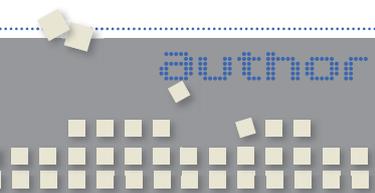




# Green technology

Shrinking the environmental footprint of the dairy industry



Orla Nissen, Sales Director DSS

**F**ive years ago DSS made increased focus on energy saving solutions part of our core strategy, seeing that it was becoming a crucial competitive parameter of our products and therefore vital to our continued growth. We then hired an outside communications partner to promote the process. Means and goals were defined under the heading “Green Profile”, and

the task was broken up into an internal and an external project.

The heart of the internal project was to ensure common awareness among all employees in order to embrace energy saving solutions everywhere: in our product development, sales, and project execution. As an example, much effort was put into mapping internal consumption patterns from paper to electricity and heating. The purpose of this internal project was to illustrate how even the slightest change of habits can be of considerable importance to the total environmental impact on our surroundings. Many routines were adjusted, and BEFORE and AFTER results were published on company message boards.

The external project was built on the focus created by the internal project. We

set a target of a 25% reduction on the environmental footprint which a given process plant would leave back then in 2007. The target was to be met within 5 years, by including the “Green Profile” concept in all solutions.

## Evaluation

New thinking and extensive scrutiny of our plant engineering has produced noticeable results in the areas which have the largest environmental impact: power consumption, cooling, heating, water, compressed air, and cleaning agents:

**Power consumption reduced by 25% to 30%:** Achieved through optimization of the internal hydrodynamics of the plant and focus on the choice of more effective pumps and motors and by extensive use of frequency converters.

Furthermore, more sophisticated automation solutions have been introduced.

**Cooling reduced by 30% to 40%:** The need for cooling is often related to power consumption, as the electrical energy supplied is transformed into heat which in turn has to be removed. Moreover, prospects are huge with regards to heat exchange with other streams, producing considerable savings.

**Heating reduced by 10% to 80%:** Heating is used for pre-heating product streams as well as for heating water for cleaning. Product stream heating can often be optimized together with the associated membrane plant where part of the heating can be substituted by pump heat, hereby reducing total heat loads and at the same time reducing cooling loads. Heating of water for cleaning generally does not represent a huge load; however, as the heating needs to take place within a very short time, the instant load on heat generators i.e. boilers as well as media distribution systems is significant and costly. In order to reduce heat load both totally and instantly, heat recovery against spent CIP solutions can be interesting.

**Water consumption reduced by 25%:** A membrane plant typically requires large volumes of water over a short period of time for effective flushing. The economic challenge is the costs of good quality water. The practical challenge is to deliver high volumes to the place of consumption, and to dispose of the same high volumes through sewage systems which have often not been laid out for the purpose. DSS has recently introduced a new flushing concept named "Green Flush", and the results achieved in small, medium-sized, and large plants show a 25% reduction in both instant and total consumption.

**Consumption of compressed air reduced by 15%:** The often neglected consumption figures of compressed air have been cut down by the use of novel and optimized components characterized by zero or considerably reduced consumption.

**Cleaning agents:** We have made little progress in this field for different reasons. For instance we do not formulate the cleaning agents ourselves and therefore have little influence on the optimization process. Nonetheless, we are

convinced that the mere competition in this market will expedite product development and optimization. We can however, contribute by optimizing the plant dead volume to reduce consumption.

### Green Profile in future

We consider the achievements proof that our strategy was right. We also see them as an incentive to increase focus on "Green Profile" as all experts seem to agree that energy and water prices as well as effluent charges will rise in the years to come.

It also appears that the market is willing to pay the extra price for such green initiatives, which in isolation actually turn out to have very short payback periods. In some cases they may even reduce other investments in the process line or render them unnecessary, and thus they will not in reality be a burden on the project.

If we look at the dairy industry in general, we even see signs that membrane filtration with a clear Green Profile is preferred to other technologies. Obviously, economy is a strong driver, but also our clients wish to profile their companies and products as environmentally responsible.



# Competent

# Accessible Dedicated

**GREEN technology for a GREEN industry**



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Membrane filtration is our core competence. We ensure utilisation of all milk constituents, optimising your yield and profit.



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