

AKTIESELSKABET
S. A. CHRISTENSEN & CO.



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

- for the cow, the mil



SAC has been in the milking machine business since 1938. Since the foundation of SAC in 1938 and until now, an immense development has taken place for the individual milk producer – the farmer. Production efficiency has gone up dramatically with the increase in production, and at the same time the milk producers have faced increased demand for milk quality from regulators and consumers. This development has led to a consolidation amongst farmers as well as suppliers of milking equipment.

This development also implies that the milk producers are in constant need of more efficient and sophisticated production equipment. Today, microprocessors are worn by the milker and the cow and they are installed all over in the milking parlor. The management programs handle and sort the huge amounts of data which are constantly gathered. This is done intelligently so that only relevant and necessary data, which requires action from the milker or the farm manager, are provided. Hereby, order and structure is created out of



Milk and the milker...



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comprehensive and chaotic information, and the milker is able to act rationally with a minimum of resources. Since the foundation, SAC has been part of this development and is today strongly positioned on the world market as one of the few global full-line suppliers.

SAC has had the advantage of having a domestic market with a tradition of enforcing some of the world's strictest rules and regulations for milking quality and food safety. This fact, together with the fact that our milk producers are

among the best and most efficient in the world, makes us experts in handling high demands for efficiency and quality and cover these demands with new and innovative solutions for the farmer, for the benefit of our Danish and – since 1948 - international customers. Almost 75 years have passed since we started – we look forward to the next 75.

René Meyer Johannsen
CEO, SAC Denmark and Hokofarm Group
Holland

We chose SAC milk



Since the establishment in 2002 I have had no maintenance costs of the rotary except from a slide for the texas door and after the mounting of IDC 3, the costs of the milking plant have been low. The total bacterial count is 10-15,000, and the cell count is 150,000. The plant is furnished with SAC energy-saving equipment, and the energy expenses are about the half of other comparable parlours.

Facts:

Sædding Storgård 600 ha
Number of cows: 585 with 3x milking per day
Annual production: 5,5 mill. ton
Milking parlor: 32 stall positions external rotary with individual feed
Number of employees: 12 - 14

*Peder Mouritsen
Nørre Nebel, Varde
Denmark*



The cell count has always been low because from the beginning, the Stenalt live-stock consisted of quite young milking goats with low cell count. The low cell count still exists. The total bacterial count is always below 10.000. The mounting of IDC for goats in 2010 has caused a considerable reduction of maintenance costs.

Facts:

Stenalt Estate, 468 ha farm land, 225 ha forest
Number of milking goats: 700
Annual production: 500,000 kg
Milking parlour: Internal rotary
Number of employees : 4.4

*Dorte Mette Jensen
Stenalt Gods, Ørsted,
Denmark*



It is logical that I can reduce the operating costs with a single box robot, even without loss of capacity

Facts:

Company size: 48 ha grass and maize
Number of cows: 95
Annual production: 800,000 L
Milking parlor: RDS Futureline MAX double system
Number of employees: 1.5

*Rene v/d Kolk
Holland*



Since the start in 2010 there has been only few maintenance costs of the milking plant, and the total bacterial count is constantly 4-5.000 and the cell count is 150-250.000, depending on the season. The SAC plant was chosen because the milker is very close to the cow during milking. The plant functions perfectly every day with SAC energy-saving equipment.

Facts:

I/S Sønderhøjgård 850 ha
Number of cows: 450
Annual production: 3 mill. ton
Milking parlor: SBS industrial parlor 2x20 with IDC 3 and individual feed
Number of employees: 8

*I/S Sønderhøjgaard,
Outrup, Varde
Denmark*

ing equipment ...



SAC milking equipments has been in this farm since year 1956. Farm visits and milking in SAC inside rotary in Denmark opened our eyes. SAC internal rotary is reliable and a good choice for our farm. Maintenance and spare parts service are very good, so everything is working OK.

Facts:

Heikkilän: 160 ha
Number of cows: 100
Annual production: 850,000 L
Milking parlour: Internal rotary,
24 stall positions
Number of employees: 2

*Paivi & Jussi Kamarainen
Rantasalmi,
Finland*



I have milked with SAC products for 30 years. Many of my colleague dairy farmers have visited my farm to see our SwingOver parlour and were positively surprised by the perfect quality and high capacity.

