh. Clearly, concentrate intake is stimulated resulting in optimum rumen development.





Barn equipment

Lely stands for an animal friendly environment in a barn, yet very practical to work with. In all our product development cow comfort is key. Healthy cows produce more milk... Find out in this chapter how Lely Barn equipment is especially designed to contribute to animal welfare and to the welfare of you as a farmer.

Lely Discovery barn cleaner

The results of the use of a Discovery: less manure in the cubicles, cleaner hoofs and tails as well as udders, which results in a peaceful and quiet herd and prevents hoof and udder illnesses. Page 58.

Lely Luna cow brush

The Lely Luna ensures maximum comfort for the cow and a long lifetime of the brush. Page 62.

Lely L4C – Light for Cows

Due to the combination of a light sensor and the network plus its settings, you can operate a fully automated system that guarantees optimal light distribution without any additional labour. Page 64.

Lely Walkway automatic foot-bath

The Lely Walkway for optimal hoof health combined with maximising the ease of operation Page 68.

Lely Treatment Box

The Lely Treatment Box ensures that you can perform any conceivable treatment of your cows. In a safe and professional manner. Page 72.

Lely Commodus cubicle

The true animal friendly cubicle for the highest comfort and good accessibility for lying down: the Lely Commodus cubicle. Page 76.

Lely Compedes soft bed

The Lely Compedes soft bed provides your cows comfort and allows her to perform natural behaviour which will improve milk production. Page 80.

LELY DISCOVERY



LELY LUNA



LELY L4C



LELY WALKWAY



LELY TREATMENT BOX



LELY COMMODUS



LELY COMPEDES





Lely Discovery – your personal house keeper

Lely provides an intelligent solution for barn cleaning, which meets the growing need of dairy farmers for optimum hygiene in cow housing. The Lely Discovery mobile barn cleaner features robot technology. Its flexibility and thoroughness ensure that the cow housing floor is kept as clean as possible. This guarantees maximum cow comfort and optimal hygiene.

Sense and simplicity

The Discovery mobile barn cleaner is a battery-driven vehicle. At installation, you use the E-link remote control to pre-programme the routing to be followed by the Discovery. Routings are flexible so that you have the option to ensure more intensive cleaning of some areas in the barn during certain hours of the day, like behind the cubicles.

When the duty is done

After cleaning up the barn the Discovery returns to the charging station. This charging station is fitted at a convenient point in the barn and also functions as the starting point of each cleaning route.

Always on track

No sensors are needed under or inside the slatted floors. The built in ultrasound sensor ensures that the Discovery follows the walls at a pre-determined distance. A special element of the design of the Discovery barn cleaner is the so-called ring at the front. This feature prevents the device from being blocked. In addition, the ring ensures proper following of walls as well as steering clear of obstacles. The built in gyroscope enables the Discovery to keep track of its position at all times.

Wet supply for better grip

The Discovery 90SW model, equipped with water spray, improves the cleaning results of the Lely Discovery mobile barn cleaner. It is known that in certain circumstances like a dry environment, in low cow occupied barns, barns with wide walking alleys and in well ventilated barns, a thin layer of dry manure may be formed on top of the slatted floor. This layer makes the floor slippery. By spraying water, just in front of the scraper, the floor is cleaned better and does not become slippery.



The built-in ultrasound sensor ensures that the Discovery follows the walls at a pre-determined distance.



A special element of the design of the Discovery barn cleaner is the so-called ring at the front. The ring ensures proper following of walls as well as steering clear of obstacles.



The flexible blade fitted underneath the Discovery pushes the manure through the openings of the slatted floor.



The Lely Discovery 90SW at its water supply station.



The Lely Discovery mobile barn cleaner moves across the barn without any noticeable disturbance to the cows.



Constantly dry and clean

By using the Lely Discovery mobile barn cleaner you clean the manure alleys in your cow housing as often as you please, so that you create a floor for your cows that is constantly clean and dry. Manual cleaning is an intensive and none too pleasant job, and keeps the floor dry and clean for just a short time. Conventional systems are an obstacle, they require extensive maintenance and do not clean the passage ways.

More comfort for cows

The results of the use of a Discovery are immediately noticeable: less manure in the cubicles, cleaner claws, tail as well as udders, which results in peace and quiet in the herd and prevents claw and udder illnesses. As cows are more comfortable to express natural behaviour on clean and dry floors, you can detect heat at an earlier stage.

Good animal health is essential for overall cow performance and optimum cow housing hygiene is an absolute must for maintaining good animal health. From this point of view, the Discovery mobile barn cleaner is a valuable and economically justified investment. All in all, the Discovery mobile barn cleaner provides flexibility and is the solution for keeping your cow housing clean – 24 hours a day/7 days a week.

Key benefits

- Compact dimensions.
- Passes easily underneath separation gates.
- Intelligent cleaning without cow disturbance.
- Easy to install and maintain.
- Economically cost-effective.
- Optimum cow comfort and hygiene.
- Flexible routing.
- 24/7 cleaning.
- Round design: can easily pass obstacles.
- Option to spray water for better grip.

Users say:

“This small and smart device hits every spot and keeps the environment of my cows hygienic, even better than I did.”
Belgium

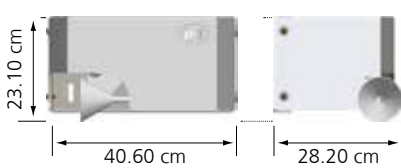
“Cleaning the barn always used to be a ‘last-minute-job’. Now, it’s done during the whole day, without any hassle.”
Switzerland



charging station



water supply station



Discovery 90S



Discovery 90SW



Specifications

| | Discovery 90S | Discovery 90SW |
|---------------------------------|--|--|
| Weight (kg) | 300 | 340 |
| Empowered by | 2 electric motors | 2 electric motors |
| Adjustable travel speed | 9-18 m/min | 9-18 m/min |
| Voltage gel battery | Gel battery 12 Volt | Gel battery 12 Volt |
| Determination of direction | Free spinning horizontal guiding wheel, gyroscope and ultrasound | Free spinning horizontal guiding wheel, gyroscope and ultrasound |
| Floor | Slatted floor with max. 3 degrees of slope* | Slatted floor with max. 3 degrees of slope* |
| Capacity | ca. 240 cows | ca. 240 cows |
| Minimum height of cubicle floor | 12.50 cm as a minimum | 12.50 cm as a minimum |
| Content water tank | - | 30 litres |
| Number of nozzle's | - | 2 |

*) the Lely Discovery can also keep short closed floors clean (5 m length max.)



