

# MDS

## Management Dairy System

GB



-for the cow, the milk and the milker...

# Management = a better



**"If there's anything we can do for the good of the cow, the milk and the milker, we'll do it!"**

Svend Aage Christensen founded SAC in 1938. His motto has been the company's guiding star ever since; from the invention of the KALVO bucket milking machine, a simple stroke of genius, to tie-up stalls, milking stalls, rotary parlours, milking robots and integrated management systems.

At SAC the milking system, milking parlour and management system are integrated to ensure that the cow, the milk and the milker have optimal conditions to perform at their best because **"if there's anything we can do for the good of the cow, the milk and the milker, we'll do it!"**



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SAC currently supplies dairy management systems for all types of milking parlours. The sky is the limit – and you can rest assured that we will deliver excellence no matter what you ask us to do for you. If you choose to call SAC's R&D department, you may hear mooing in the background. This is because we develop our products in cooperation with our customers on the farm.

SAC has developed an electronic configuration system which is compatible with many different milking parlour variants and management systems. We make sure that the choices you make will always result in precisely the solution you are looking for. We automatically transform your wishes into an offer, order, production order, documentation and item lists. You will receive everything as agreed.

# Management for every cow



Collar transponder  
Ear tags



MRS ID and activity sensor – collar or leg band



ID feed in herringbone milking parlour  
Individual feeding in rotary parlour



Feeding box delivers up to four types of concentrate – one of which can be propylene glycol

## IDENTIFICATION

Collar and ear tag antenna  
Floor antenna for MRS ID and activity sensor

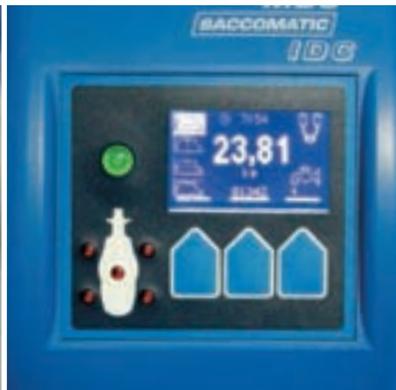
## SENSORS

IDC3 measures milk volume and conductivity to act as an early warning system for mastitis

Quarter Mastitis indicator  
Temperature

## ACTIVE DEVICES

We can fit up to four separation boxes with separation in up to 17 groups



**"If there's anything we can do for the good of the cow, the milk and the milker, we'll do it!"**

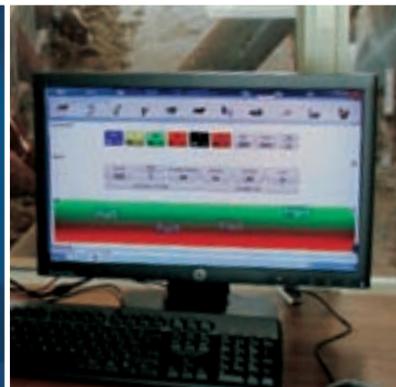
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robots and the TIM dairy management system.

With our motto strongly in mind, your SAC TIM dairy management system is a system which gathers reliable data from a milking parlour or barn as well as milk content, animal health and breeding data from national dairy cow databases.



# dairy farmer...



The IDC device displays all relevant cow and milk data and alarms. The data can also be displayed on the keyboard or TouchScreen

Touch screen overview of the milking process

PC-based TIM dairy management program controls every aspect of your herd

The IDC Milk Logger transmits milk volume from the IDC T tie-up stall to your PC

## COMMUNICATION

Mobile APP for fast data entry and overview

SAC Glasses show current data on the cow you are looking at

IDC Power Supply - all IDC devices are controlled from here. So simple!



The TIM processes the collected data and displays the parameters to the operator, on which he or she should act. The TIM can also perform more detailed analyses of the individual cow, groups of cows and the entire herd. First-class milk and healthy cows result from TIM data and first-class milking processes.

