

# CARLSBERG REPLACES OLD FANS WITH NEW HIGH EFFICIENCY ZERAX® FANS



## THE ENERGY CONSUMPTION MUST BE REDUCED

Carlsberg Group has stated as a goal that energy consumption must be optimised in order to reduce CO<sub>2</sub> emissions and reduce the energy consumption costs.

The ventilation constitutes 23% of the total energy consumption at the brewery in Fredericia, and the CO<sub>2</sub> reduction contributes with 0.04 GBP per saved kWh in sales of CO<sub>2</sub>. Therefore, it was primarily for financial reasons that it was decided to replace the old fans installed in the 1970's with new ZerAx® fans. When the first fans were installed, they were not adjusted and therefore ran at constant full capacity in very humid surroundings, in one of the bottling halls that works 24/7. The purpose was to exhaust the moist air and inject dry, warm air.

## THE PROMISED SAVINGS ACHIEVED

According to Carlsberg's energy consultant Bjarne Pedersen the promised savings have already been achieved, before the adjustment of the ventilation.



"We expect the fans to lead to cost reduction of 30%. The rest will be obtained through a change in the control of our ventilation system. We still need to make the final calculations, but a measurement

with a tong test ammeter shows that we are close to attaining the expected savings," says Bjarne Pedersen.

The ZerAx® fan calculation is based on frequency control and therefore the obtained total savings will be higher than the savings calculated for the fan.

The replacement of Carlsberg's fans presupposes the following budget data.

- Prior electricity consumption (the old ventilation system): 890,400 kWh/year
- Theoretical electricity consumption (new fans in the old system): 451,528 kWh/year
- Saving partly due to the new fans: 438,872 kWh/year

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## FACTS

- UP TO 52% LOWER ENERGY CONSUMPTION
- 43% REDUCED ENERGY CONSUMPTION ON ALL UNITS COMBINED
- 161 TONS REDUCED CO<sub>2</sub> EMISSION PER YEAR

Carlsberg employed a ventilation company to solve the task of replacing the fans and this company has issued an energy savings certificate.

### ROI OF 2 YEARS

The calculations show that the ROI of the task comprising the consultancy work and the replacement of the entire system including fans is 2.2 years.

The ventilation system that has been replaced so far is just one out of approx. 20 ventilation systems. In total, the replacements will reach an amount in the double-digit million range.

The replacements started in one end of the brewery and will be made in stages.

The prerequisite is that the investment on the entire replacement should be recovered within two years, and already now it seems that the savings on just the one ventilation system that has been installed this year will be around GBP 49,000.

However, the work environment is also important to Carlsberg.

“In the bottling halls the noise level is so high that it is absolutely impossible to hear the fans, but it is still evident that these fans move more air than they make noise,” says Bjarne Pedersen.



“We check that the savings promised by the supplier are actually achieved. And so far that seems to be the case” says Bjarne Pedersen



Old fans installed in the 1970's



ZerAx® fans installed at the brewery in Fredericia