Lely Luna – taking care of your ladies

The Lely Luna cow brush offers optimum comfort for your cows. Cow comfort and hygiene are important issues in a barn. The Lely Luna cow brush is developed to groom your cows, enabling them to get rid of dust and itches. The cows love the brush and will go there several times a day for sheer pleasure.



Optimum cow comfort

There is no doubt that good cow comfort results in a happier, healthier and more productive herd. The Lely Luna cow brush contributes to this by providing cows healthy and shiny coats, stimulating the blood circulation which results in a quieter herd.

Clever technology

Due to its smart design the Lely Luna cow brush is driven by touch and rotates the opposite direction once the cow pushes it. This ensures maximum comfort for the cow and a long lifetime of the brush. As the brush has two directions of rotation the bristles will keep their shape longer than those that have only one. In addition, the minimum of moving parts makes it low maintenance. The Luna cow brush has spirally positioned bristles of variable thickness for maximum comfort. The Lely Luna cow brush is delivered as one part and can easily be installed on a post or against the wall.

Users say:

"What's the harm of spoiling your ladies every now and then?"
USA

Key benefits

- Quieter herd.
- Durable.
- Maximum cow comfort.
- Low energy consumption.
- Stimulates blood circulation.
- Clean and healthy skin.
- Easy to install.
- Maintenance free.
- Equipped with overrun safety protection.

Specifications

The Lely Luna cow brush can be easily installed on the standard fixation posts of 2", 2½", 3" and 2", and on square '6 and 8' posts. The Luna cow brush is also available with a wall mounting set. The cow brush is available for both 230 V and 115 V electrical installation. To ensure optimum safety, the Luna cow brush is fitted with an overrun safety protection.





Lely L4C – more than light

Lely L4C – Light for Cows, is much more than just a number of lights to light your barn; it is an altogether different approach to barn lighting. This new system – the first of its kind – has been developed to ensure optimum light distribution in the barn, using specially designed lamp units. Thus, the system ensures optimum light levels throughout the barn while keeping energy consumption as low as possible.

Increase your milk production

Proper lighting in barns ensures optimum cow performance.

Well distributed lighting inside the barn – including an optimal time schedule – may increase milk production by 6 to 10% and increases forage intake. Lely offers a highly affordable option to ensure cows can benefit from the lighting conditions that are standard for most of today's state-of-the-art barns. And there is more to this excellent option: Lely L4C is a controlled barn lighting system, which also provides the facility of an advanced and custom-made lighting plan.

Choose a light and bright barn

Cows are sensitive animals and their day-and-night rhythm is of paramount importance. Specific light levels are necessary to impact the difference between the night-and-day rhythms on the cow's body. In barns there is usually not enough light, especially in winter time, to reach a natural light level. With correct lighting control, cows benefit most from a light intensity between 150 and 200 lux during a 16 hour period, combined with an eight hour dark period. In the summer season, the natural light level may often be sufficient in itself, although lighting control may – even in summer time – provide benefits on cloudy, darker days. Due to the combination of a light sensor and the network plus its settings, you can operate a fully automated system that guarantees optimal light distribution without any additional labour.

Individual light plan

Thanks to the lighting plan, an optimum lighting programme can be set up to ensure perfect light distribution using a minimum number of lamp units. All lamp units are made of outstandingly high-grade and sustainable material with maximum life span. Lely L4C adjusts its lighting schedule to the programme installed, and takes into account outside light levels so the lights will only burn when strictly necessary. Due to the unique fact that each lamp unit has its own node box, connected to a network, the individual lights have their own lighting programme according to their place in the barn.

Attention to every cow

Not only your dairy cows, but your young stock and dry cows will also benefit from optimal light distribution. In the set-up of the lighting programme, these special groups have been given particular attention. This is because young stock and dry cows prefer a different light distribution, which is easily – and automatically – managed through the Lely L4C lighting programme.

Key benefits

- Increased milk production.
- Fully automated.
- Energy saving.
- Improved animal wellbeing.
- Increased feed intake.
- Integrated night lights possible.



Minimal light exposure

| | Lux | Light hours |
|--------------|-------|-------------|
| Milking cows | > 150 | ± 16 |
| Dry cows | > 150 | ± 8 |



Barn equipment

Users say:

"It's easy; more light, more milk."
Switzerland

"Totally automated system, or hand-operated, depends on what I like best. With every application that I require."
Norway

Durable light at night

Red light is hardly visible for cows, so excellent to light the barn during the eight hours dark period when the farmer needs to enter the barn. This enables doing control rounds and other work in the barn without disturbing the cows during their necessary dark period. The Lely L4C lamp units have an optional integrated LED night light "Light 4 Cows LED". Integrated night light saves installation costs for additional night lamps. LED lights are low on energy usage and last longer.

A lamp for every situation

A minimum of 150 lux* is needed to ensure optimal cow performance. Within the Lely L4C programme this level can be reached through two different options: **1** metal-halide lamps or **2** high-pressure sodium lamps. In both types of lamp units, 250W or 400W lights are used.