SAC has developed the IDC and TouchScreen applications to allow the milker easy access to the data he needs, even during the milking process. He can access analyses at PC level. If a PC crashes, operational dairy management will be processed by the central LCU computer. SAC TIM is a reliable system and better for the cow, the milk and the milker.

# Communication - the choice



- Simple and logical
- All the data in one place
- No duplication
- Minimise error reports
- Data security
- Animal health records
- 100% control of animal health and medication
- Full data exchange with your national livestock identification system
- You can track milking worldwide

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As a full-line supplier of milking systems, you can rest assured that SAC can supply exactly the right milking system to meet your specific needs. You can also choose how you wish to communicate with the TIM dairy management system. The SAC wireless bus system allows you to choose the optimal solution to match your particular parlour system.

# ce is yours...

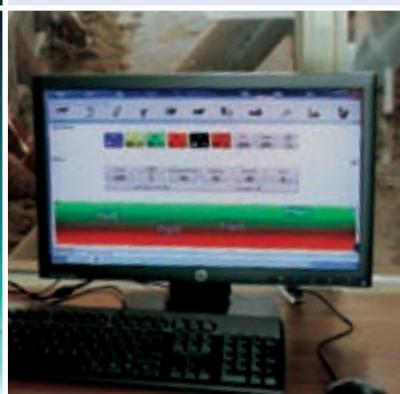


The IDC provides you with the data you should act on here and now

The PC ensures that you know everything you need to know about your dairy herd



The touch screen computer provides an overview of all activities in the milking parlour. You can link up to four CCTV cameras to it

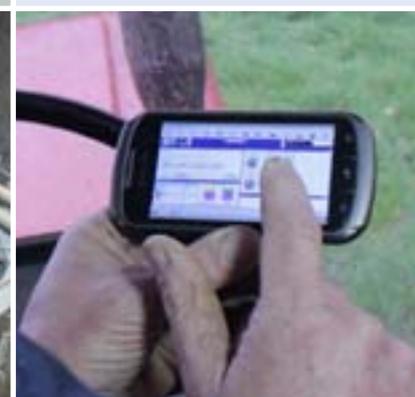


In tie-up stalls you can read off how much milk the IDCs have removed.

Using our new mobile app, you can enter and read off data from the management program via your local Wifi network. The system is fast and easy to use.

If you chose to have IDC devices installed in your/the technical room, you can access functionalities from the Saccomatic keyboard in the milking place

Wireless technology is invaluable in a rotary parlour as it avoids the problems involved in data transmission via a rotary head.



It is important that the data from the milking parlour is relevant and that the operator knows precisely when to react. In the MDS dairy management system, the devices in the milking parlour – the IDC, Saccomatic keyboard and touch screen computer – are specially designed to give clear visual alarm signals when the operator is required to act.

On the PC located outside the milking parlour in the farm office, it is possible to confi-

gure any number of attention lists with data relating to cow records, milking, feeding, activity, conductivity, reproduction status, animal health, etc.

You can chose precisely the parameters you wish to see and can adjust the sensitivity of alarm lists.

# The SAC "New Look" comes



SAC Glasses are a new and useful offer to the milk farmer who has a large herd and many milkers. As you approach a new cow for preparation, the glasses show you if there is a problem you need to address; milk separation, three-teated, cow separation, mastitis, etc. You see the data in the glasses, right before your eyes, as you approach the cow and are ready to start the milking process.

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Our first step on the road to making data accessible to the operator was to introduce a touch screen computer. The touch screen computer gives the operator an overview so that milking is fast, efficient and hygienic. But there was still something missing. We needed a clever way to ensure that the operator has the data he needs wherever he is.



SAC Glasses give the operator the data he needs about the cow being milked: Is she a three-teater, is she on heat, does she have mastitis, etc.?



It is now technically possible to project data as if through a pair of spectacles. We jumped at the opportunity to use this technology and give our customers the chance to try it out



Our touch screen solution is specially designed to create an overview of the milking parlour. You can connect up to four CCTV cameras to monitor e.g. the collection area, rotary exit, separation box or elsewhere

And, of course, you can monitor all of this from another PC when you are away from the milking parlour.

