

The manufacturers of your conventional milking system have stated that your milking systems has undesirable effects on your cows. These effects include liner crawl, teat irritation and incomplete milk outs. Your cows tell you this each time you milk them. The following descriptions of the problems you experience are from United States Patents issued to the manufacturers of your milking system. They have described the problems you experience with your conventional milking system. They have attempted to solve these problems since the 1970's. Goran Olofsson, past Vice President Engineering for Alfa-Laval Agri, stated that the CoPulsation™ Milking System accomplished what he had tried to do for over 25 years. The comment was made on February 27, 1992 after evaluating the CoPulsation™ Milking System at the farm where it was developed.

Alfa-Laval AB

United States Patent: 4,011,838

Issued March 15, 1977

Prior art milking machines have generally tended to perform under an unvarying milking condition throughout the milking processes, **subjecting the teats to a constant level of working vacuum and to an unvarying pulsation** of the teat liners. Such an **unvarying milking condition can be undesirable, both in terms of the safety for the animal being milked and in terms of the quantity and quality of the milk obtained.**

If the teats are subjected to too high a level of working vacuum prior to the release of the cow's milk, the full vacuum acting upon the teat with no milk flow can **injure the teat and may cause the cow discomfort, decreasing her milk production.** Similarly, the risk of injury is great if the teats are subjected to the working vacuum after milk flow has ceased.

Babson Bros. Co. (Surge)

United States Patent: 4,572,104

Issued February 25, 1986

Systems have been provided in which the ratio of milk period to rest period can be adjusted. Such a system is shown, for example, in U.S. Pat. No. 3,317,685. However, while these systems have allowed for the ratio of milk period to rest period to be increased from 50:50 to increase the amount per cycle of (and thus the rate of) milking, they are constrained by the **risk of hurting the cow by not providing sufficient periods of rest.**

Alfa-Laval Agriculture International

United States Patent: 5,090,359

Issued February 25, 1992

However, these known apparatuses do not solve the **problem of preventing crawling of the teat cups on the teats** during the third milking when the milk flow ceases.

However, when the milk flow diminishes during the third milking phase the teat becomes slacker and slacker and its frictional engagement with the liner weaker and weaker, whereby **the teat tends to be sucked deeper into the teat cup.** Thus, each **teat cup crawls on the teat** towards the udder and thereby causes **throttling of the milk conducting interior of the teat** close to the udder, so **that milking becomes more difficult and finally the milk flow completely ceases** in spite of the fact that some **milk still remains in the udder.**

DEC International, Inc. (Bou-Matic)

United States Patent 5,218,924

Issued June 15, 1993

Various attempts have been made to ameliorate **the undesirable effects of vacuum on the teat** by carefully shaping the teat cup and liner to support the teat as well as possible, and by periodically relieving the vacuum to the teat.

Alfa Laval Agri

United States Patent 5,769,024

Issued June 23, 1998

a **conventional milking machine exposes the cow's teat tips to a relatively strong milking vacuum**, usually about 40-50 kPa. (*40-50 kPa is 11.8 to 14.8 in Hg*) However, this strong milking vacuum gives rise to the problem that the **teats are treated ungently initially** during the milking, when the milk flow is small or non-existing, which may **result in discomfort and even pains to the cow**. This may lead to that the hormone adrenaline is secreted **and makes continued milk extraction difficult**.

Alfa Laval Agri

United States Patent 5,697,323

Issued December 16, 1997

In **milking machines currently marketed by Alfa Laval**, the pulsation chamber of each teatcup is exposed to a pulsating vacuum having a rate of typically 60 cycles/minute and varying between atmospheric pressure and a peak vacuum level of about 42-46 kPa and 48-50 kPa for low level milking system and high level milking system, respectively, while the interior of the liner under the teat is exposed to a milking vacuum of about the same level as the peak vacuum level.

The **relatively strong milking vacuum** is needed primarily for ensuring a safe attachment of the teat cups to the teats and, secondary, for achieving a rapid milking and a high milk yield. However, **a disadvantage of such a strong milking vacuum is that it might treat the teats roughly**, especially at the beginning and at the end of the milking interval when there is no or insignificant milk flow through one or more teats. **Attempts have been made to eliminate this disadvantage** by milking according to different modes of operation during the milking interval, in order to provide for a gentle milking also at the beginning and at the end of the milking interval

DEC International, Inc. (Bou-Matic)

United States Patent 6,039,001

Issued March 21, 2000

The present inventor's conclusion from the various pieces of research is that a mean mouthpiece chamber vacuum greater than 20 kPa (*20kPa is 5.9 in Hg*) seems to be **less comfortable to cows, results in more teat congestion and oedema, and has been linked to a higher rate of new mastitis infections**.

Are you ready to upgrade your milking system? Your cows are!