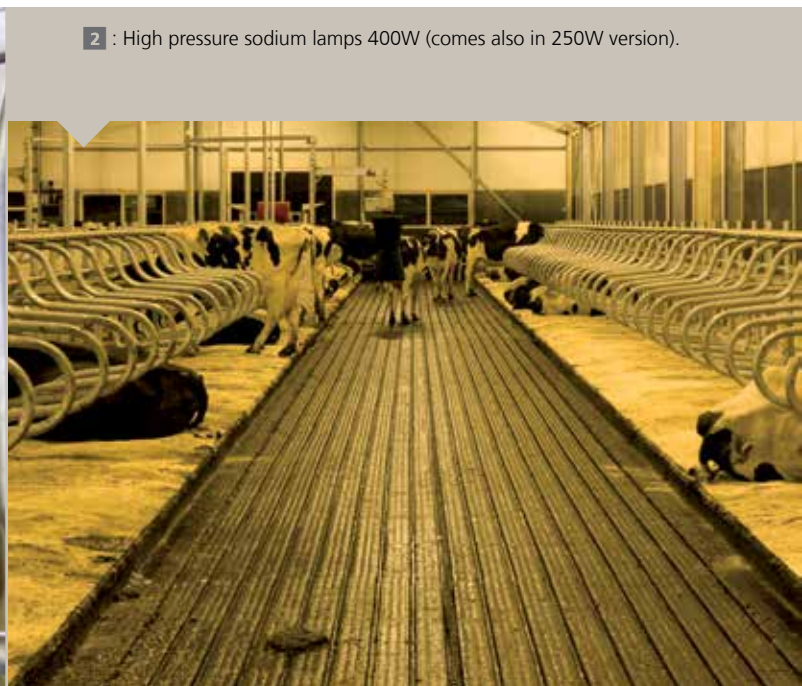
A third option is the **3** metal-halide 250W version. This light level does not have any effect on the milk production of cows and therefore this option is very suitable for calves or dry cows.

The fourth option, night light is added to the barn by means of **4** ALNL separate night lights or night light is integrated in the 400W lamp. Cows can hardly see red light, but it can be spotted by the human eye. This type of light makes it possible for the dairy farmer to enter the barn and monitor his animals without disturbing them.

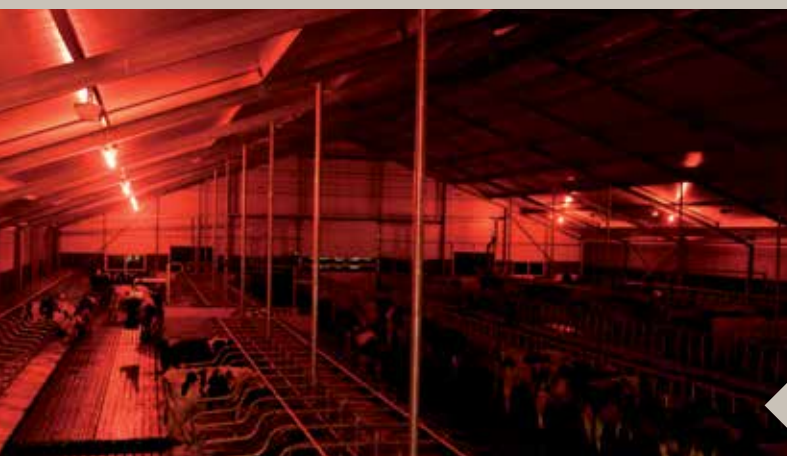
*) 1 lux = 1 lumen/m² (lux (lx) unit of apparent light intensity, lumen (lm) unit of perceived power of light).



1 and **3** : Metal Halide 400W (comes also in a 250W version).

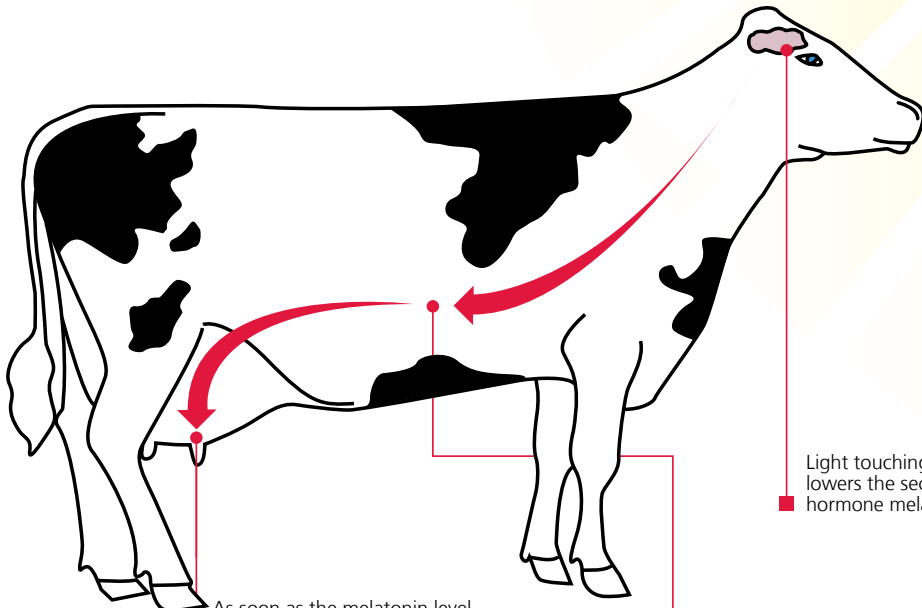


2 : High pressure sodium lamps 400W (comes also in 250W version).



4 : Night lights.

How light stimulates the milk production.