Facts:

Company size: 55 ha grass
and 10 ha maize
Number of cows: 120
Annual production: 1 mill L
Milking parlor: 2 x 20
Swing Over, fast exit
Number of employees: 1.1

*Hans Nijkamp
Holland*



With the TIM all-in-1 management system, I manage my company's maximum efficiently. My very high expectations are more than fulfilled with the TIM

Facts:

Company size: 48 ha grass
Number of cows: 80
Annual production: 754,000 L
Milking parlour:
RDS Futureline MAX
double system
Number of employees: 1.1

*Garrit Berendsen (senior)
Ewald Berendsen (junior)
Holland*















The easiness with which we milk more than 225 cows in 1 hour is astonishing for all the farmers who visit us.

Facts:

Company size: 90 ha grass,
15 ha maize and
10 ha nature field
Number of cows: 250
Annual production: 2.3 mill L
Milking parlour: external
rotary, 44 stall positions,
fully automated
Number of employees: 2

*Wim Bonestroo
Holland*

- as time goes by...









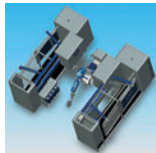


																	1990 The name SAC is introduced	
																		
1940-45 No import from USA - SAC starts the development of milking machines					1948 First export sale to Finland 		1970 Pulsator and cluster 'UNI-SOFT' pipe system		1977 Generational hand-over. Søren Anker Christensen takes over the company after his father 		1984 Cluster 'UNIFLOW' Differentiated vacuum system in milking parlours		(the name EFFECTIV is gradually phased out) UNICO 1 and UNICO 2 - combined pulsator and remover 		1993 8,000 L milk pump UNIFLOW 2 		1995 High-dynamic rubber for liner UNIPULS 2 and UNIPULS ELECTRONIC 	
1938	1940	1947	1948	1949	1970	1975	1977	1980	1984	1986	1990	1992	1993	1994	1995	1996		
1930	1940-50				1970			1980			1990							
1938	1940	1947	1948	1949	1970	1975	1977	1980	1984	1986	1990	1992	1993	1994	1995	1996		
1938  The company A/S S. A. Christensen & Co is founded by Svend Aage Christensen. Import of the American 'SURGE' milking machines which are sold under the product name of 'KALVO' – 'the living machine' 		1947 The milking machine 'SENIOR'		1949-1953 Development and sale of a new milking machine program by the name 'EFFECTIV' and 'MULLERUP DLAM'		1975 Removers for milking plants		1980 Remover systems for tie-up stalls		1986 Differential valves Pulsator UNIPULS 		1992 Energy-saving pulsator valve (PAT) UNI COMBI COOK  UNILINE		1994 KR3RD-KR4RD-KR5RD-KR6RD milking panels SIDE-BY-SIDE milking parlours Electric crowd gate 		1996 2 " pipeline for tie-up stalls UNIFLOW 2 LIGHT  Quarter mastitis indicator (PAT) Oil collector for vacuum pump SAC 60 milking parlour		

A historical overview of SAC since 1938 until today shows that throughout the years SAC has known to develop the business, for example by expanding from a DK based company to becoming a global player.

Today, SAC is one of the few milking machine producers on the world market

with a full-line equipment program. Likewise, it is clear that innovation in product development is at a high level.

SAC has understood to profit from the fact that already in 1967 the Scandinavian countries started the standardization work 'Nordic Recommendations for Milking Machines', which appeared in a printed

