



iMEC Three Phase

The world needs more efficient motors... LEDOLAS has the solution

Electric motors and the systems they drive are the single largest consumer of electricity worldwide, accounting for more than 40% of global electricity consumption.

Motors are widely used in both commercial and industrial manufacturing processes, where they can account for up to 54% of total electricity use. BEST's Intelligent Motor Controllers (iMEC), are used to reduce the energy consumption of motors in commercial applications across the globe, often improving equipment performance and reliability at the same time. The iMEC range of products includes controllers for single-phase and three-phase applications.

Optimising with the Xfe

During start-up, the Xfe software computes and stores, by a patented method a reference value for the power factor. When the motor has reached full speed and is driving the load at the torque demanded, it enters the 'motor running' stage. In this mode the reference power factor is continuously compared with the running power factor. From the comparison the software continuously computes and adjusts the firing point of the thyristors so that the best power factor is maintained. This method of continuous control minimises the energy wastage caused by overfluxing the motor. It also maintains the power factor at the most appropriate value for every condition of load demand.

This can effect a significant reduction in the kVA demand. This feature of the Xfe soft-starter is a purely electrical function which has the effect of ensuring that, at all times, the motor delivers the torque demanded, but allows it to draw only the precise amount of magnetising current required to support that torque output. Without this feature, the motor would draw the maximum magnetising current regardless of load.



The Problem with Motors

Motors lack the intelligence to address three key problems that lead to massive energy wastage, unnecessary carbon emissions and undue wear and tear:

1. Fixed speed motor driven applications like escalators cannot intelligently adjust their torque output to match load changes leading to excess energy consumption.
2. Motors that drive applications like pumps and fans cannot intelligently adjust their speed to match load changes and as such consume more power than they need.
3. When starting, a motor develops more torque than is required at full speed. This high inrush of current can lead to mechanical breakdown and peak demand penalties. To avoid the problems associated with starting, motors are often left running continuously even when they are not being used leading to huge energy waste.

The LEDOLAS Solution

1. iMEC can be applied to fixed speed applications and will dynamically adjust the torque output to meet load requirement without altering the speed (see fig. 1). This leads to substantial savings and is ideal for applications like escalators and many others which run at no/low load for long periods of time. In the right applications, payback is typically under two years.

iMEC provides a smooth, step-less acceleration (soft start) of your motors (see fig. 1). This dramatically reduces wear and tear on your system and helps you to avoid peak demand penalties. With a controlled start in place your motors can now be switched off without the fear of re-starting and iMEC can be programmed to perform this function automatically. Auto Switch Off delivers 100% energy savings.

2. iMEC can be specified to intelligently adjust the speed of your motors to match their variable loading so your motors only consume the power they need. This is a vast improvement over traditional control methods such as throttling (see fig. 2). A mere 20% reduction in speed can lead to energy savings of up to 50%.

Key Benefits:

Suitable for Most Applications

Reduces heat, noise and vibration

Extends equipment life and reduces maintenance

Improves power factor quality

Reduces energy consumption by up to 50%



Reduces Wear



Energy Saving



Motor Controllers



Reduced Maintenance



Made in the UK



Metering / Performance Monitoring

Fig 1

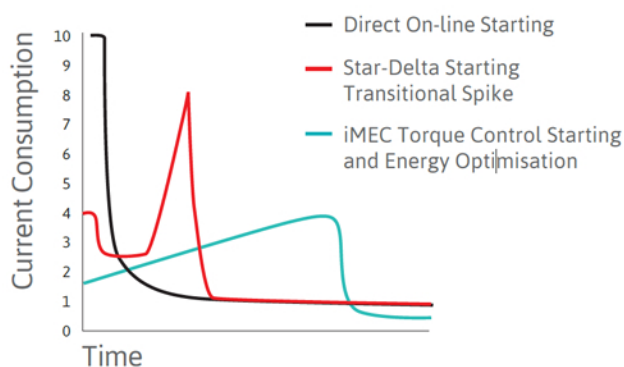


Fig 2