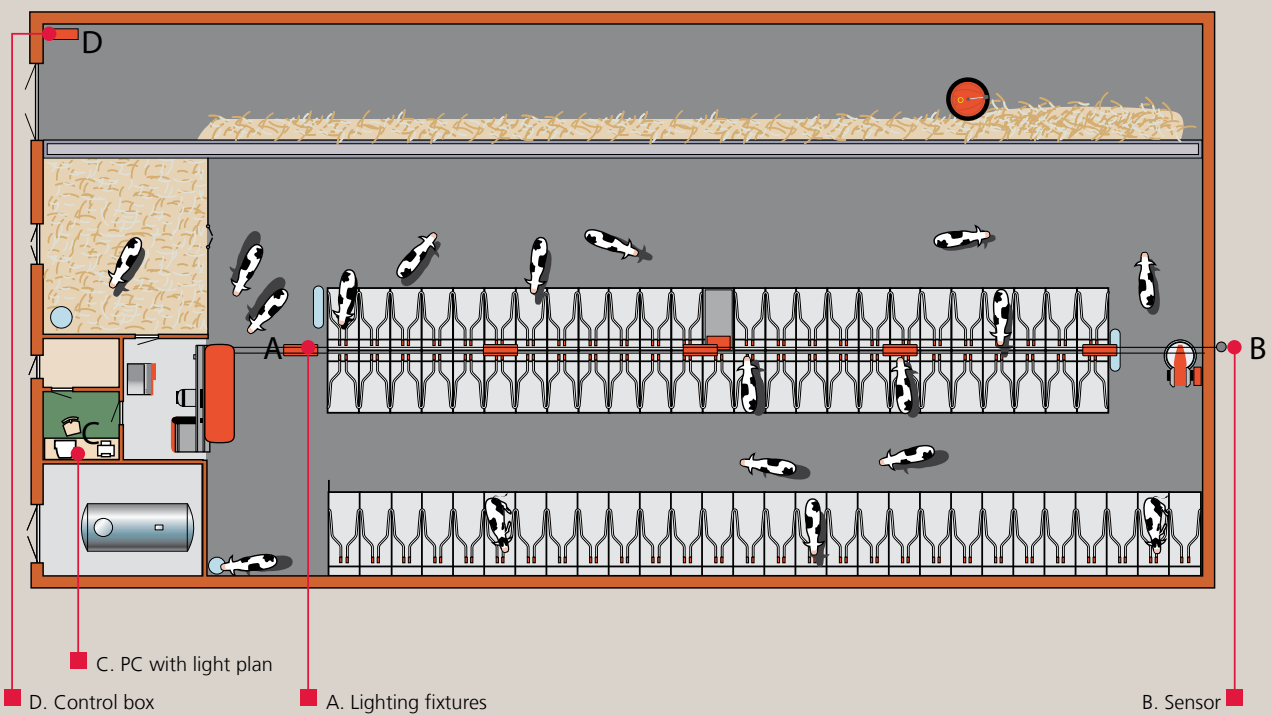


Light touching the retina lowers the secretion of the hormone melatonin.

As soon as the melatonin level decreases, the hormone IGF-I increases in the cow's blood. IGF-I stimulates the cow's activity and, hence, its milk production.

Melatonin reduces activity and stimulates sleepiness; therefore, lowering its secretion increases cows' productive capabilities.

Plan of a barn with a Lely L4C lighting system.



C. PC with light plan

D. Control box

A. Lighting fixtures

B. Sensor



Lely Walkway automatic foot bath – claw care with comfort for the cow and efficiency for the farmer

Claw health is in the top three health issues on the dairy farm. It has consequences for fertility, production, feed uptake, treatment costs etc. Research done by Cornell University concluded that on the average farm 20% of the cows are lame and that the costs of lameness per cow are 250 to 380 euro's. For perfect hygiene and optimal claw health a regular hoof bath is essential. Optimal claw health on a robot farm is key for sufficient robot visits.

Key benefits

- Fully stainless steel.
- Prepare the footbath by pressing one button.
- No disturbance of cow traffic.
- The bath stays clean.
- Easy to control.
- Clean and refill of the bath by pressing one button.

The Lely Walkway hoof care foot bath is extremely user-friendly thanks to the automatic water and chemical fill (two different chemicals in the right concentration), and the automatic emptying and cleaning system.

The hoof care foot bath guarantees:

- Minimum work; the system is activated at the press of a button.
- No dirty foot baths; dirty foot baths have the potential to increase claw problems within the herd.
- Free passage; after automatic cleaning the foot bath is placed in the rest position, enabling the cows to pass through freely.

Just pressing one button

With one push on the button the Lely Walkway foot bath is lowered into the correct (horizontal) position and the foot bath is filled with water stored in the reservoir on top of the box. At the same time a claw treatment product is pumped into the foot bath. The foot bath is emptied automatically and cleaned with the spray nozzles until the foot bath is back in its resting (vertical) position. If the Lely Walkway is not in use, the animals can walk through freely without the foot bath becoming dirty.



Specifications

| | |
|----------------------------------|-----|
| Weight (kg) | 455 |
| Height (cm) | 232 |
| Length (cm) | 230 |
| Width (cm) | 105 |
| Capacity water reservoir (litre) | 240 |
| Capacity bath (litre) | 210 |
| Length bath (cm) | 200 |
| Required power (VAC) | 220 |



Lely Walk Liquid*

There are many products available to use as claw care liquid. Most of these products are formalin or contain copper sulfate, which can cause potential health risks or environmental hazards. Other products contain antibiotics and need veterinary supervision, which results in high costs. Lely Walk Liquid is a disinfectant which is free of copper or other heavy metals and formalin. So there is no burden to the health of the user and the immediate environment.

As the product is non-irritating, the cows walk through a bath without experiencing any pain. So there are no congestions during milking or cows that are not willing to visit the milking robot. It improves the horn strength and condition positively without facing the danger of drying out the horn or skin problems due to the presence of aluminium

sulfate and high glutaraldehyde concentration. Lely Walk Liquid can be used as a bath or spray application, so both herd or individual cows can be treated.

*) Lely Walk Liquid is not available in all markets.





A healthy, quiet herd

The automatic, user-friendly, Lely Walkway foot bath will also allow the farmer to use the foot bath more often, which will have a positive effect on the claw health of the herd. An automatic/permanent claw bath provides a quiet herd, which suits perfect in the vision of Lely!