1997 UNIFLOOR Milk meter for milk pump pipe			1999 Bottom inlet for bulk milk tank		2001 Internal rotary SAC 115 H FAST EXIT milking parlour MPC stall position control 		2003 Frequency-control- led releaser milk pump New milk- and vacuum branch SATURNUS management program New brackets for pipes in milking parlour		2005 External rotary 1 Technical manuals available on cd UNIWASH 3 		2007 SAC PROFARM RDS FUTURELINE mobile milking robot SACCO 2750 vacuum pump 		2009 IDC T pulsator, remover, milk meter, mastitis indicator and hand-free start  RDS FUTURELINE MARK II		2011 IDC T-LITE pulsator, remover, milk meter, mastitis indicator and hand-free start RDS FUTURELINE MAX TIM total integrated management system  External rotary II 8,000 L milk pump II	
1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
2000													2010			
1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
1998 Recycled water for cleaning of plant High-vacuum washing system UNIFLOW 3 Digital vacuum meter with visual alarm  Mastitis indicator with thermometry STAND ALONE Combined milk-/air-tube			2000 AUTO TANDEM milking parlour UNIPUMP industrial vacuum system UNICOM/UNILAC Separation boxes with double antennas Hose guide for milking parlours		2002 HANDYFLOW for sheep and goats (PAT)  Mastitis indicator MK II Industrial parlour Generational hand-over: Steen Asbjørn Christensen takes over the company after his father 		2004 Frequency-control- led vacuum pump		2006 RDS FUTURELINE milking robot  SAC 115 F FAST EXIT milking parlour		2008 SBS ROTOR EXIT milking parlour IDC 1 pulsator and remover with hand-free start  IDC 2 pulsator, rem- over, milk meter, mastitis indicator and hand-free start (PAT)		2010 IDC 3 ICAR milk-meter with pulsator, remover, mastitis indicator and hand-free start QUICKSTART IDC SwingOver milking plant		2012 IDC for goats Hose guide for SAC 115 plant Full-line feed system IDC Option-conductivity UNIFLOW 4 	

version in 1971. This work led to the first ISO standards in 1989.

The fact that SAC has participated actively in this process with staff and research has resulted in SAC milking machines have always been living up to the latest international standards. In the development work, there has always been an

awareness that high functional quality and milking machine reliability have been the way to obtain the position as one of the few full-line global players.

A position that our motto can be ascribed the honour of : - ***If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!***

Innovation - your v



SAC's motto - ***If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!*** has been a clear guiding star in all innovation work since the words were declared in 1938 by the founder of the company.

This clear and adequate motto makes it easy for each individual employee to

test ideas and results of development work, to see if it lives up to the needs of the cow, the milk and the milker.

During the last few years, these ideals have been used frequently in relation to further development of the SAC management system so that it, in an intelligent way, presents the data gathered from

wishes come true...



inline measuring of behavior, yield, health and life cycle of the cow and measuring of the quality of the milk.

This means that the management system directs the milker's attention to the factors which ensure healthy high yield cows which give the milker an optimum economy of the livestock.

To the full, SAC knows the importance of a forward-looking successful innovation environment, and this can be obtained only when milkers and cattle researchers are natural parts of the development work, and when all innovation lives up to the message of SAC's motto: - ***If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!***

Full-line to milk pro



When SAC was founded in 1938 it was easy to be a full-line supplier.

The choice of machines on the market consisted of very few variants of bucket machines, and right from the beginning SAC was a full-line supplier. Since then, the milking herds have expanded from 4 to 12 cows to several thousands.

In this course, the development has moved

from bucket machines to pipeline milking in tie-up stalls in cowhouses to robot plants. Within each of the three main categories: tie-up stalls, cowhouses and robot milking, a number of milking systems have been developed which consider different needs and philosophies.

During all of the years, SAC has been an active organization which has constantly developed the demanded equipment from

ducers...



the simplest, small systems to the most sophisticated, large systems.

So our costumer can be a farmer in a cottage as well as a manager of an industrial farm who is able to monitor everything online from each single milkings to the whole livestock via the SAC management system.

Within types of milking parlours alone, there

are more than 36 models of types of milking systems, and furthermore, there are different sizes and variations of equipment, so in reality, there are thousands of variants. In order to control the many types of milking systems, SAC has developed a configurator, which in a simple way creates manageability and order. This enables SAC to offer and deliver exactly what the individual customer wants.

Anytime - anywhere



10 years after the foundation, SAC started the first export to Finland in 1948.

Since then, SAC has expanded the export to Scandinavia and the rest of Europe. At the same time as the invention of the automatic remover, SAC set up a business in Japan. After that, the whole world has become our work place.

Today SAC can be found in more than 58 countries all over the world through importers and their network of agents and technicians. They attend to sale, installation and service. Through continuous education of the importers' sales, installation and service staff, SAC is in close contact with customers worldwide.

re - worldwide



In Europe, SAC has a well-developed network of agents and importers so that today the company can be found in almost all EU countries. For many years, the company has been in Asia and South America where by now considerable market shares have been reached.

