

energise

ABB's on-line tool for selecting MEPS compliant motors

ABB's Optimizer on-line tool makes it easy to select motors that meet the new minimum energy performance standards (MEPS).

The third and final stage of EU MEPS came into force on January 1, 2017. From this date all motors from 0.75kW to 375 kW must meet either the IE3 efficiency level when driven direct-on-line or the IE2 level if fitted with a variable speed drive, in order to comply with the new standard.

Motor users can select motors, compare running costs and get further documents about these motors.

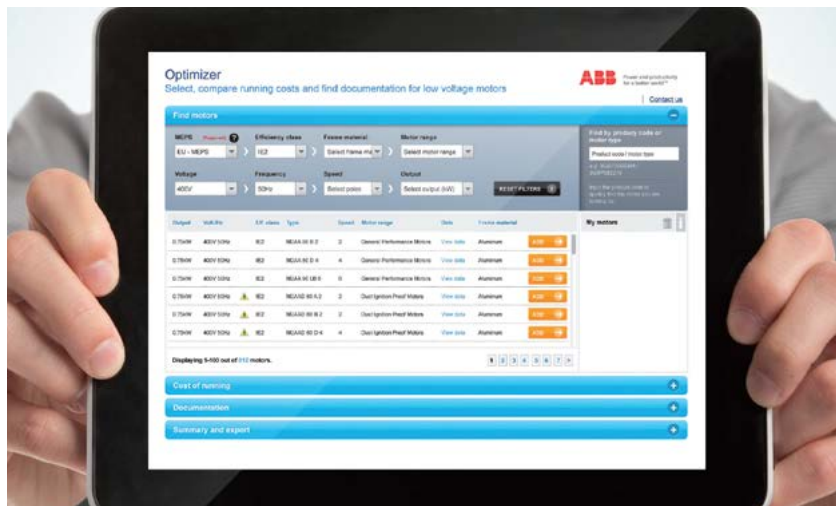
The first stage in motor selection presents the user with eight drop down selection menus. Categories are MEPS area (e.g. EU, United States), efficiency class (IE2, IE3 etc.), frame material, motor range, voltage, frequency, speed and power output.

Once the required characteristics are selected, the tool presents a list of suitable motors. For instance, selecting EU MEPS, IE3, dust ignition proof motors, 400 V, 50 Hz, all poles and all outputs, returns a list of 49 suitable motors and their characteristics.

Any of the suggested motors can be easily saved with one click – the next stage is to compare these motors to discover the cost of running them.

Motors can be compared by running cost, payback periods, lifecycle savings and reduction in greenhouse gas emissions. The Optimizer will also automatically suggest a higher efficiency motor if one is available and highlight the additional savings that could be realised by upgrading. Test reports, drawings, data sheets and other documents can be accessed quickly and easily for the selected motors. Documents can be opened on screen, saved or exported as a zip file.

The Optimizer can be found at www.abb.com/motors&generators or can be downloaded from the Apple store for iPad use.



ABB's Optimizer on-line motor selection tool.



Andrew Martin,
sales director

It's time to get connected

The big discussion among our customers is how to get ahead in their respective industries by leveraging the Internet of Things (IoT).

Last year ABB launched the world's first low cost sensor for tracking the performance of low voltage motors. A clever pocket-sized device is simply attached, without wiring, to the frame of an LV motor, from where it sends regular live updates on the condition of the motor to maintenance crews.

As a further IoT example the advanced apps now available for variable speed drives allow parameterisation and tuning via Bluetooth-connected smart devices, speeding up commissioning and optimisation and ensuring optimum efficiency of connected devices.

As these examples prove the IoT isn't something vague and blurry in the future that you can afford to ignore. It exists now – and so do the opportunities it offers. So what are you waiting for? Call us today to find out how we can help your business to get connected.

Why do motors fail?

There are several reasons why motors fail, but they can be broken out into four main specific areas: heat, bearings failure, water ingress and incorrect sizing or improper installation.

Heat comes from many factors: the loading on the motor, the ambient temperature that the motor is running in, mechanical stress, even the thickness of the paint. Heat breaks down the insulation system, putting it under stress, causing it to fail.

51 percent of motors, however, fail because of the bearings. That could be down to either too much or too little lubrication.

Use the manufacturer's specification to lubricate the motor properly, bearing in mind how the motor's mounted, the speed of the motor and the type of bearings installed.

When it comes to the cooling system, it's important that this is maintained, that airways are kept clear, and the motor is free of debris.

The third point of failure is water ingress. Water enters motors from various points, but the main one we found is through the cable gland. Wherever possible, good practice should be followed which is to bring the cable gland in through the bottom of the terminal box, therefore preventing water from running down the cable into the terminal box arrangement.