Barn equipment

Users say:

“The innovative design of the claw care foot bath makes foot bathing comfortable for the cow and efficient for the farmer.”
The Netherlands



Lely Treatment Box – controlled and safe treatment of your cows

This unique treatment box has been developed with the ultimate goal that one single person should be able to put a cow in place for treatment in just one minute. It ensures a unique work site enabling you to perform any conceivable cow treatment in an easy, professional and safe manner.

Multifunctional use

The Lely Treatment Box includes hoists, as well as leg and head lifts. Besides hoof treatment and surgery, the Lely Treatment Box is suitable for the artificial insemination and dry cow therapy, being particularly well suited to automatic milking systems.

The front gate prevents animal from walking straight through. The belly band is made of flexible material and adjusts itself to the chest of the cow. For additional comfort, it is an option to order a rubber matras for the Lely Treatment Box.

The ideal placement of the Lely Treatment Box in the barn is the separation area after the robot. Further we advise placing the Lely Treatment Box on a concrete platform, which is longer than the box, allowing the cow to step on to a comfortable and safe surface as it leaves the treatment box.

Key benefits

- Reliable and solid construction.
- Cow remains standing still, highly accessible and visible for every treatment.
- Easy access to the cow from all the sides of the box – provides veterinarian with an optimal place to work.
- All treatments are possible: claw treatments, injections, flush/implant embryo's, udder treatments, inserting afterbirth pills, ear tagging, wound treatment, medical surgery, caesarean, abomasum replacement.
- Easy exit out of the box, by opening the front gate.

Specifications

Dimensions

| | |
|-------------|-------|
| Length (mm) | 2,361 |
| Height (mm) | 1,889 |
| Width (mm) | 1,460 |
| Weight (kg) | 420 |

Size of the platform

| | |
|-------------|----------|
| Length (mm) | 3,200 mm |
| Height (mm) | 250 mm |
| Width (mm) | 1,100 mm |

Motor specifications*

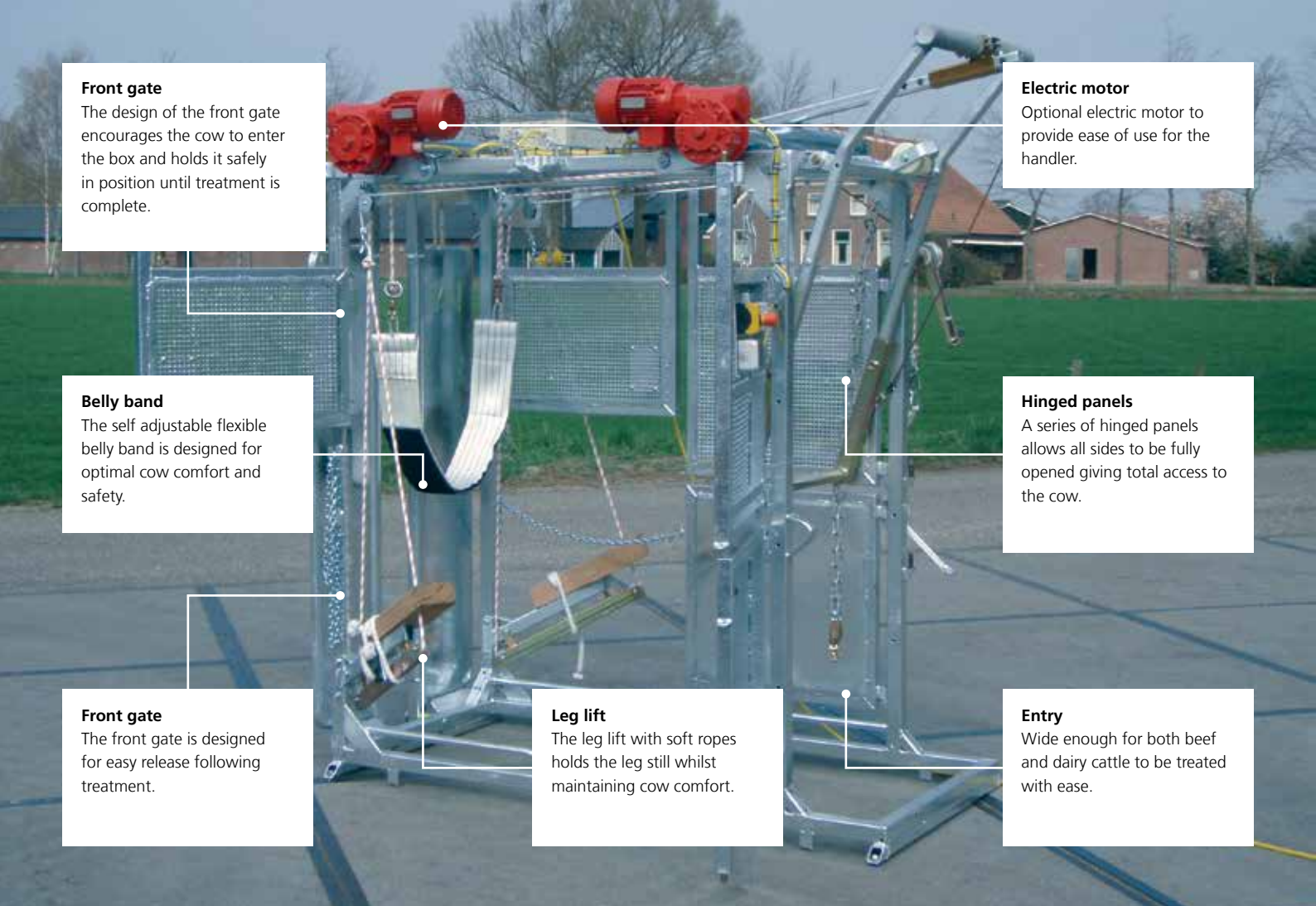
Three-phase motor

380 V

1.1 kW

*) The Lely Treatment Box can be ordered with and without the electric motor.





