



**Manure planning,  
products and  
service**



The DeLaval system approach to manure handling ensures that every part of the complete system contributes to the profitable running of your farm: from planning to hard-working products to service by qualified DeLaval technicians.

#### **Planning services from DeLaval**

For more than fifty years, DeLaval has been planning and designing manure handling systems for new projects, barn extensions and renovations as part of its full range of dairy farm solutions. You'll find us through the DeLaval local sales organisations, providing specialist consultancy and dairy farm advisory services.

#### **Planning for profitability**

Our profitable manure handling concept applies to all dairy farms around the world and takes into consideration climate, traditional preferences and compliance to local and national legislation.

- Large range of products meeting different needs
- A system approach to maintain hygiene and cow health
- Low operating costs and efficient labour routines
- Preventive maintenance and service

#### **Planning for stanchion barns**

New requirements and measurements mean that many stanchion barns around the world need to be adapted, or completely new barns built. DeLaval can help you to rebuild, or to adapt your stanchion barn to a modern level of manure handling which meets these new demands.

#### **Planning for loose housing barns**

All over the world, loose housing systems are built in many different ways. The bottom line for all of them is that the cow walks to water, feed, parlour and cubicles. This creates a lot of possibilities for developing a new loose housing system for you as a customer. Our experience and your ideas will bring the best possible solution for your barn's manure handling needs.

Big installations with high numbers of cows and very rapid farm development put a lot of pressure on your farm planning. Some farms may double in size every three years, which demands clear planning and strategy. DeLaval develops huge farms with strategic plans that are still being executed.



## System thinking



DeLaval offers complete systems to make manure handling profitable for dairy operations around the world.

### Manure as an asset

Profitable manure handling begins with a properly designed and managed manure system. It will save countless hours of labour and the right equipment is low on energy consumption and maintenance.

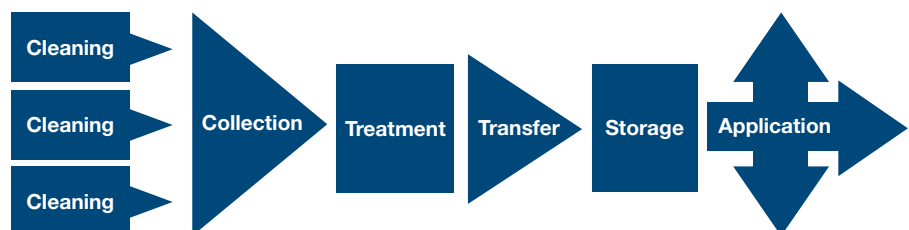
The payback for efficient manure handling includes better hygiene and livestock welfare. It improves the barn environment by reducing levels of ammonia and nitrous gases and has a significant impact on hoof health and fly control. Furthermore, an efficient manure system preserves the fertiliser value of manure.

### Choosing a system for your barn

Relevant criteria include the number of cows, barn layout, number of alleys, length of alleys, type of manure, bedding type, manure processing system, cleaning routine, floor surface and your own preferences.

DeLaval offers complete systems for all types of farms, including scrapers, pumps, gutter cleaners and presses. These provide effective and reliable methods for handling solid, semi-solid, sand laden or liquid manure on slatted or concrete floors, with or without rubber coverage.

### A complete manure system is composed of several sub-systems



## Right choice for manure types



Our manure systems are specifically designed to best handle each type of manure.

### About manure

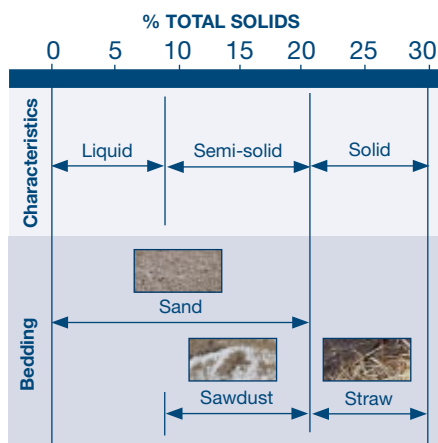
Manure consistency is determined by factors including the kind of animal, feeding intensity, type and amount of bedding material (sand, sawdust or straw) and climate conditions, along with other factors such as waste water from the parlour:

- slurry manure with up to 10% dry matter content
- semi-solid manure with 10 to 20% dry matter content
- solid manure with more than 20% dry matter content

### Importance of a system approach

Once you know the type of manure, you can start building the appropriate handling system. Every component works together to maximise the system's overall profitability for your farm.