This we find mainly in the food industry, where they do wash downs for hygiene.

Lastly, the cause of failure is down to either the incorrect sizing of the motor, or the way the motor has been installed. It is always good to follow good engineering practice principles when installing a motor.

Whether you are installing the motor using pulleys and belts, or direct shaft-to-shaft coupling, it is best to use some kind of alignment process to ensure the stress on the bearing is kept to a minimum, and prolonging the life of your motor.

Lunch 'n' Learn training session puts harmonics on the menu

Lunchtime training session gives water industry staff the essentials on harmonics and how to deal with them.

ABB has launched a Lunch 'n' Learn training session designed to offer a short introduction to harmonics and their effects.

The CPD-accredited training course is one of many services offered as part of ABB's +20+20 vision for improving customer outcomes in the water industry.

Under Ofwat's latest Asset Management Plan, AMP6, water companies are being encouraged to re-focus attention away from the traditional area of spending less on capital and towards a total expenditure, or TOTEX, approach. This places more emphasis on controlling operational and maintenance costs.

Stuart Foster, UK & IE water industry manager - drives & controls, ABB Limited, says: "Harmonics can raise maintenance and repair costs, so keeping harmonics and their damaging effects in check should be a priority for water companies. The lunchtime learning session is a convenient way to ensure staff are made fully aware of this essential subject."

Ideal for people with a basic knowledge of electrical installations, the sessions last no longer than 45 minutes and can be held at customer premises or at an ABB facility.

The session covers the causes and effects of harmonic distortion, as well as how to avoid or mitigate them.

Four topics are covered:

- The fundamentals of harmonics
- Mitigation techniques
- Dealing with a mixture of single and three-phase harmonics
- The latest G5/4-1 recommendations and how they affect harmonic management

Knowing how to mitigate harmonics is a vital aspect of avoiding their worst effects. Mitigation techniques covered on the course will include chokes, transformers, active supply units, active filters and passive filters.

Companies interested in booking a course for their staff should email energy@gb.abb.co.uk, call **07000 DRIVES** (that's **07000 374837**), or visit ABB's dedicated harmonics website: <http://new.abb.com/uk/campaigns/water-totex/water-harmonics>



ABB's Lunch 'n' Learn session offers a short introduction to harmonics and their effects.

Top tips to drive down cost of ownership

As engineers, one of the most important challenges we face is the need to ensure that production is running at its most efficient. Clues that things may not be running smoothly could be an excessively high energy bill, or the maintenance team being regularly called out to check various aspects of the system.

Worse still is the threat that something more sinister is about to happen: a breakdown so catastrophic that production totally stops. What impact would that have on the environment? What fines would be imposed by the authorities? What would be the impact on the company's reputation among its customers?"

Each of these scenarios revolves around two very different cost considerations: the cost of running and the cost of NOT running of, let's say, a pump system. These two aspects, together with the purchase price, make up the "cost of ownership" of the pump system.

The cost of running comprises associated energy costs and the costs of operating and maintaining the pump and motor, including clearing blocked or clogged pumps along with replacing worn or broken parts such as seals, bearings or eroded impellers.

The cost of NOT running is a direct cost to a process such as the impact that a forced outage can have on a company's brand and image. The cost of not

running varies widely depending on the industry, but typically can be around £79,000 per annum.

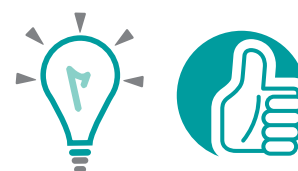
So, how can we control these costs? A good first step is to invite ABB or its authorised value provider to undertake an energy and productivity assessment.

The assessment highlights ways to improve the cost of running by looking at how to improve energy efficiency, optimise operating performance and reduce maintenance demands. For instance, often pumps are fixed-speed with the flow being controlled by a mechanical valve. As such, pump flow rates are inefficient and the pump is subjected to unnecessary stresses.

A more efficient approach would be to control the pump's speed using a variable speed drive (VSD). Apart from eliminating damage, which then lowers the cost of not running by boosting reliability, adjusting the pump's rotational speed can result in significant energy savings, thereby lowering the cost of running.

It also pays to replace old motors with modern high efficiency ones. This further contributes to energy saving but more importantly, their durable design leads to less downtime which lowers the cost of NOT running.

Once the latest technology is in place, it is important that the overall system is looked after. This is the role of a predictive maintenance program.



