



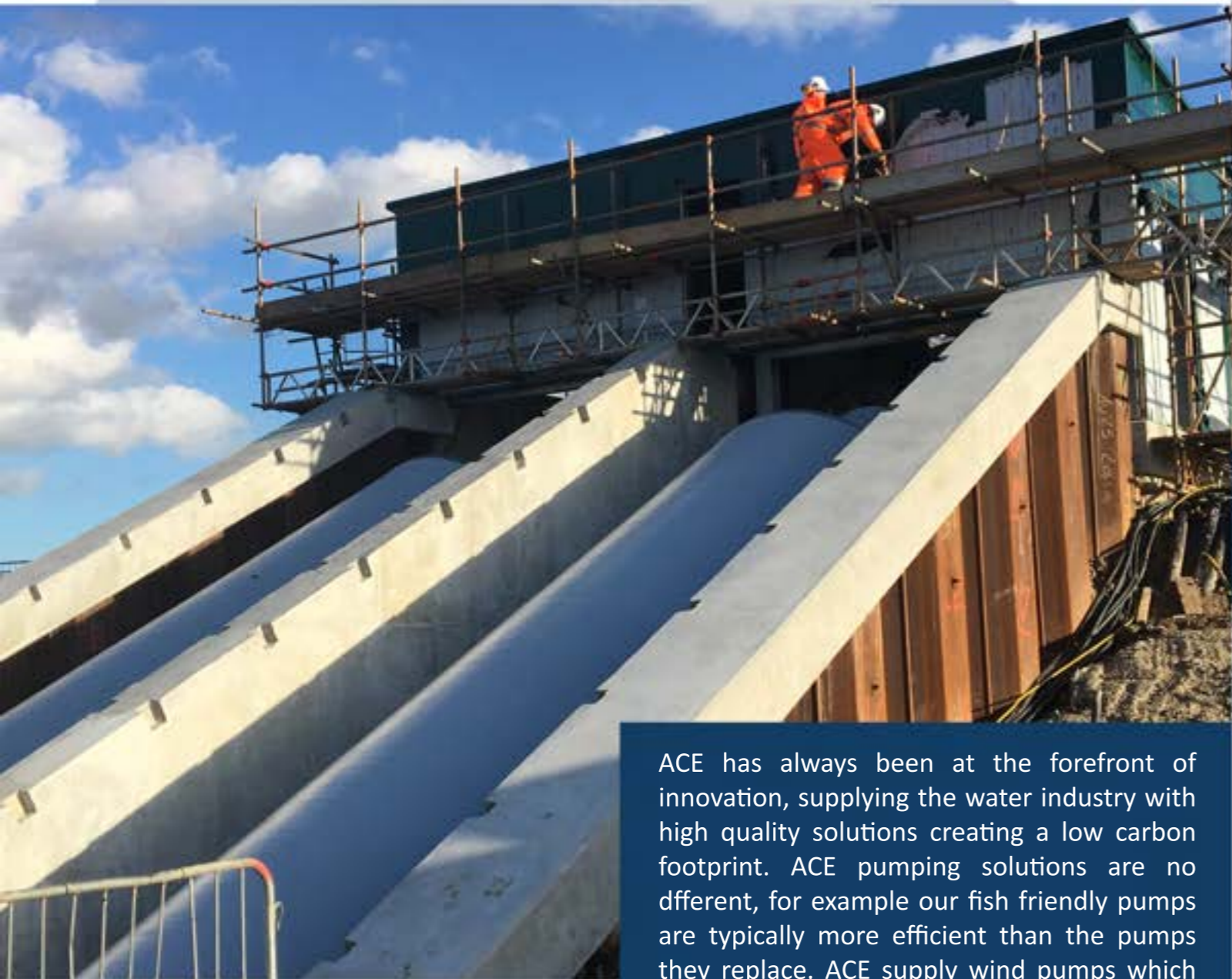
# ACE

Aquatic Control Engineering



## Pumping Solutions

The world's most advanced and efficient pump designs brought to you by ACE and our partners Pentair and FishFlow Innovations.



**ACE pumps are not only fish friendly but also offer the optimal TOTEX solution.**

ACE has always been at the forefront of innovation, supplying the water industry with high quality solutions creating a low carbon footprint. ACE pumping solutions are no different, for example our fish friendly pumps are typically more efficient than the pumps they replace. ACE supply wind pumps which require no energy. Our fish friendly pumps have no equal in terms of energy usage compared to traditional pumps. ACE pumping solutions can also help reduce the size of the civil structures, thus making further carbon savings.

Aquatic Control Engineering combines some of the worlds most advanced and efficient pump designs.

Safe passage of fish is integral to the development of our pump technology. Using specially developed adaptations of traditional pumps and following ruthless testing and monitoring: ACE pumps provide the perfect solution.

