

EARN YOUR GO-SLOWER STRIPES

IF YOU WANT TO SAVE MONEY AND ENERGY FAST, ONE OF THE MOST EFFECTIVE METHODS IS TO GO SLOWER. OR AT LEAST, TO RUN YOUR FANS AND PUMPS MORE SLOWLY, WITH THE HELP OF AN INVERTER.



Whether you are running a ventilation or extraction process, a cooling tower application or a chiller, circulating cool water or cutting oil, or operating a water pressurisation application, fitting an inverter can exploit the Affinity Laws to deliver a cubed reduction in energy absorption. Or in other words, by installing an inverter which enables you to reduce the speed of the fan or pump by 20%, you can expect to reduce your energy costs by half.

Of course these kind of savings are not guaranteed in every case, but they can be predicted with a skim survey. So, if you undertake a survey with a reputable supplier with the experience and expertise to assess your current situation, to specify the correct inverter and to make the correct

calculations, you can know in advance – before you commit to any capital investment – the size of the energy-saving you will make, the amount of energy costs you will save, the cost of the upgrade and the length of the payback period.

ERIKS, for example, have the know-how to identify the applications where savings can most effectively be made, as well as the expertise to calculate accurately the costs, the savings, and the payback – which can be impressive.

Recent inverter installations by ERIKS have delivered payback in under six months on a £40,000 installation for a large food manufacturer, by integrating eight 30kW inverters into the control system of a cooling tower. Installation of an inverter into a triple cascade water pump control cost £15,516 which was paid back within eleven months. And incorporating an inverter into a fan and pump application in a cooling tower for a large cereal manufacturer paid back the £52,780 investment in just twelve months.

These impressive savings, and the equally impressive reductions in energy use which go with them, result mainly from the capability provided by the inverter to run the required fans or pumps at lower speeds, which in turn leads to less energy absorption. Yet despite the slower speeds, calculations can show that the same level of cooling, for example, can be achieved with the same number of fans – or sometimes even with fewer fans than before. On vertical pump systems there is still the need to maintain the required head pressure, but again, an experienced engineer will be able to calculate the necessary pump speed to meet all the desired parameters.

As well as the energy- and cost-saving benefits, there are a number of additional advantages associated with inverters and the slower running speeds they enable.

When used to control the speed of pumps they often reduce hammering, as they exercise more control and close the non-return valve more slowly. When used with

fans or pumps – because they reduce or eliminate the amount of time the equipment runs at full speed – they help to reduce wear and tear on the motor, bearings and other components, which leads to lower maintenance and a longer life.

The many benefits of inverters for fan and pump control have led more manufacturers to begin integrating them at the point of manufacture. However there are still huge numbers of systems – such as direct on line or Star Delta systems – in place without inverters, or with older inverters which are not up to the job – most of which could benefit hugely from the installation of an inverter or an upgrade of the existing inverter. Even older systems with a limited remaining service life can still be viable for installation of an inverter, thanks to the very short payback period that is usually achieved. In fact, the installation of an inverter cannot only optimise the system's performance for its remaining service life, but may also extend that life due to the reduction in wear and tear previously discussed.

The latest inverters do more than simply slow down a pump or fan: they provide greater overall control. By incorporating sensors for flow, temperature (for fans) or pressure (for pumps), inverters can adjust the speed of the fan or pump according to pre-defined criteria, such as water temperature. In a cooling tower, for example, if the water is not cool enough the fans can be accelerated, or if it is too cool they can be slowed down. Again, the capability to adjust the speed leads to energy savings and longer fan or pump life.

However, it must be remembered that installing an inverter is costly, so it is essential to have a proven case demonstrating tangible energy-savings and cost-savings, with a defined payback period, before making the capital investment. A company such as ERIKS – with extensive know-how and a passion for engineering, can provide just such a case, ensuring you spend no money that cannot be recouped – fast.