The touch screen computer is the central data device in the milking parlour. It allows you to see what is going on anywhere in the parlour. You can choose from 14 different parameters to warn you if something is happening to a cow. The choice is yours

Position 1 Details	
<b>Animal:</b>	<b>9054</b>
Animal separation:	Disabled
Barn/group:	2
Illness code:	Mastitis LV
Alerts:	None
Status:	Inseminated (123)
Lactation:	1
Lactation days:	201
Calving date:	28-11-2012
Dry off date:	-
Expected calving date:	19-11-2013
Last heat date:	14-2-2013
<b>Yield:</b>	<b>1,18 kg</b>
Milk separation:	Enabled
Expected yield:	6.10 kg
Average yield:	12.80 kg
Feedbox Feed A:	2.00 kg (30%)
Feedbox Feed B:	2.50 kg (28%)
Feedbox Feed C:	Unavailable
Feedbox Feed D:	Unavailable
Parlour Feed A:	Unavailable
Parlour Feed B:	Unavailable

SAC Glasses are cyberspace glasses which make life easier for the milker. When you approach the next cow, the SAC Glasses capture the cow's data via a QR code and, if there is anything you need to know, the cow's status data comes up automatically – before your eyes – as you prepare her for milking.

SAC Glasses help to ensure that no penicillin enters the milk tank, three-teaters are milked correctly, cows which have triggered a conductivity alarm are tested, and milk samples are taken. You also ensure that the heat alarm is OK and can separate individual animals from the herd, if necessary. - SAC makes life simpler.

# *Sensor - milk quantities*



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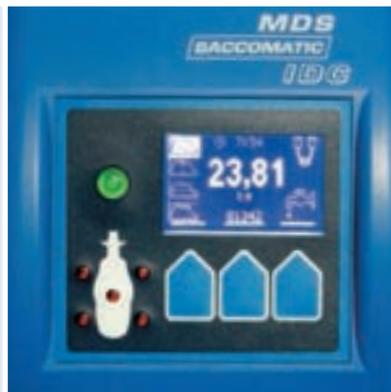
The IDC milking place control device is a shining example of this.

A primary function of the IDC milking place control device is to record milk quantities in accordance with ICAR guidelines. Milk flows through the measurement chamber, which has no mechanical or moving parts. This simple construction is extremely reliable, and simple and easy to service.

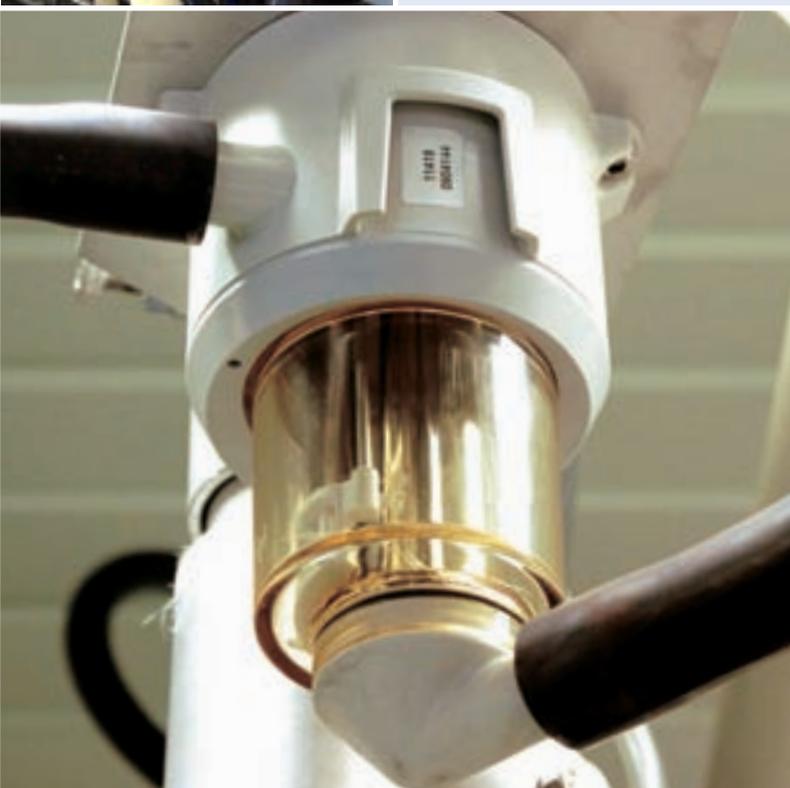
Like UNICO, the IDC milking place control device is a simple mechanical device,