A system approach also gives you flexibility. For example, you can plan system capacity for the future, as your herd grows, so it will be easier to continue to comply with storage regulations and spreading periods.



Physical manure characteristics and handling requirements

	No bedding	Wood shaving	Cut straw 2kg/cow/day	Long straw 2kg/cow/day	Cut straw 5kg/cow/day	Long straw 2kg/cow/day	Sand
Young stock	Semi-solid	Semi-solid	Solid	Solid	Solid	Solid	-
Dry cow	Semi-solid	Semi-solid	Solid	Solid	Solid	Solid	-
Milking cow	Slurry	Semi-solid	Semi-solid	Semi-solid	Solid	Solid	-

Manure types according to animal and bedding types

## Cleaning



DeLaval cleaning systems are the first step in profitable manure handling. You get plenty of power and cleaning, but not at the cost of your cows.

### Proper cleaning pays off

Scraping the manure away as soon as possible reduces the risk of hoof disease and udder contamination as well as nitrogen losses. Good cleaning routines contribute to cleaner, healthier cows for higher milk production and quality.

### Scraper range

Different models cater to your specific cleaning needs. For example, DeLaval scrapers can be adapted for rubber floors, slatted floors and sloping floors. Straight blades or V blades work with straw bedding. V blades also cover very wide alleys well.

DeLaval alley scrapers for loose housing

	ACC	Straight steel	Straight plastic	V blade steel	V blade plastic	ACH	DMS	DW
<b>Manure type</b>								
Slurry	✓	✓	✓	✓	✓	✓	✓	✗
Semi-solid	✓	✓	✓	✓	✓	✓	✗	✗
Solid	✓	✗	✗	✗	✗	✗	✗	✓
Sand	✗	✓	✗	✓	✗	✗	✗	✗
<b>Floor types</b>								
Concrete	✓	✓	✓	✓	✓	✓	✗	✓
Slatted	✗	✗	✗	✗	✗	✗	✓	✗
Sloped	✓	✓	✓	✓	✓	✓	✗	✗
Rubber	✓	✓	✓	✓	✓	✓	✗	✓
<b>Alley width (m)</b>	1.2-5.2	1.9-4.4	1.9-4.4	2.1-5.2	2.1-5.2	1.2-4.4	1.6-3.6	2.5-6



### Cable drive system

DeLaval cable scrapers and drive unit systems are made for long, trouble-free operation. Their strength and capacity mean effortless cleaning of up to 4 alleys simultaneously.

The drive's highly effective direct power transmission makes minimal demands on power consumption, maintenance and associated costs. A thick steel cable pulls the scraper, so there are no mechanical parts in the manure and it gives extreme strength.

### Hydraulic drive system

DeLaval hydraulic scrapers are made for tough conditions. They are flexible, compact solutions capable of handling large volumes, as well as very wide alleys.

The power unit is connected to a hydraulic cylinder for each alley and a drawbar moves back and forth, moving the scraper in steps, at a safe low speed.

The robust design of all components gives extra high capacity and a long lifetime.