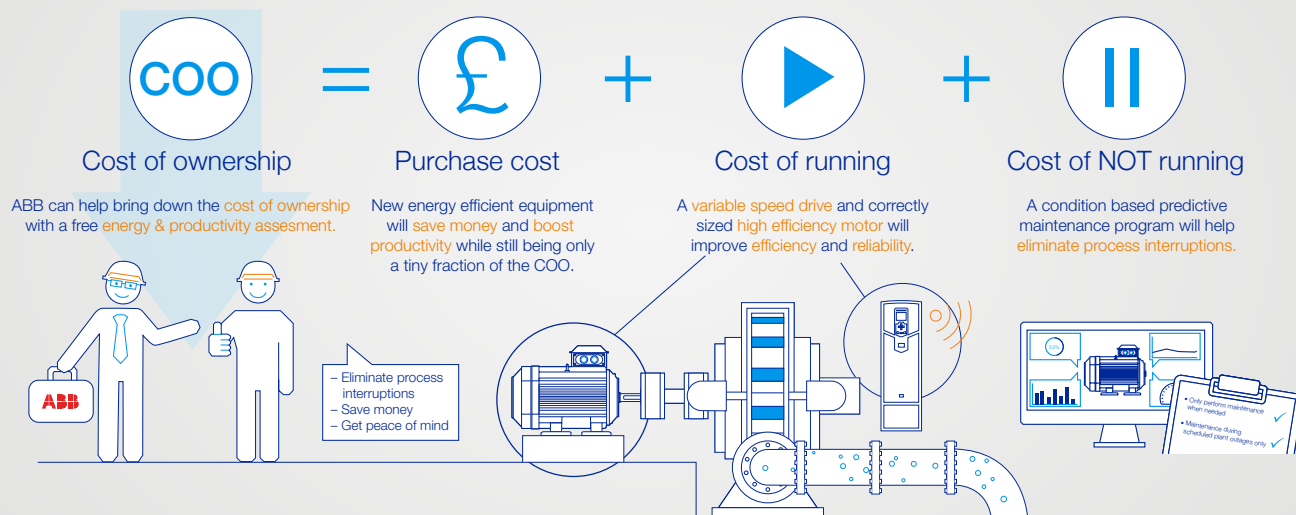
Being able to predict when critical motors will fail by knowing their actual condition allows you to plan effective maintenance and perform it during scheduled plant outages. For larger motors, there's a whole package of on- and off-line measurement and analysis which can be employed. These can not only help identify the problems, but also shorten the time taken to fix them, again bringing down the cost of not running.


By sourcing motors and drives from one supplier, purchasing administration is reduced. Fewer parts need to be stocked and maintenance personnel only need to familiarise themselves with a range from one vendor, further contributing to a lower cost of ownership.

Armed with these various tools and services, you now have the lowest cost of ownership. You have an efficient and reliable system, with the pump operating in its best efficiency area, bringing even higher productivity.

To find out more, view ABB's new cost of ownership animation on YouTube: <http://bit.ly/2lgJ5so>

Cost of ownership





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Who are we?

EMR Silverthorn can trace its roots back to just after the Second World War when founder Richard Kielcewski set up a repair workshop in Wembley, Middlesex. A few years later Richard was joined by Tony Fletcher and a new company – Kiel and Fletcher Ltd. – was formed. Several relocations followed before the business returned to Wembley in 1987. We became EMR Silverthorn in 1995 after the acquisition of Silverthorn Transmissions, a local motor and power transmission specialist distributor. The current operation is headed up by Chris Fletcher, Tony's son.

What we do

EMR Silverthorn is proud to be a member of ABB's authorised value provider (AVP) network. We carry an extensive range of ABB motors and also specialise in exports.

Our motto is: service and quality. That is what our company was set up for – to provide the best quality products and unrivalled service levels.

If you need repairs of electric motors EMR Silverthorn has a fully equipped workshop and our highly trained staff will provide impartial advice on whether you should have your motor rewound or replaced with a new energy-efficient model.

In addition to the supply and repair of electric motors, we also supply pumps, fans, gearboxes, bearings, filters, belts, chains, inverters and control panels.



The EMR Silverthorn head office in Wembley.

COMPETITION • COMPETITION • COMPETITION • COMPETITION • COMPETITION • COMPETITION

Answer the following questions for your chance to win a £50 Marks & Spencer voucher

The answers to these questions can all be found within this issue of Energise. Good luck!

1. Complete this sentence: ABB's AVP energy toolkit app shows you how much energy, CO₂ and _____ you can save by installing an ABB drive to control your application.
2. In the UK, how many TWh of electricity do pumps use each year?
3. There are two variants of ABB's new Inspection & Diagnostics service. Name one of them.

To enter the competition, just email your answers to energy@gb.abb.com along with your name, company name and daytime telephone number.

Three winners will be selected at random on October 31, 2017.
 Please note that the competition organiser's decision is final.



Authorized
value
provider

ABB