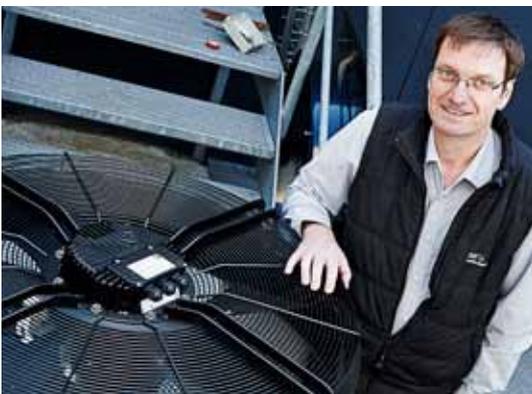


## New EC fans in cooling systems pay for themselves in just 1.7 years

Odense University Hospital (OUH) in Denmark saved 60% in operating costs when it switched to energy-saving EC axial fans in its cooling system. The largest savings derive from reduced energy consumption, but repair and maintenance of the 28 fans also represent an annual savings of 3,400 euro.

OUH has finished a large-scale renovation project that replaces all inefficient, power-hungry fans with modern EC technology to achieve lower energy consumption. The oldest fans in major sections of the free cooling chillers at OUH were over ten years old and obvious candidates for inclusion in the project. In addition to excessive maintenance costs, they used a disproportionate amount of energy cooling the hospital's buildings.

“SE Big Blue, a consultancy, has calculated the savings for us, and energy optimisation of the free cooling chillers has certainly lived up to our expectations,” explains Jørgen Søfeldt, functional manager, OUH, adding, “One aspect is the tremendous savings on our electric bill, but there is also the considerable reduction in service and maintenance costs. We’ve had numerous problems with the outdated fans accompanied by heavy repair and replacement costs.”



*Energy optimisation of the free cooling chillers has certainly lived up to our expectations, says functional manager Jørgen Søfeldt, OUH.*



### Quick and easy replacement

It took four people two days to replace the old tt coil chillers, which were comprised of two sections containing 14 type VTBL-276 fans each. The task was simple. The old fans equipped with AC motors and variable speed drives were dismantled, removed and replaced by new EC fans with integrated stepless speed control from ebmpapst. The scrap heap of blue AC motors and other parts from the old cooling system grew at incredible speed at the bottom of the steps as the fans were dismantled. There was no mistaking it, the pile looked like what it was, obsolete technology ready to be carted straight to the dump.

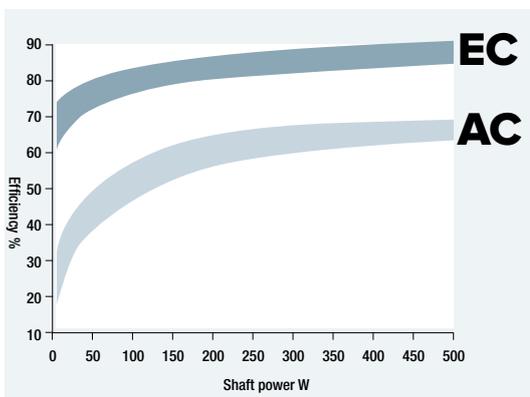
After completing the disassembly, the work team began preparing to install ebmpapst's large stacks of sparkling black fans. Standard AC fans contain numerous parts that must fit together when mounted, but ebmpapst EC fans are virtually plug-and-play, where the motor, steering and fan blades are integrated into a compact, easy-to-install unit. The various components are optimised for each other, that alone providing better performance.

The big energy savings, however, stem from the entirely different way EC fans operate compared to AC fans

### EC – an efficient design

AC motors rotate by means of the supply network's alternating current, their speed difficult and expensive to regulate. EC motors, in contrast, use permanent magnets to create a magnetic field inside the motor and electronically controlled direct current to generate rotation. Functionally, the design is much more efficient and thus greatly reduces losses.

ebmpapst EC fans have integrated stepless speed control and retain their high efficiency in the entire range of speed.



*EC fans have up to 90% efficiency compared to 20-70% for AC fans.*

### Savings in numbers

	Annual savings
Energy consumption	84,100 kWh
0.20 ¢ / kWh	16,820 EUR
Operation	3,400 EUR
<b>Total savings</b>	<b>20,220 EUR</b>
Payback period	1.7 years