Front gate

The design of the front gate encourages the cow to enter the box and holds it safely in position until treatment is complete.

Electric motor

Optional electric motor to provide ease of use for the handler.

Belly band

The self adjustable flexible belly band is designed for optimal cow comfort and safety.

Hinged panels

A series of hinged panels allows all sides to be fully opened giving total access to the cow.

Front gate

The front gate is designed for easy release following treatment.

Leg lift

The leg lift with soft ropes holds the leg still whilst maintaining cow comfort.

Entry

Wide enough for both beef and dairy cattle to be treated with ease.

Lely Essentials Claw Care

Lely Essentials Claw Care is a concentrated bactericidal and yeasticidal disinfectant to be used diluted as a spray on cow hooves. Lely Essentials Claw Care contains quarternary ammonium compounds (QAC's), glutaraldehyde, copper sulphate, zinc sulphate and aluminium sulphate. The hooves of the cow are disinfected by the QAC's and glutaraldehyde. The copper sulphate, zinc sulphate and aluminium sulphate improve the condition of the horn.

Usage:

- Spray Lely Essentials Claw Care on clean and uninjured cow hooves.
- Concentration: 15%.
- Contact time: 5 minutes.





Barn equipment



Lely Commodus cubicle – provides cows with the maximum animal welfare

Animal welfare, comfort and healthy, productive cows are strongly interlinked factors. Cubicles that offer the highest comfort and a good accessibility for lying down are being used more frequently for longer periods, which has a positive impact on the milk production. Lely has completely redesigned the cubicle concept and created an animal-friendly cubicle, the Lely Commodus cubicle.

Flexibility in every way

The Commodus cubicle guides cows easily into their places and provides them with the maximum possible comfort. Due to the flexible fixing of the cubicles, the Lely Commodus cubicle will not hurt cows when impacted. The flexible fixing will also soften the impact when a cow is rising up from an awkward position. The Commodus cubicle is a guiding cubicle rather than a fixed cubicle. This intelligent concept also enables a cow to adopt a lying position that is nearly as free as in the field. There are no side bars that could press on the cow's back and the front part of the cubicle leaves plenty of space for the head, which is necessary when lying down or standing up.

The best characteristics in respect of animal welfare

The Lely Commodus cubicle is very quick and easy to install. Commodus cubicles can also be quickly removed without tools. Lely Commodus cubicles are installed together with a rounded, long-lasting, flexible brisket board. The brisket board will not hinder the cow in any way, but will guide her to lie in the right place. The cow can also easily put its front legs over the brisket board without hurting itself. Because of the raised position of the cubicle dividers, the distribution of bedding material, such as straw and sawdust and cleaning the cubicles is much easier than with traditional stalls. Mattresses are also easier to change or install with the modular brisket board construction. The Lely Commodus cubicle offers the best characteristics in respect of animal welfare, comfort, accessibility and hygiene.

Key benefits

- High cow comfort.
- Cows completely free.
- Easy installation.
- Adjustable.
- Flexible.
- Positive influence on milk production.

Specifications

| | |
|----------------------|---|
| Width stall divider | Adjustable from minimum 102 cm |
| Weight stall divider | 16.60 kg |
| Bedding | Mattress, deep bedding (sand, sawdust etc.), rubber |



Lely Essentials Bedding

Cows often lie down to ruminate. For an optimum comfort and good hygiene it is important that the bedding is clean and dry. The following consumables products can assist you in reaching these goals.

Lely Essentials Bedding-Des, a unique product on the market today, is especially developed for drying and disinfecting the cubicles and mattresses for cows. Lely Essentials Bedding-Des is a powder that contains salicylic acid and mineral salts. The powder is easy to spread and has an excellent adsorbing capacity of liquids and ammonia. In addition, it has a long-term efficiency (48 to 72 hours) so that the cubicles remain dryer for a longer time and that any milk that is leaked from the teats is disinfected.

Because of the good disinfecting and drying properties the product helps reducing the number of bacteria in the cubicle. Lely Essentials Bedding-Des can easily be removed before applying another application.

Lely Essentials Bedding-Dry is a powder that is especially developed to keep bedding dry and comfortable. The powder is easy to spread and has an excellent adsorbing capacity of liquid and ammonia. Furthermore, it has a long active period (42 to 72 hours) reducing the ability for bacteria to grow, and the bedding retains a pleasant smell for a longer time. Lely Essentials Bedding-Dry can easily be removed before applying another application.





Barn equipment



Lely Compedes soft bed – your natural bedding

In modern farming, cow comfort is a keyword. Therefore a barn should represent a natural environment for the cows. The comfort of the Lely Compedes soft bed provides the cow her freedom of laying without stress, and allows her to perform natural behaviour which will improve milk production. With the Lely Compedes soft bed you choose a well tested long lasting product which has already been used on farms for many years.

Specifications

The special foamed plastic underlay out of polyurethane (thickness 20 mm) installed loosely on the animal house floor is surrounded by the solid rubber mat from all sides. The rear area of the mat features knobs and webs on the underside, which cover a width of ca. 25 cm. For this reason, the mat has a gradient of ca. 1.5% in this rear area.



Improves hoof health

Hoof health will improve as more comfortable bedding will contribute to less stress on the hoofs and joints. In addition cows will enjoy the grip and soft surface to stand up and lay down as on a natural way.

For new and existing barns

The Lely Compedes soft bed is a unique cow mattress, specially developed for the modern farmer and consists of a strong rubber mat with an integrated foam-underlayment. The waterproof, non porous top layer in combination with the foam underlay results in a high comfort level, huge applicability and easy way of installation and cleaning. Due to its clever design it will fit in new barns as well as in renovation projects. The Compedes soft bed is easy to clean and has a unique liquid barrier resulting in lower bedding maintenance costs and a substantial increase in hygiene.