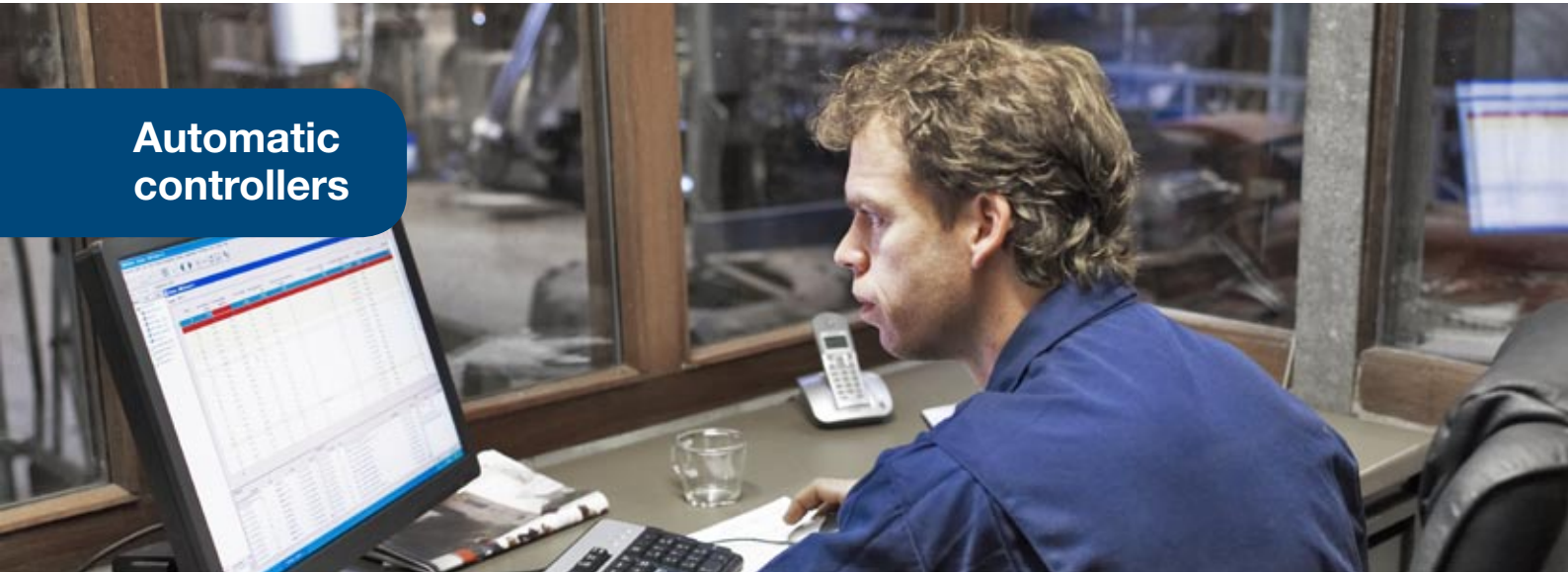
### Chain scraper system

DeLaval chain scraper systems offer many advantages. The drive unit is very compact, requiring very little floor space; and the system may be assembled in many different configurations to accommodate a wide range of barn layouts. The drive unit has only one moving part, resulting in very low maintenance and long life. The scrapers are able to operate in alleys with different lengths.





## Automatic controllers



A control box is the centre of an automated manure system. Once it is programmed, you free up time for other tasks and may never need to think of cleaning again.



DeLaval control boxes

## Collection



Well-proven, efficient transport systems for gutters and cross channels with minimum operation time, maximum volume handling and a long life.

DeLaval presses and cable cross channel scraper

	HR	K3	KP	CCS70
<b>Housing</b>				
Loose housing	✓	✓	✓	✓
Stanchion	✓	✓	✓	✓
<b>Manure types</b>				
Slurry	✓	✓	x	x
Semi-solid	✓	✓	x	✓
Solid	✓	x	✓	x
Sand	x	x	x	✓
<b>Max operation length (m)</b>	100	60	12	70

### Hydraulic gutter cleaners

This reliable scraper system for gutters and cross channel operates with a hydraulic aggregate. The power unit drives a cylinder back and forth pulling the scrapers along the complete length of the gutter. The gutter-wide scrapers transport the manure and fold themselves automatically in the reverse mode.

The system has been developed for high installation flexibility for different barn layouts. HR, HRC, HRS scraper versions are adapted for wide, narrow, deep or shallow gutters as well as under slatted floors.

### Hydraulic presses

The hydraulic gutter cleaners are extended with presses to transfer the manure to the storage place. The presses are hydraulically driven and installed in concrete for powerful operation and capacities.

The K3 press installation handles slurry and semi-solid manure and can transport slurry up to 60 metres and move the liquid six metres up into the storage facility. KP presses can take care of solid manure and are suitable

where the straw or bedding content in the manure is high.