Milk quantity recording and a number of other functions are integral parts of the IDC milking place control device, which means that the patented IDC device is second to none on the world market



During milking, the IDC device displays the quantity of milk milked, peak flow, current flow and average flow. The device can also display the cow's letdown curve



The IDC measuring unit, electronic parts and display can be separated so that the IDC display is visible at all times even when the measuring cup is fitted at a high level in a middle- or low-lying external rotary parlour

MDS Saccomatic IDC3 measures at such accuracy that it is ICAR-approved



In tie-up stalls, the IDC Power Supply collects the data from the individual IDC milking machines when they are connected for recharging.

The milk quantity from the individual IDCs and the total quantity milked can be read off when they are connected for recharging

which has a minimal number of moving parts in the areas of the device through which the milk must flow. The milk is therefore handled with great care and there is a stable vacuum between the milk set and the udders.

The IDC milking place device is modular. An IDC2 device which measures to an

accuracy of +/- 5% can be upgraded to an IDC3 which measures to an accuracy of +/- 2% and the upgrade requires no replacement parts. The modular design means that the measuring unit can be removed from the upper part of the IDC device and fitted under the cattle floor in a rotary milking parlour. The display remains conveniently placed at eye level.

# Sensors - conductivity a

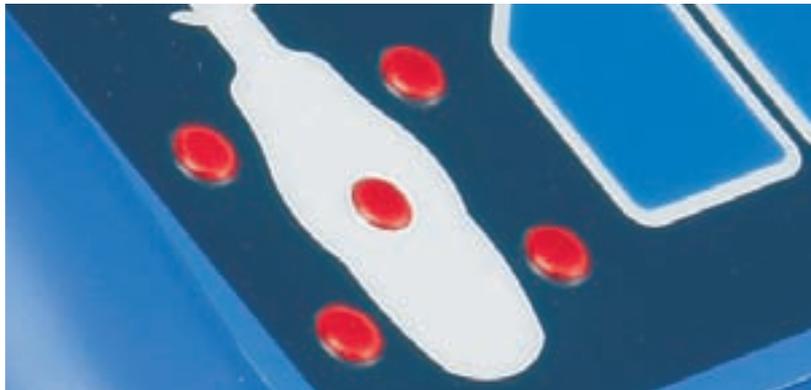
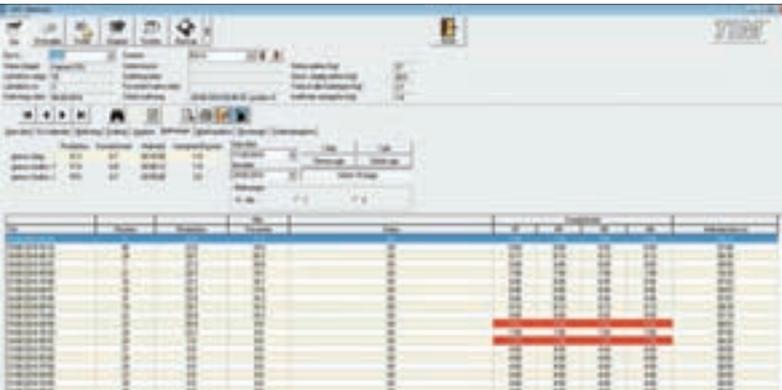


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Svend Aage Christensen founded SAC in 1938. His motto has been the company's guiding star ever since, including when SAC produces new products. Integrating conductivity and temperature measurement into the IDC milking place device was therefore a natural step for us to take.

