

VSD and magnetic bearings drive HVAC advances in 2019

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HVAC solutions are getting smarter and more efficient every year. These advances are driven by both customer demands and new regulations. Two components that are helping HVAC manufacturers meet these demands and differentiate their offerings are, variable speed drives (VSDs) and magnetic bearing motors.

Businesses and governments are becoming increasingly aware that the energy costs that their HVAC systems incur can equate to up to 40% of building total energy costs, and that this equipment has considerable bearing on the environment. With energy costs rising and stricter environmental legislation coming to the fore, users are demanding higher system efficiencies, lower operating costs, and the use of more eco-friendly refrigerants. Users are also looking more closely at the total lifecycle of costs that will be incurred.

HVAC plant requires significant investment but generally has a long lifespan – anything from 15 to 20 years. To maximise their investments, users are thus demanding increased reliability and longevity of HVAC equipment and are very interested in ensuring lifecycle costs are kept low.

VSD trends

A chiller that incorporates VSDs can lower the chiller's annual energy use by 30 percent. [How does it work?](#) A VSD, as its name implies, allows a chiller to run at lower speeds under part-load conditions, thereby yielding a higher efficiency and lowering energy consumption.

But savings are not automatic. The trick is to understand how your VSD can save you money and apply it correctly within a system.

With higher demands for energy saving, VSDs are finding their way into more HVAC solutions, ranging from rooftop packages to central chiller plants and other devices. And they are continually advancing – during 2019 and 2020, VSD manufacturers will invariably focus more on flexible connectivity, easy interactive set up, easier interrogation in the event of a failure, and enhance optimised control.

Magnetic bearing motors trends

To meet the need for superior reliability and performance, HVAC leaders are incorporating magnetic bearings into chiller drives. With fewer moving parts, no contact and no lubricant required, there is less wear on mechanical parts and maintenance cost and effort is lower. This can help increase the lifespan of the equipment, with the elimination of oil, mechanical seals, wear surfaces and gears contributing to increased component and system reliability.

To really understand how magnetic bearings work, how robust the design is and how advanced the management of magnetic bearings is, take a look at this [video](#). The key component is the magnetic bearing controller. If you look at the [OptiView control panel](#) that comes with the York VSD magnetic bearing chillers, you can see how it uses multiple sensors to monitor the positioning of the bearings and rotating assembly.

In terms of magnetic bearing trends, expect manufacturers to work on reducing costs as demand for these solutions rise.

It's not all about the tech

It is important for companies to work towards a sustainable future and this should reflect in their chiller designs, i.e. the equipment they choose, the consumables & refrigerants they use and the way they control their systems to optimise their operations spend . We only have one planet and companies need to be responsible when selecting and implementing new technology.