Our fish friendly technology is economical. The requirement for land drainage pumping stations to be fish friendly means slowing them down. Typically, by as much as a third when compared to non-fish friendly land drainage pumps. This reduced speed, although causing the pump to be larger, greatly increases asset life, reducing maintenance and improved overall resilience of land drainage pumping stations.



The World's Most Efficient Pumps

# Quality Service



ACE has an in-house Operations and Project Management team to provide additional expertise and specialist installation services. Our installations are carried out by experienced site engineers, making the operation swift and safe adhering to ISO45001. Where the application is more challenging, our team relish the opportunity.



## Highly Accredited

We pride ourselves on offering only the highest quality, in everything we do - peace of mind comes as standard due to the level of service, expertise and experience our team members provide on a daily basis.

ACE are certified for the following: ISO 9001, ISO 14001, ISO 45001, Constructionline GOLD and Achilles Verify UVDB.



Where projects require items such as electrical control, or civil works, ACE work with a number of leading expert contractors, managed in house by our projects team. ACE can therefore assist you in any project, large or small, simple or complex. ACE are happy to tailor our level of involvement to your requirements, so can either provide expert labour to simply fit the equipment to your structure, or provide a full CDM managed package, including relevant subcontractors, fencing and welfare.



## Quality Service...Peace of Mind Comes as Standard

- ▶ Site Installation & Servicing
- ▶ Specialist Expertise
- ▶ Detailed Analysis
- ▶ Experienced Support
- ▶ In House NEBOSH & IOSH Managers
- ▶ Highly Trained Site Engineers
- ▶ Experienced in all Environments
- ▶ Tailored Service Packages



## Installation Services

ACE has an in-house Operations team to provide additional peace of mind and specialist Installation services.

All ACE site engineers hold CSCS Safety cards and are trained in working in confined spaces. The Health and Safety skills set includes PASMA scaffold erection, IPAF Operator, Emergency First Aid at Work, Abrasive Wheels and Water & Flood Awareness Training to name a few. Our site supervisors have SSSTS/ SMSTS training supported by our own in-house NEBOSH and IOSH managers.

# Turnkey Packages ▶

Following over 25 years of experience in the water industry, ACE have built up a strong supply chain of experts and wide-ranging knowledge in a variety of sectors.



ACE now regularly manage multi-discipline projects, using both in house personnel and specialist contractors. To further reduce hassle, we are also happy to deliver an entire M & E package, including the provision of all site services with fully trained operatives to assist you.

Within our supply network, we have specialist designers and manufacturers that can accommodate bespoke design and tailoring of their products, to simplify installation or make operations suit our customer's requirements.

## The Complete Package

ACE support our customers in CDM compliance, full packages including minor civil, mechanical, electrical and hydraulic elements, design liaison and consultancy and quick response backup.



### Turnkey Solutions...Expert Supply Chain

- ▶ Over 25 years Experience
- ▶ Motor Control Centres
- ▶ Wedscreen Cleaners
- ▶ Flow Control
- ▶ Kiosks & Walkways
- ▶ CFD Analysis
- ▶ Tailored Packages
- ▶ Pump Canisters



ACE feel that providing excellent service to our customers is paramount, and that using our experience and knowledge working on multi discipline projects is key to success. Over the years, we have built up excellent relationships with the industry's leading experts in electrical control, actuation, commercial diving and civil engineering. Allowing us to offer a fully inclusive package from design to full completion.

We tailor packages to suit requirements and budget, so we can either solely supply the mechanical equipment, or provide additional services such as surveying (including under water), installation, automation and control, inspection and maintenance.

# Archimedes Screw Pumps

The concept of an Archimedean screw is over 2000 years old, and has many uses in modern life. Today the most common design sees the screw rotating in a static trough. This causes various issues, from fish getting caught between the moving screw and the static trough, to the fact that water slips between the trough and the screw leading to inefficiencies. As well as this wear and tear is high and civils work expensive.



The design is simple and ingenious. Using high tech materials such as the Vinyl Ester based composites, prevents osmosis related damage and ensures an economic, efficient solution. A major factor in achieving efficiency is that there is no leakage path, and the pumps ability to pump into a static head of water, reducing the effective lift.



## Every Drop, to the Top

Our partners, Fish Flow Innovations, have revolutionised the use of Archimedean Screws by being loyal to the original concept of using the screw in an enclosed rotating tube. This way every drop that enters the screw is moved to the top, vastly improving efficiency, with obvious benefits to running costs, and even savings in construction of the surrounding buildings and civil structure.