Easy installation and maintenance

The instructions of installation are detailed and understandable. Installation is easy and can be carried out by the farmer. The mats are installed side by side and fixed on the head side with three bolts at determined places. They can be reused because removal does not cause any damage. No maintenance is required for the mats to remain comfortable.



Dimensions

- Thickness: 32 mm.
- Length: 183 cm.
- Widths: 110, 115, 120 and 125 cm.



Lely Compedes soft bed is DLG tested.



Customer services

Outstanding service at Lely is focused on understanding and responding well to our customers' needs. Through our local Lely Center distribution network, we offer you preventive maintenance, advisory services and 24/7 emergency service. Our expertly trained, highly experienced and well-equipped service technicians are with you in next to no time whenever you need assistance. Of course, the same working principle applies to parts service. Through our Lely Finance programme, we offer you the opportunity for flexible financing of our products meeting your individual needs.

Lely service

If you opt for a Lely product you will enjoy the peace of mind that comes with our unique support system. Page 84.

LELY SERVICE



LELY ORIGINAL WEAR PARTS

Lely Original wear parts

Extensive testing and durability that meet our quality objectives, is what you get when opting for the original Lely wear parts. Page 86.



LELY FINANCE

Lely Finance

Through our Lely Finance programme we provide customers around the world with the most suitable finance solutions to help them become owners of Lely equipment. Page 88.





Lely service – you can rely on us

If you opt for a Lely product you will enjoy the peace of mind that comes with our unique support system. Dedicated specialists at our local affiliates – Lely Center facilities – will get to know you and your concerns. They will provide valuable assistance, local knowledge, quick response in case of interruptions and extensive expertise on all Lely dairy equipment.



Lely Center concept – dedicated and educated

We like to keep the Lely organisation as lean and mean as possible, with a continued main focus on research and development of new concepts for you as a dairy farmer. As opposed to other distribution models, the Lely Group has developed the Lely Center concept in order to secure the availability of professional sales and service for Lely products in local areas worldwide. All across our Lely Center facilities we continuously strive to optimize our performance. We ensure all our service engineers remain up-to-date on the newest techniques; each year they are trained and tested on their actual knowledge as set-out out by our Lely Academy.

Our certified service engineers are available 24 hours a day/7 days a week. In our think global, act local philosophy our Lely Center facilities are situated close to the dairy farmers in their region. This ideal starting point enables them to provide dairy farmers with a comprehensive range of high tech and innovative Lely products and services that are tailored to their specific needs. Our expert consultants with hands-on experience stand for optimisation of the performance of your herd, making sure you get the optimal benefit out of our products and services. Our passion for innovation does not stop at the technical features of our products, but continues far beyond that point to cover all practical and management aspects on your dairy farm.

Users say:

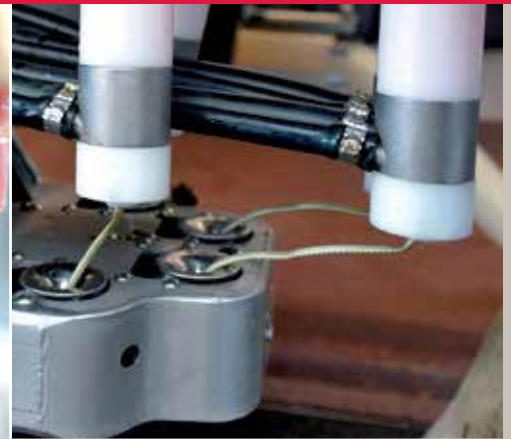
“I do not only choose their products, but I also choose for the most reliable 24/7 service of Lely.”
Australia

“It’s easy to see that these service-engineers are certified.”
Ireland



Lely Original – quality mark for Lely parts

To increase the hygiene, prevent unplanned breakdowns and unforeseen cost of the Lely Astronaut robot, it is important to change main wear parts frequently. A range of Lely Original wear parts has been developed especially for the Lely Astronaut robot. This range of products can be replaced easily by you without requiring the help of a technician. Lely teatliners and Lely brushes have been tested extensively under the effects of use of Astri cleaning products. This ensures the quality of the wear parts and thus your robot.



Lely Consumable Box

A Lely Consumable Box contains the most relevant wear parts that should be kept at hand at any time at your farm. This box contains wear parts that should be replaced at least once a year to guarantee the highest hygiene-level. The Lely Consumable box is available for A4, A3 and A2 Astronaut robots.

| | |
|-----------------------------|--|
| Teat liners | Lely advises to change silicon teatliners after 10,000 milkings. Replace the teatliners in time to prevent leakage and the possibility of udder infections. Teatliners are available in different sizes. |
| Milk filters | Lely recommends changing the filters three times a day during each cleaning cycle. |
| Teat cup ropes | Replace the ropes once a year. |
| Cleaning brushes | The Lely brush features different red/white bristle types in a spiral shape to ensure stimulation and cleaning. Check the brushes regularly and replace them at least once a year. |
| Silicon duplo-tubes | The duplo-tubes are one of the transporters of the milk. Hygiene within the tubes is crucial for a good milk quality; change your tubes at least once a year. |
| Shut-off sleeves cartridge* | Maintenance and replacement of vacuum sleeves becomes mere child's play thanks to a newly developed pulsator. |

*) Only for Lely Astronaut A4.

Lely Original parts can also be ordered separately whenever you need them. In addition Lely offers a range of other original wear parts.



Users say:

"In combination with the 24/7 service and the quality we all know from Lely, my systems are always up-to-date and reliable."
Spain



Lely Finance – capital starts a business and keeps it growing

Our knowledgeable industry specialists are ready to provide you with the finance products and services you need to meet your business goals and keep you competitive. Lely Finance offers you the ability to acquire the most innovative dairy equipment using an affordable finance solution.