### Cable cross channel scraper

The cable cross channel scraper CCS70 is developed to transport slurry, semi-solid and sand laden manure long distances to a reception pit. The 70 metre stroke enables extensive coverage and is especially suited for big operations with loose housing.

This cable driven system uses the ACD70 drive unit to pull a high capacity scraper box which moves the manure to a reception pit. This system enables easy installation with only two end-wheels to guide the cable and the drive unit.



K3 press

## Treatment



Treatment gives efficient volume management, rationalises handling sand laden manure and controls the impact of phosphorus. It makes spreading as fertilizer easier, lowers transport costs and reduces storage odour.

### Conditioning and separation

Manure goes in: solids and liquids come out. A simple principle, yet the benefits are highly significant.

On the one hand you get recycled solid matter in the form of organics and on the other an enhanced concentration of nutrients in the liquid part, which is readily pumped and easy to transport. Liquid occupies a smaller volume, thus increasing existing storage capacity. Solids are easily stackable and remain stable when stored. They can be used for further treatment in composting and bedding recovery.

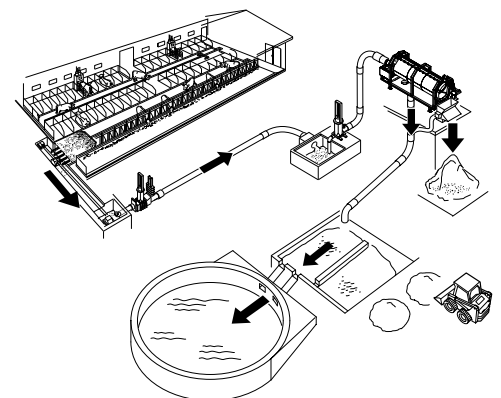
Separating solids from liquids also gives you less odour, lower nitrogen loss and also lower greenhouse gas emissions.

### System approach for sand laden manure

A loose housing barn with sand laden manure could have an alley scraper system with a cross channel scraper leading to a reception pit which has a sand liquid pump and a manure separator, with the remaining effluent going to a lagoon. Note

that all components are specialised in handling sand laden manure and work together to bring about significant advantages.

By separating sand from the organics, it is possible to manage the use of manure as a fertilizer without spreading sand on the fields. This means reduced wear on spreading equipment. It is also possible to reuse the liquid in a flush system.



## Transfer



DeLaval hard-working pumps are expertly engineered for rugged dependability and minimum maintenance.

### Electric pumps

DeLaval slurry pumps are designed for mixing and pumping liquid manure in all kinds of applications. These include use in a mixing pit, transferring to a main store, recirculation and loading slurry spreaders.

Reliable, easy to operate and service, you have a choice of lengths and electric motor power options, so these pumps can be set up to your exact needs. Options include: different mixer heads, various installations including in a pump pit, underground connection to a pipe system and much more.

### Hydraulic pumps

DeLaval hydraulic pumps transfer manure over a distance. Strong and reliable, they have the hydraulic power to steadily and relatively quietly pump manure over hundreds of metres.

Different models cater to slurry, solid and semi-solid manure. There is even a sand liquid pump to transfer sand-embedded manure long distances with low power requirements. The versatility of DeLaval hydraulic pumps gives you a full selection of outlet and pipe options so the system can be fully tailored to your requirements and your buildings.

DeLaval transfer pumps

	ESP11-19	EP400-500	SP480	SLP180	SMP60
<b>Housing</b>					
Loose housing	✓	✓	✓	✓	✓
Stanchion	✓	✓	✓	✓	✓
<b>Manure type</b>					
Slurry	✓	✓	✓	✗	✗
Semi-solid	✓	✓	✓	✓	✓
Solid	✗	✗	✗	✗	✓
Sand	✗	✗	✗	✓	✗
<b>Energy type</b>	Electric	Electric	Hydraulic	Hydraulic	Hydraulic

## Storage, agitation and loading



You need the right kind of equipment at the storage pit to help profitably treat manure for a fertilizer application and to handle large volumes quickly.

### Tractor pumps

Attached to a tractor by a lifting frame, these pumps serve vertical pits with no access to electrical power. They make agitation and transfer to spreading tanks easy.