Conductivity measurements are taken to monitor if the cow is likely to develop mastitis. This method is generally used to generate an early warning before a visible change in the milk is registered. The benefit of using the system is that the cow receives early treatment, limiting the extent of damage to the udder compared to treatment at a later stage.

# and temperature...



The data is stored in the mastitis unit and transmitted to the PC, where it can be used to separate cows whose condition has triggered a temperature or conductivity alarm



The four measuring cells in the mastitis unit are designed as partly enclosed cells which are always filled with milk, so that they measure accurately regardless of the angle of the milking device and any air ingress. When the flow of milk from a gland is less than about 70 g/min, the unit stops measuring from that gland

If there is an imbalance in the udder, the alarm on the mastitis unit with its four measuring cells is triggered and registered on the IDC. The cow's temperature is measured in the same way. An alarm is triggered immediately if the cow's temperature is high. The alarm is a visual signal – 5 LEDs on the cow's IDC



If you require a simple solution to warn of an imminent threat of mastitis, the IDC measuring cup can send the data to the PC to generate analysis and alarm lists



The IDC measures conductivity in two ways, by measuring either total milk flow or milk per gland. Each method has advantages and disadvantages. It is up to you to choose. Measuring at gland level is very accurate but depends on a cable between the unit and the IDC, Measuring total milk flow is less accurate but obviates the need for a cable.

The IDC temperature measurement function is connected with the use of the SAC mastitis unit, which measures the temperature inside the device to +/- 0.1 °C accuracy. The measurements are sent via a cable connection to the IDC, which has an LED and visual alarm display. The cable is a wearing part which can easily be replaced if it is trodden on.

# *Identification & activity...*



Any reliable dairy management system has to have a reliable check on the cow's identity. The SAC system receives a clear signal of the cow's identity via its excellent antenna system. At SAC, we have done our utmost to create a system that is flexible enough to meet the needs of any dairy farm operation. Flexibility is the cornerstone whether you use the SAC precision ID and activity sensors, electronic ear tags or a combination specifically adapted to meet individual herd needs.

The SAC system is supplied with an antenna system, specially developed to handle both full-duplex and half-duplex technologies, so that both types of ear tags available on the market can be used. To achieve perfect ID registration, we also offer Tiris collar transponders and a combined solution monitoring both ID and activity from our MRS collar or leg transponders.

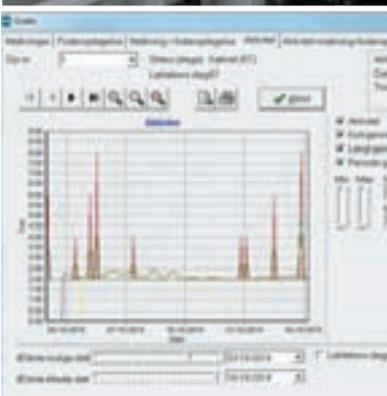


The image shows a regular wall-mounted antenna used at the milking parlour entrance. This antenna can be used in combination with a floor antenna, which reads off activity recorded on an MRS collar or leg sensor



To locate cows that are in heat, it is important to have an effective location system and to ensure that cows are inseminated in due time and that the open period is reduced to a minimum

This is a simple method by which to ensure that the stalls are filled with calves and that the farm is economically viable



The MRS sensor sends data about the cow's activity to the management system, which analyses which of the animals are probably in heat. Cows in heat are separated from the herd and the system produces a list of cows to be inseminated



The MRS ID+ activity sensor collar can easily be transferred from one cow to another. We can also supply a variant which fits on the cow's leg as research has shown that this type of sensor results in clearest signals of high activity. To ensure precise identification of cows showing high levels of activity, the MRS device measures and gathers a total of 15 sequences per day so that even a cow which shows weak heat signs is reliably identified.

