

energise

EDC rides to the rescue of renewable energy company

Weeks of problems are brought to an end in just over two hours thanks to EDC and ABB.

EDC (Scotland) is celebrating helping a renewable energy site to get productivity back on track by repairing a malfunctioning crane hoist.

The site in Fife, Scotland, had been experiencing problems with the crane hoist for several weeks due to an issue with the encoder. As a result the crane was becoming increasingly hard to control, putting staff safety at risk, as well as reducing productivity.

A competitor to EDC had already attempted to fix the problem during three costly site visits, but had failed to find the cause on each occasion. This was despite persuading the end user to purchase a replacement encoder and new cabling, adding yet more cost to the project. It was then the company contacted EDC.

“Our engineer started work at 12:45pm and just over two hours later the crane was fixed and working correctly, improving safety and the control of the crane and



Technical problem? Challenge the EDC team to find the solution.

preventing nuisance trips,” explains Nick Brown, managing director of EDC.

Brown attributes EDC’s success on this project to the technical expertise of its engineers and to the company’s role as an ABB authorised value provider (AVP). “AVPs are not only distributors - they have a level of technical expertise on a par with ABB,” he explains.

EDC is now working with the same customer to realise predicted energy savings of 846,000 kWh per year by installing a variable speed drive on a fan at the site.

Brown comments: “Most of our new business starts with solving a difficult problem for a customer - very often a problem that both the customer and our competitors have tried to solve without success. We love saddling up the ‘white horse’ and riding in to solve the issue.”



David McCullough,
Account Manager.

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 maximum 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.

Want to save energy? Get the App

Download ABB’s AVP energy toolkit app to discover the energy, CO₂ and money you could save by installing an ABB drive to control your application.

The app produces an instant mini-report that contains details of a matched ABB motor-drive package and can be forwarded to the ABB authorised value provider for your area – EDC (Scotland) Ltd.

To download the app, visit the Apple App Store on your iPhone or iPad and search AVP energy toolkit.

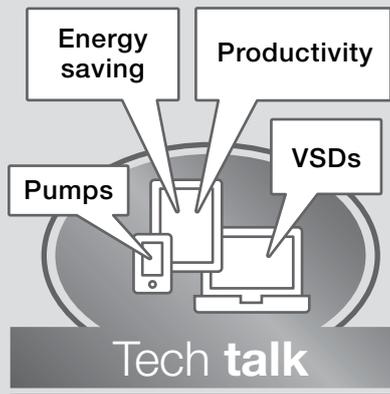


The AVP app shows you how much energy you can save.



Authorized
value
provider

ABB



Variable speed drives can improve both energy efficiency and productivity when applied to either constant-torque or variable-torque applications. In this series, we highlight a specific application and explain the main improvements in energy and productivity that can be achieved by installing a VSD.

This issue: **PUMPS**

How it works

VSDs transport liquids safely by ensuring the motor driving a pump is running at the correct speed to maintain a safe pressure in a pipe. VSDs benefit all types of pumps including circulating water in HVAC systems, boiler feedwater pumps, industrial process cooling pumps, chilled water pumps, wastewater treatment and clean water applications.

Energy saving

In the UK, pumps use a total of 20 TWh/annum, responsible for the emission of 2.7 MtC/annum (2.7 million tons of carbon). Pumps represent the largest single use of motive power in industry and commerce. Since pumps are variable-torque, they benefit from the largest savings when speed control is employed.

Productivity

VSDs improve system reliability, simplify pipe systems by eliminating the need for control valves and by-pass lines, provide soft-start and stop thereby reducing wear and tear on the motors, and reduce leaks caused by pressure surges. All this leads to lower maintenance and life cycle costs and increases plant availability.

Keep your eye on the ball

Did you know that some 51% of all motor failures are bearings related? Nick Brown, managing director at EDC (Scotland), shares his top tips for keeping bearings in tip-top condition.



Nick Brown, MD at EDC (Scotland)

Incorrect lubrication

On average, re-greasable bearings need servicing every 2000 hours – that's roughly every three months. But don't over-grease, as this can overheat bearings and lead to failure. To control greasing:

1. Ensure relief valves are free from dirt or hardened grease
2. Remove the grease outlet plug or open outlet valve where fitted
3. Slowly pump grease into the bearings - avoid quick-lever actions as pressure will build and damage seals
4. Discontinue greasing if there is any abnormal back pressure

Using the incorrect lubricant

When re-greasing, use only special ball bearing grease with the correct properties. These include a base oil viscosity of 100-160 cSt at 40°C and a temperature range -30°C - +120°C, continuously.

High temperature or hygienic applications require specific greases. Refer to the lubricants section of your motor operation manual.

Misalignment

It's essential that the motor and load be correctly aligned under actual operating temperatures and conditions. Machines that are correctly aligned at room temperature may become badly misaligned due to deformation or different thermal growth associated with temperature change.

Soft foot is one of the main causes of misalignment. Causes of soft foot include a bent or deformed shim, a bolt hole with a burr, a bent motor foot or a deformed machine base.

To avoid problems arising, when torquing the holding-bolts of your motor, use a cross-torque pattern to ensure an even secure fit.