## An Archimedean Revolution...Every Drop, to the Top

- ▶ Compact Design
- ▶ Quick Installation
- ▶ Reduced Civil Works
- ▶ Vastly Reduced Wear
- ▶ Unique, Patented Design
- ▶ Revolutionary Results
- ▶ No Leakage, Fixed Drum
- ▶ Low Maintenance
- ▶ Exceptional Efficiency



The pump is delivered as a single module, which can be installed in a matter of hours, and only requires a very simple civil structure, vastly reducing civils costs when compared with a traditional screw pump.

The ACE archimedean screw pump has been developed with the key design criteria being absolute safe passage for fish that enter the pump. In developing a specially designed leading edge for the pump and removing pinch points between the screw and trough this directly benefits efficiency and energy consumption. Making this the perfect pump solution.

# Axial Flow Pumps ▶

ACE are proud to work alongside Pentair Nijhuis, as their sole UK supplier of fish friendly pump equipment. Pentair Nijhuis are a world renowned pump manufacturer, with prestigious pump installations throughout the globe, and facilities that ensure the very best design, manufacture, testing and after sales service.



## Fish Friendly

Pentair Nijhuis have developed a fish friendly pump design, which ensures fish can enter and exit the pump system without damage. The impeller has a unique leading edge which ensures fish are not struck on entering the pump. The pump also incorporates vanes to guide fish unharmed through the system. Independent testing demonstrated that over 97% of fish and 100% of eels sampled, passed through the pump with no harm. This has been proven through multiple independent studies.

## Optimal Efficiency & Low Running Speeds

The pump design also delivers vastly improved efficiency. Driven by variable speed drives ensures optimal efficiency and low running speeds. This improves passage for fish and eels, reduces noise and vibrations. Maintenance requirements are also reduced.



## Axial Flow Pumps...Bespoke Solutions

- ▶ Fish Friendly
- ▶ Optimum Efficiency
- ▶ Low Running Speed
- ▶ Multiple Configurations
- ▶ Tailored Solutions
- ▶ New Build or Replacement
- ▶ Versatile Applications
- ▶ Consistent Results



During the design of your pumping station, ACE and Pentair Nijhuis are on hand to offer advice, engineering expertise and make recommendations. Taking into account operation and maintenance, inspection, installation and value for money. All designs can be customised to suit the site layout, and where required, we can provide lifting systems that allow pumps to be maintained with minimal effort and hassle. Design is carried out using 3D modelling software, which as well as providing an excellent, accurate visual representation of the finished product, it also allows computational fluid dynamics (CFD) to prove and refine the concept pre manufacture.

# Wind Pumps

For hundreds of years the Dutch have been harnessing the wind to pump water. The windmills provided by ACE are the same as those used to this day at many locations across the Netherlands. ACE windmill pumps are designed for land drainage purposes. Utilising impellor technology means that with only 12mph wind, 1m of water can be pumped per minute with a 1m lift.



## A Modular Design

The Wind Pump is a modular design, using a pre-cast concrete base and off-site fabricated tower. Enabling a quick installation time. Usually with an excavator for lifting, typical installations take only two days to complete in total. However, after preparation of the site the unit can be assembled within one working day.

The tower is available in 4m and 7m heights, dependant on location and planning consent (Only required for a 7m pump).



## Minimal Maintenance

Once installed, the pump requires virtually no human interaction. Using a mechanically operated float to stop the windmill pumping when the desired water level is achieved.

With auto greasing facilities, the Wind Pump requires only minimal annual maintenance to ensure smooth running and removal of blockages.

## Wind Pump...Proven Technology

- ▶ Long Operational Life
- ▶ Simple Construction
- ▶ Prefab Concrete Foundation
- ▶ Adjustable Level Control
- ▶ No Electricity/Diesel Bills
- ▶ Lightweight with Backflow Protection
- ▶ Environmentally Friendly Construction
- ▶ Fish Friendly Options Available