Data from the MRS is transferred to the management system at milking time so that insemination can be made at the most favourable time. Research has shown that dairy farm finances can be optimised if the cow is impregnated with the shortest possible open period. The way to ensure that this is the case is to use an efficient system which informs the milker in good time that the cow is in heat.

# *Feeding and separation dev*



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SAC has developed individual feeding systems for use in our milking parlours. Whether you opt for a 30- or 60-degree herringbone or a rotary milking parlour, SAC can provide the solution you need. SAC's systems are beneficial on farms where cows are fed according to lactation and the herd is put out to grass at certain times of the year. Tasty fodder is also a very efficient lure.

# ices in the parlour...



Individual feeding devices in the rotary parlour can deliver up to 3 kilograms of fodder per cow and two different types of fodder



SAC provides simple individual feeding in a herringbone parlour with no flexible hoses



We can fit up to four separation boxes with up to 17 groups

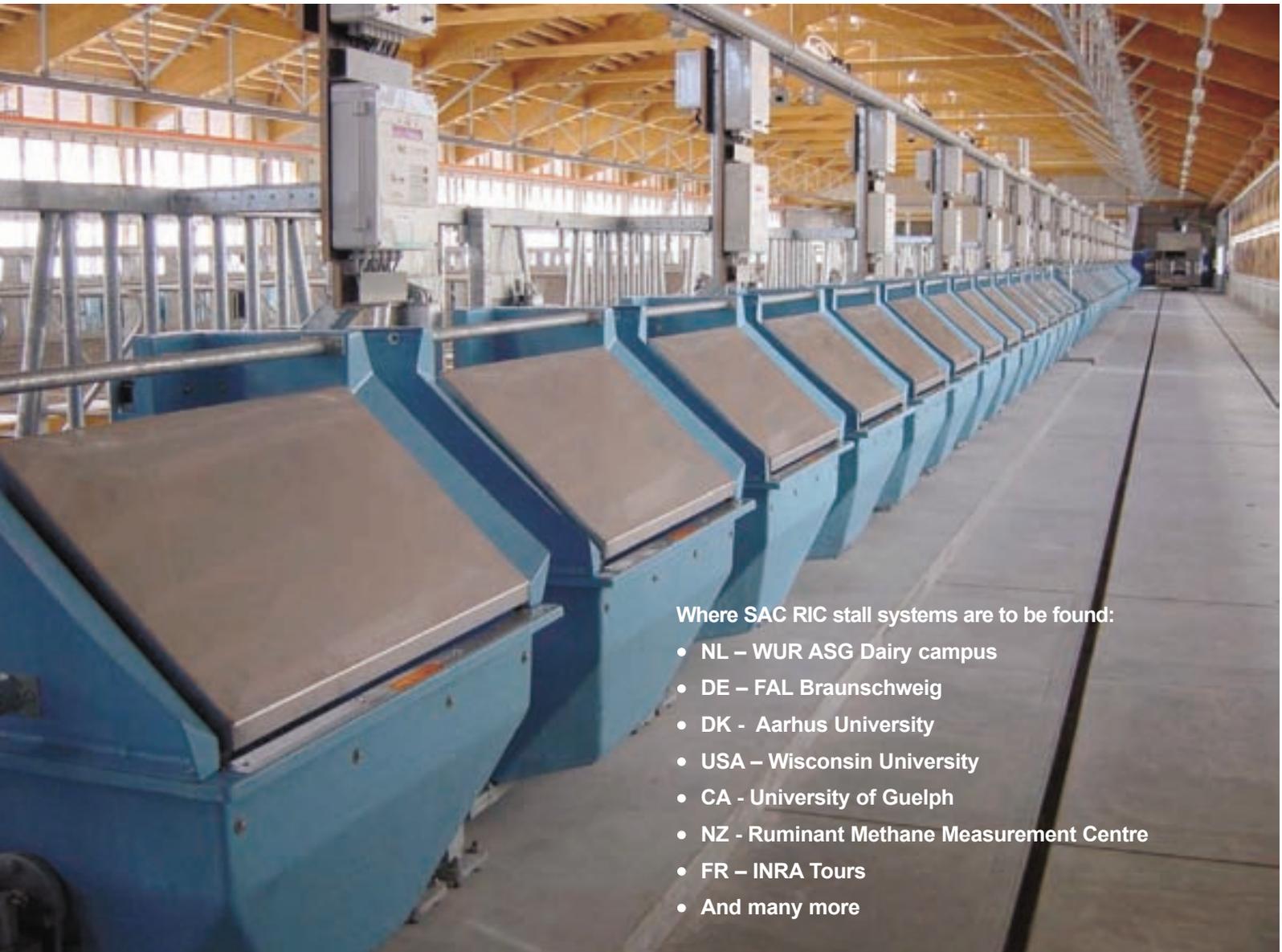
Separation boxes can be fitted individually or consecutively. Any one box can separate animals in two or three directions, depending on your requirements