Shaft overload

Belt driven pulleys often put high load directly onto the motor's shaft bearing, which can lead to failure. To avoid this, for motors in frame sizes 160 and above, on belt driven applications fit roller bearings.

Rapid wear of belts is a simple visual sign of an overloaded shaft. Alternatively, check how often your belts are bottoming out - if it is happening a lot, shaft overload could be the cause.

Vibration

Excessive vibration can also lead to premature bearing failure, and is often in one of two areas: the shaft and the housing. Make sure motor mounting bolts are secure as vibration may loosen them.

Check for vibrations using magnetic accelerometers and proximity probes.

Overheating

Ensure your motor is designed to cope with the heat to which it is subjected. For every 15°C cooler you typically double bearing life.

You can check if motor bearings are overheating by using a temperature probe or thermal imaging camera to test bearing temperature. Make sure the readings are within the tolerances of the installed bearing.

Want to find out more? Look out for Nick's Ask the Expert video on bearings maintenance, presented on behalf of ABB. Coming soon.

Landfill site cuts pump power by a third with variable-speed drives

ABB drives cut power use of gas pumps, allowing more energy to be sold into the grid.

A landfill site has saved a third of the power used by motors to pump gas, following the installation of two ABB variable-speed drives (VSDs).

Methane gas extracted from decaying waste at the site is used to generate electricity. The two 45 kW VSDs efficiently control the speed of the motors running the gas compressor pumps, which were previously operated direct-on-line. Maintaining the correct gas pressure from the pumps allows more efficient operation. This means an extra 199,368 kWh per year can now be exported back on to the grid, increasing revenue by £16,946.

“Because the motors are run from the electricity we generate on site, this was obviously wasteful of energy that we could otherwise sell.”

Allan Huggins
Site Manager at Mount Vernon

The solution uses two ABB general purpose drives to provide constant gas pressure to the generators. The VSDs use pressure transducers to feed back the gas pressure to the drives and allows them to control the speed of the motors to maintain the pressure at the correct level.

Patersons Quarries' landfill site at Mount Vernon near Glasgow covers 91 hectares divided into four zones, each operating independently to prevent the migration of gas and other materials. The site also includes a fenced gas management compound. This brings in gas from the zoned sections of the landfill site and burns it to produce heat to convert into electricity.

The site produces 40,000 MW of green electricity a year, enough to power up to 4,000 homes. This is sold by Patersons to Scottish Power Distribution, producing a significant income stream for the site.



A landfill company has increased revenue from electricity generated on its site by almost £17,000 per year with ABB drives.

The gas management compound has four, 45 kW motors which are used to boost gas pressure to 100 mbar to ensure correct combustion in the site's five generators. Two of these motors are used at any one time to provide gas for all of the generators.

“The main problem was that the motors were running at 100 percent speed all the time, whether they needed to or not,” says Allan Huggins, Site Manager at Mount Vernon. “Because the motors are run from the electricity we generate on site, this was obviously wasteful of energy that we could otherwise sell.”

Patterson was interested in gaining a better control of this process to ensure it could always maintain the correct gas pressure. The company approached EDC, the ABB authorised value provider

for Scotland, which it had worked with previously on a project at one of its silica sand quarries. This project had used a VSD to control the pumping of water.

EDC performed an energy appraisal on the booster pumps. This logging revealed that using VSDs to run the compressor pump motors could save a third of the energy used.

Another challenge was that the existing star/delta enclosures were too small to take the VSDs. To solve this, EDC designed custom enclosures to house the drives and other components. These were sited next to the existing enclosures, with interconnections between them.



Contact us at our Erskine office.

Post
 EDC (Scotland) Ltd
 45 Kilpatrick Drive,
 Riverfront,
 Erskine,
 Renfrewshire
 PA8 7AF

Telephone
 Tel: 0141 812 3222

Email
 For general enquiries:
web@edcscotland.co.uk

Who are we?

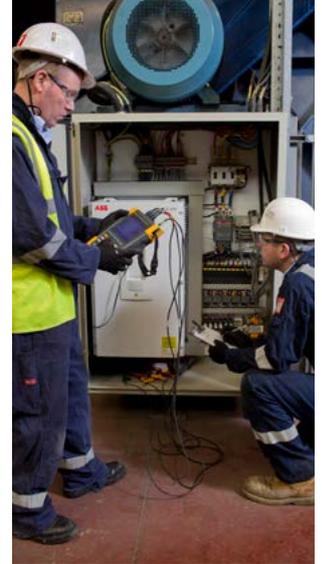
Founded in 1996, EDC (Scotland) Ltd remains a family-owned and managed business providing electrical engineering products and support to a range of industries including:

- Water and wastewater
- Food & beverage
- Air & fluids handling
- HVAC
- Metals processing
- Energy - including renewables
- Chemical /pharmaceutical industries
- Hydrocarbon processing

What we do

As an ABB authorised value provider, EDC (Scotland) carries an extensive range of ABB variable speed drives (VSDs) which can be shipped for next day delivery. In addition, we undertake all of the following:

- Harmonic surveys
- Power quality surveys
- Offshore work
- DriveCare service contracts
- Energy assessments
- Project management
- VSD retrofits, upgrades and repairs
- VSD troubleshooting



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 Ennergise. 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.