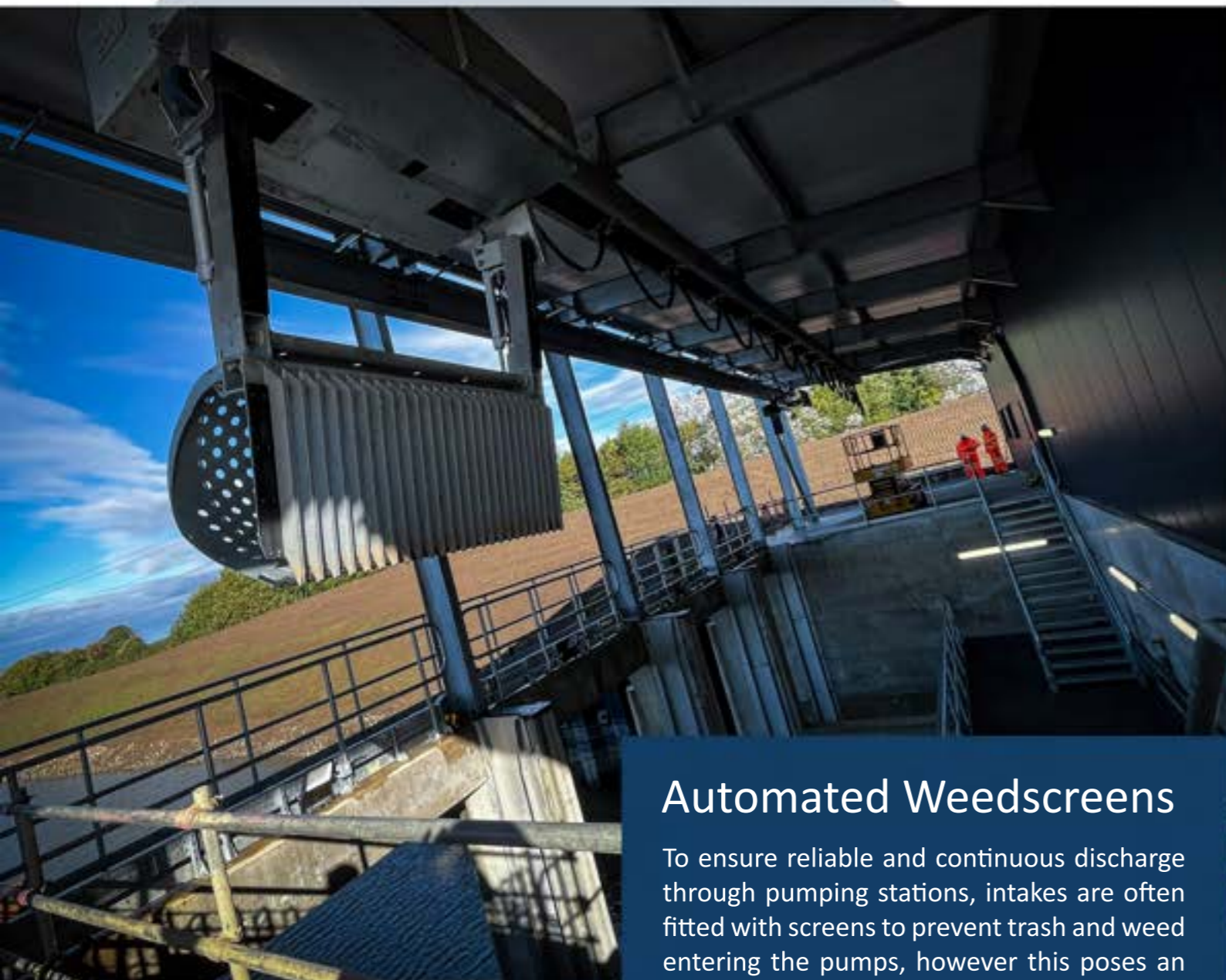


## Multiple Uses

The wind pumps are ideal for remote locations, and common uses are maintaining water levels in irrigation ditches, wetland creation and land drainage. They are also perfect where mains power is not viable, or in conjunction with our water level management equipment.

# Associated Products ▶

ACE not only have the UK's broadest range of fish friendly land drainage pumping solutions, but also offer a complete range of associated products.



## Automated Weedscreens

To ensure reliable and continuous discharge through pumping stations, intakes are often fitted with screens to prevent trash and weed entering the pumps, however this poses an issue with clogging if not regularly maintained. In some cases, this can be unworkable using manual methods, meaning either heavy labour requirements or unreliable operation.

ACE supply and install a range of solutions to automatically detect when screens become obstructed and clear the screen of debris without any human input.

## Pumped Flap Valves

Flap Valves that are installed on the outfall of a pumping station need to be designed to accommodate the special requirements.

Due to the velocity and power of the water they are subjected to, pumped flap valves must be designed and manufactured to withstand the the flow of the pumping station.



## AQUIKO...Water Flow Control Manufactured in the UK

ACE has over 25 years of experience in the supply and installation of specialist equipment to the drainage and water industry. Over the years ACE's reputation and expertise has grown to us being the UK market leader in HDPE and Stainless Steel water flow control products.

It is this expertise that has driven the development of the AQUIKO product range. We tailor new designs to suit the UK market and our customers. The many years of our ACE team supplying and installing these products in the UK, has enabled us to work with improvements in materials, use intelligent design and develop innovative eco friendly solutions in our AQUIKO products.



## Penstocks

Penstock are regularly installed at land drainage pumping stations for either control or isolation of water.

ACE manufacture penstocks through their own brand of water flow control products AQUIKO. All AQUIKO products are designed and manufactured in the UK.





[www.aquaticcontrol.co.uk](http://www.aquaticcontrol.co.uk)  
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