In stalls where cows are kept all year round, it is appropriate to locate the automated feeding system in the stall. If you wish, we can establish a feeding system to lure cows into the milking parlour. The automated feeding system allows you to select up to four different types of fodder in the stall: Two in a rotary. One or two of the four types of fodder may be liquids.

SAC offers advanced separation systems to work with individual boxes and separate in two or three directions, as required. We can fit up to four separation boxes with up to 17 groups. Separation boxes can be fitted in rows or distributed in the barn system to meet specific customer requirements.

# SAC research stalls - all o



Where SAC RIC stall systems are to be found:

- NL – WUR ASG Dairy campus
- DE – FAL Braunschweig
- DK - Aarhus University
- USA – Wisconsin University
- CA - University of Guelph
- NZ - Ruminant Methane Measurement Centre
- FR – INRA Tours
- And many more

SAC works closely with a number of research centers and universities around the world to get the best possible knowledge of the milking machine's influence on cow milking and milk. Through this cooperation, we have seen the need for specially designed equipment for research stalls, also equipment which is targeting towards researching food, health, milk production and reproduction.

SAC RIC stall is a system that is designed to determine exactly what the cow is fed and how much to feed the cows actually consume. We are talking about all kinds of food, from roughage of concentrate to water intake. In this way, the researcher knows exactly what the animals eat. In preliminary experiments, it may be appropriate to screen a large number of different feed compositions on memories but many animal groups.

# over the world...



SAC RIC forage box is suspended from a weight and record weight when cow eating starts and ends and calculates the amount of feed

SAC RIC combined concentrate and weighing box handles 4 feed types



SAC RIC drinking station is suspended from a weight and record weight when cow starts and ends with drinking and calculates the amount of water



SAC RIC walk trough weighing box is made so that it closes for the cow and rear during weighing. Weighing electronics are protected against moisture

SAC-RIC program ensure that collected the raw data is forwarded to the researcher's advanced system of analysis commonly known format, ready to use.



SAC-RIC system is developed to solve these tasks using custom and standard components which are linked up to a computer system that collects data and delivers it to the scientists as raw data for further processing in advanced research and statistics programs.

If it is desired to work with, for example, 10 forage types and four pellet feeds in a parlor where all animals are milked together solved it by separating the boxes after milking share the animals into 10 groups, which saw in each group can be assigned to four different pellet feeds in a custom mix.



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*A/S S. A. Christensen & Co. was founded in 1938 and is one of the largest producers and developers of milking equipment in Europe. The company has over the years developed into a worldwide manufacturing and trading company, exporting among others milking equipment and milking parlours to more than 65 countries all over the world.*

*SAC is a full-line supplier of complete Dairy Systems in which animal welfare goes hand in hand with the completely automated milking parlours. The company's great know-how and focus on lasting quality solutions in the milking parlours have today placed SAC among the leaders within production and development of milking robots based on robot technology.*

*SAC continues an intensive innovation and research work in a close cooperation with Danish and foreign research centres, farmers, consultants and vets in order to assure the best products of the highest quality, based on the motto:*

***- If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!***



AKTIESELSKABET  
**S. A. CHRISTENSEN & CO.**