SAC has produced a large number of milking plants to governments in many countries, among others Russia, Iran, Pakistan, Syria, Tunisia, the Emirates, Egypt and Estonia. Likewise, SAC has supplied several UN relief organizations with milking plants and equipment.

Anytime - anywhere



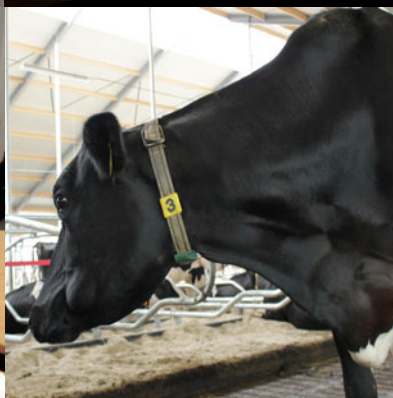
The milk producers have moved from hand milking two times a day to the use of milking plants controlled by microprocessors; plants that milk thousands of cows 24 hours, and today our customers can be found all over the world.

This means that the service offered by SAC has been adapted to global conditions. Today it is standard to have preventive maintenance of day-and-night mil-

king units in order to avoid unintended stoppage. SAC makes this work easier by being able to offer service packages adapted to the working time of the individual plants.

If luck runs out in case of lightning or the like, it is important that the actual construction of the milking plant is built so that it ensures the best possibilities for continuing to milk.

re - 24/7/365...



SAC's new IDC system has a control hierarchy which ensures that an underlying controller keeps working if the computer crashes. If the controller is destroyed, the IDC will be powered by the power supply of the hierarchy. If this too is destroyed, the IDC can continue milking powered by a car battery.

In addition to a normal 24 hour accessibility every day all year round, SAC is able

to offer a video system which service staff all over the world can connect to. In this way SAC is able to follow the customer closely and guide him directly all over the world day and night.

Next generation - fu



With pride we can say that our founder was far-seeing when he expressed our motto in 1938, when SAC was founded.

The old virtues which are implied in SAC's motto - ***If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!*** will continue to prevail in SAC's continuous development of products and service.

We feel like Jules Verne when (in 1865) he wrote 'From the Earth to the Moon', (in 1869) 'Twenty Thousand Leagues Under the Sea' and about 150 years ago, (in 1872), 'Around the World in Eighty Days': *he was more than a hundred years ahead of his time.*

We are also imaginative, curious and crazy about combining the latest techno-

uture - perspective



logy within the technical sciences with communication and research in cattle farming for future products.

It is an exciting challenge that we have a clear notion of our future products, but sometimes we must wait for the necessary technologies to be ready for use in commercial relations.

In this way, we are always ready to seize the latest technological possibilities and use them so that we transform imagination to new products and service which fully live up to our old motto: - ***If there's anything we can do for the good of the cow, the milk and the operator, we'll do it!***

Ecotech - we are g



In the development work, SAC has always made sure that new products operate with as little consumption of energy and other resources as possible, and that they pollute as little as possible.

Examples of this can be found in the following products/functions:

- SAC stops the pulsators when the cow has been milked so that a full profit of a SAC frequency control of the vacuum pump can be obtained
- SAC uses its own produced impeller milk pump which, with a SAC frequency control of the milk pump, can be speed regulated so that a full profit of the SAC plate cooler, fitted on the pump wire, is obtained. The milk is cooled to 0.5 degrees Celsius above the entry temperature of the cooling water.
- SAC has developed a washing unit which can save up to about 40% of the water consumption that other washing units of the market use. The washing

green - are you?



unit can be set to complete only one flush after milking, and then complete the whole washing at a time when the power price is low. Furthermore, the washing unit can ensure that no cooling and washing takes place at the same time so that the maximum ampere consumption is minimized.

Taken together, SAC can save 40% on wash water consumption

Taken together, SAC can save 50% on energy for vacuum

Taken together, SAC can save 79% on energy for milk cooling

EnergiTjenesten, an independent and impartial energy consultancy company, has calculated that using a SAC energy product compared with standard products will provide an annual saving in EU-25 of 433 mill. Euros or 3,225 mill Danish kroner.



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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!



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