The rugged design has a long working life and the galvanised body and housing are highly durable. The robust gearbox stands extreme loads and the powerful coupling between gearbox and shaft evens out peak loads.

High capacity vertical tractor pump solutions based on electric pumps EP400-500 are also available.

### Ultra pumps

DeLaval ultra pumps are used in open lagoon storage pits with straight or sloped walls. You customise the pump to match your farm's needs through a range of features, including trailer or 3-point hitch models, various lengths, impeller units, wheel kits and more.

Ultra pumps provide very high capacity agitation and pumping. They mix all types of manure: liquids or semi-liquids up to 10% dry matter and load spreading tanks quickly.

DeLaval storage pumps

	TP270	TP360	Vertical tractor pump	Ultra pump
<b>Housing</b>				
Loose housing	✓	✓	✓	✓
Stanchion	✓	✓	✓	✓
<b>Manure type</b>				
Slurry	✓	✓	✓	✓
Semi-solid	✓	✓	✓	✓
Solid	x	x	x	x
<b>Pump type</b>	Vertical	Vertical	Vertical	Lagoon

## Application



Faster and easier spreading comes from having a strong, steerable manure tank. Equally at home on the field or the road, these tanks are both top spreaders and efficient manure transports.

### **DeLaval manure tanks MT21500 – 23400 – 28000 - 36000**

Now you can make one of the biggest jobs around the farm the easiest of all. DeLaval manure tanks are specially designed to make spreading efficient; tank volumes range from 21500 to a massive 36000 litres.

These tanks have high duty components, independent left and right wheel hydraulic suspension, high load brakes and special features that improve manure spreading.

The tank's steering system reduces tyre wear, lessens the load on axles and hubs, reduces field damage and improves safety on the road.

Whether taking your tank over a flat field, hilly ground or on the road, you'll find it is manoeuvrable and stable.

High speed road transport is ideal for getting your manure to a field far away and spreading efficiently.

Tanks are manure injection ready with in-tank agitation. Discharge options include a low spray kit, a choice of splash plates and valves. After spreading, you'll appreciate the swing opening door that makes the tank easy to clean and service.



## Less impact on the environment



## Sustainable Dairy Farming

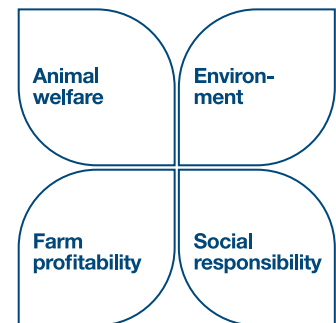
DeLaval has solutions to protect the environment and support profitability, the welfare of animals and the well-being of the people involved.

### Doing more with less

As a dairy farmer, you're very aware of your environment. You need to be, because your farm depends on it each year. And you know the environment depends on you to protect it: by the way you farm now and in the future.

Manure handling is a critical area for sustainable dairy farming. For example, regarding the environment, there are major concerns about the amount of greenhouse gases generated by the dairy industry.

DeLaval aims to reduce dairy farming's environmental footprint through proper manure handling and other means.



**Country 1**

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Address line 3  
Tel XX XXX XX XX  
Fax XX XXX XX XX  
e-mail address  
web address

**Country 2**

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Address line 2  
Address line 3  
Tel XX XXX XX XX  
Fax XX XXX XX XX  
e-mail address  
web address

**Your DeLaval dealer**



**InService™  
for manure**

You sure don't want your manure system breaking down – ever. Regular preventive maintenance by DeLaval technicians is a reliable way to maintain your manure system's profitability, performance and reliability.

**An efficient service programme**

DeLaval InService™ for manure is our commitment to stay in touch with you and help keep your farm running at its optimum; while making sure you get a good night's sleep.

Service and monitoring empowers our customers to take control of their operations and match pre-defined standards and identify areas of improvement. You get professional support and original parts in time – whenever you need them. This includes emergency service 24/7.

Sign a DeLaval InService™ contract to keep your manure handling equipment working smoothly. The many benefits include herd health protection, improved manure handling, extended equipment durability and a reduced risk of breakdowns.