Flexible financing

We offer many financial solutions to best fit your operational needs and cash flow. Lely Finance offers you the ability to pay for the use of the equipment, usually with one advanced payment as your down payment. That means you can get your equipment now and minimize your start-up expenses. Lely Finance can also finance your purchase if you desire to own the equipment. We offer various fixed terms, payments, and payment structures.

Financial lease

If you want to own your Lely equipment, but are looking for a way to spread the investment over multiple payments for a longer period of time, choose for financial lease. At the end of the contract, you will have full ownership of the dairy equipment. Using financial lease, the equipment will appear on your own balance sheet for depreciation purposes.

Operational lease

If you are looking for significant cash flow savings, are not interested in ownership of your Lely equipment, and want to obtain the latest technology, choose operational lease. When the contract ends, you can choose to either renew the contract and upgrade to the latest model available, extend the existing contract or buy the equipment you have had in use. Using operational lease, the dairy equipment does not appear on your balance sheet.

Differences at a glance

| | Financial lease | Operational lease |
|--------------------------|-----------------|-------------------|
| Legal title | You | Lely Finance |
| Economic title | You | Lely Finance |
| Tax benefits | No | Yes |
| Balance sheet | Yes | No |
| Writing off payments | You | Lely Finance |
| Depreciation risk | You | Lely Finance |
| Ownership after contract | You | Optional |

Key benefits

- Low monthly payments.
- Tax advantages.
- Off balance sheet financing.
- Always the choice for the latest technology.
- 100% financing.
- Conservation of capital.
- Fixed payments.
- Preserves credit.
- Flexibility.
- Purchase and renewal options.

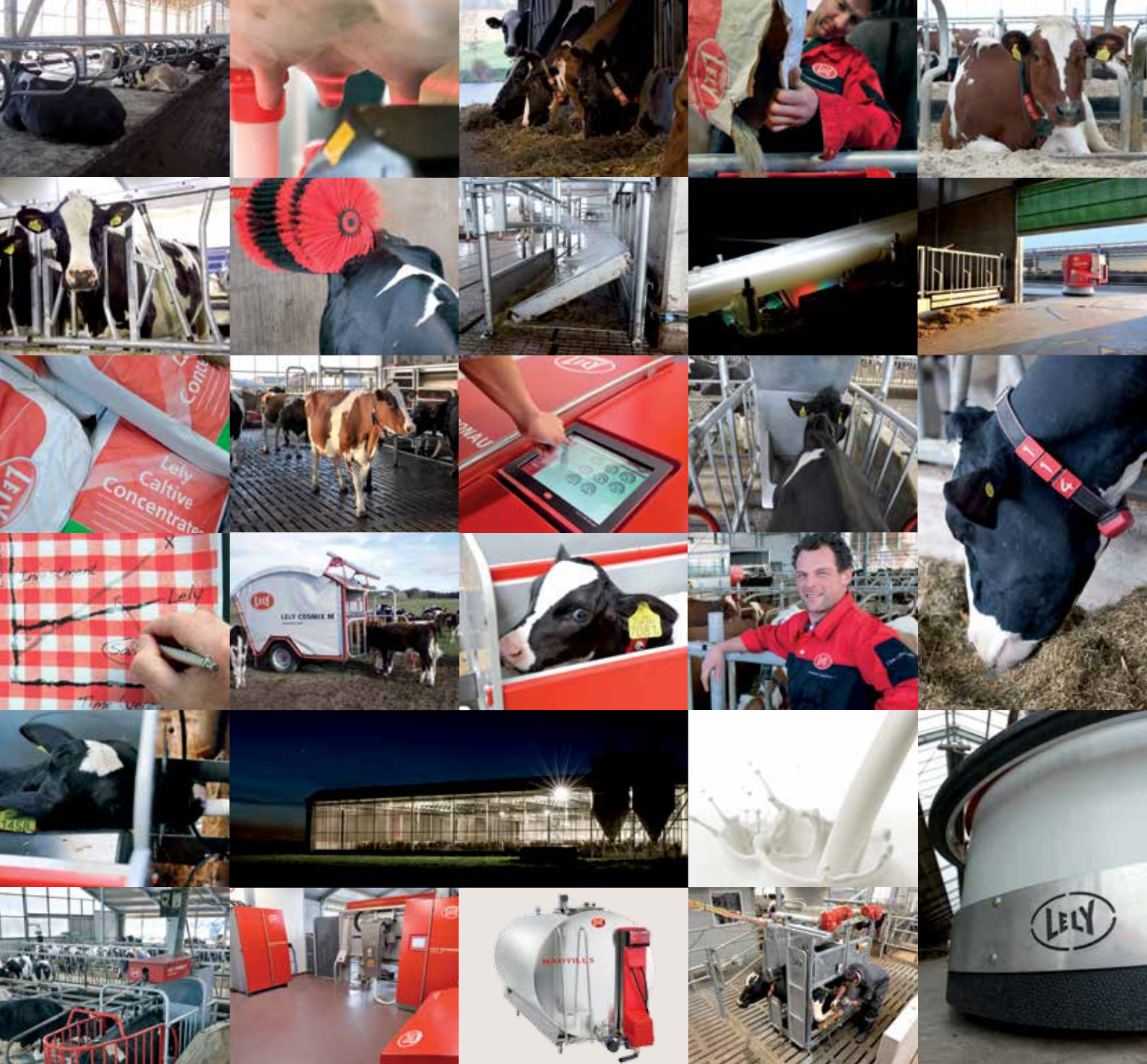
Users say:

“Knowing exactly what your costs are up to, and being able to work efficiently.”
Denmark

“It is great to work with the thought that I’m able to update every 5 year with the latest high technology equipment.”
USA

Notes

A series of 25 horizontal dotted lines for writing notes.



Your Lely distributor

LHQ.B99014.ENA

Lely really cares for the environment.

www.lely.com