



Press Release

Making HVAC more sustainable can be EC, but more can still be done

Commercial building owners and tenants are continuously searching for ways to improve the sustainability of their buildings, with HVAC (heating, ventilation and air conditioning) being a hugely important area when making these improvements.

It is true to say that HVAC equipment can often be overlooked by building owners seeking improvements in energy efficiency, with more visible areas such as lighting being considered first, however HVAC equipment on average accounts for 40 per cent of a commercial building's energy consumption. Therefore measures to make HVAC equipment more energy efficient can offer considerable financial and CO2 savings.

It is important to note that improving this aspect of a building's energy efficiency does not require a complete retrofit or replacement of existing HVAC systems. Instead it is possible to enhance the equipment that is already installed to maximise performance while reducing energy consumption and maintenance costs. From a sustainability perspective, this uses fewer resources and creates less waste than completely replacing equipment.

One example is improving the energy performance of Fan Coil Units (FCUs), which are commonly employed in commercial buildings. While many new facilities built in the UK already incorporate EC (electronically commutated) fans into their HVAC equipment, it is often the case that older buildings continue to use inefficient equipment. Rather than investing in brand new equipment, the more cost effective option of upgrading the fans in existing equipment to new high efficiency EC fans is often chosen.

Even something as simple as adding variable-speed EC to the FCU's can save between 40 and 60 per cent on their annual electricity costs, with a payback period as low as two years. Changing from a low efficient AC fan to a high efficiency EC fan is often straight forward and is a simple way to increase the overall efficiency of a building.

Modern EC Technology offers the additional benefits of being compact, having reduced noise, being maintenance free, and having integrated variable speed control allowing for optimised performance, resulting in both improved occupier comfort and energy reduction.

In addition to FCUs, EC fans can be upgraded into a full range of HVAC equipment, including AHU's, Chillers and Dry Coolers, Air conditioning equipment, with current EC motor sizes up to 12kW.

Despite the fact that many buildings have still not upgraded their fans to EC, the technology is not new and has been an established motor technology for more than ten years. EC technology is often quoted as the 'easy solution', especially when buildings are tasked with meeting the new ErP regulation, which is a new EU ecodesign requirement for all electrical equipment.

In addition to the obvious benefits of EC motors, continual advances in fan design can provide even greater energy efficiency and sustainability benefits.

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The industry invests millions of Euros each year in all aspects of fan technology.

The ebm-papst group for example invested €86 million last year, with more going into aerodynamic research than EC technology, as the company continues to develop more sustainable fan technology.

This aerodynamic research is going beyond text book design and pushing the boundaries of fan technology, offering solutions that can lead to substantial cost savings and other benefits. R&D is a big part of this continuous improvement, with it helping the industry to think big and investigate new ideas that go against normal design and technology.

Examples of how engineers and R&D have pushed the boundaries of fan technology, are the RadiCal centrifugal fan providing a significantly more energy efficient centrifugal fan, and also the new AxiTop diffuser which can deliver both energy saving and noise reduction to an existing axial fan. These innovations, spurred on by the challenges of the ecodesign directive deliver the most energy efficient fans that meet new ErP regulations.

EC technology is still the obvious 'go-to' solution for HVAC professionals as they look to improve the sustainability of their operations and energy performance of the buildings. The lower-cost option of a simple replacement or retrofit makes the upgrade of AC to EC motors an appealing one for many.

However, the industry is continuing to innovate fan technology, with many of these new innovations offering a more sustainable and energy efficient alternative to a simple EC instalment.

Indeed HVAC professionals may need to look beyond the 'quick-win' of EC upgrades and investigate more innovative solutions to improve sustainability in their operations, as energy costs get higher and new regulations continue to come into force across Europe.

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