ECS Water Control

Archimedes Screw Pumps

Installation, maintenance, repair and refurbishment

Landustrie

Design, manufacturing and R&D

- **An engineering team assesses the requirements of each application and designs the best solution possible.**
- **Individual screw pumps can be up to 25 metres long.**
- **A screw pump can be designed to lift up to 12 m in height with a maximum flow of 12,000 l/s.**
- **Every design is created with cutting-edge software and analysed using finite element analysis (FEA) software to deliver the most durable and efficient screw pump.**

APPLICATIONS

The LANDY Archimedes screw pump is suitable for any location where there is a need to pump water to a higher level. Commonly used by water authorities and drainage schemes, there is a wide variety of locations where Landustrie screw pumps are currently operating, from the cleanest swimming water to debris-laden storm water.

Examples are:

- Inlet pumping stations in waste water treatment plants
- Intermediate pumping stations in waste water treatment plants
- Return sludge pumping stations
- Irrigation projects
- Drainage projects
- Reclamation of wetlands
- Storm water applications
- Industrial processes
- Wild water rides in fun parks

Durable & trouble free

The LANDY Archimedes screw pump operates at a relatively low rotational speed, which results in very low levels of wear and tear on the mechanical components and ensures decades of trouble free operation. The screw is able to cope with large debris, resulting in a system that operates with only a low level of maintenance.

There is a wide range of applications that can benefit from a screw pump, including those with a high grit content or acidic fluid conditions. It is therefore crucial to ensure that the correct materials and coatings are selected in order to guarantee long lasting reliability for years to come.

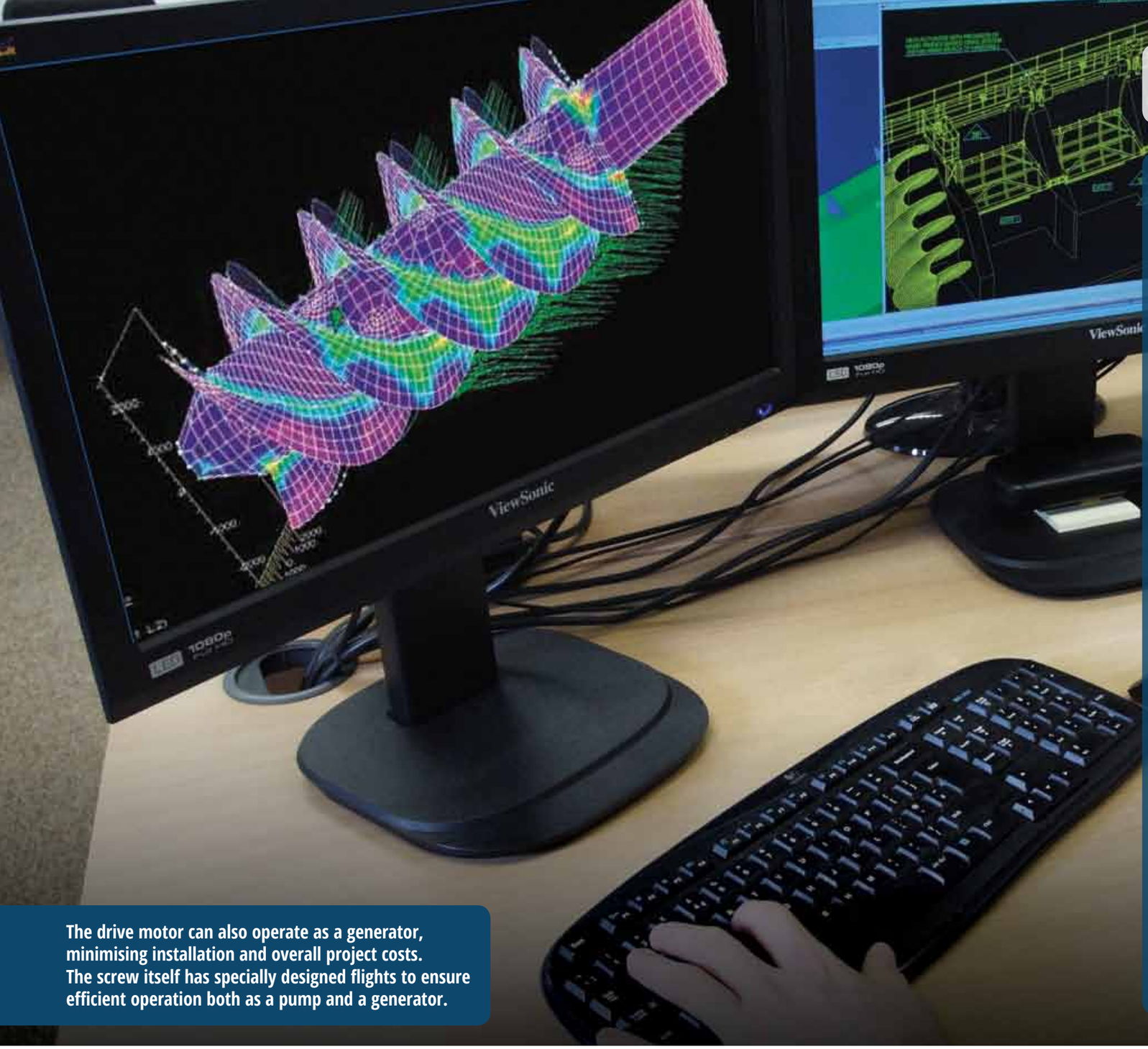
Environmentally friendly

All Landustrie screw pumps have a high level of fish friendliness as standard, based on the low rotational speed and large openings between the blades that have been proven by several scientific tests in which Landustrie has participated.

In addition, Landustrie has developed a special wristband around the outside diameter of the screw that rotates in the trough with minimal clearance. This unique LANDY design prevents damage to fish at the inlet where the blade and trough interfaces meet. The diameter of the blades will be increased gradually from the tube towards the outside diameter of the screw pump and ultimately merge with the "wristband".

A thicker, round edge at the beginning of the blades causes pressure waves that are recognised by the fish, leading them away from the blades. The result is the most fish-friendly screw pump available that allows fish migration where previously it was impossible.

Bearings, installation and upgrade options



The drive motor can also operate as a generator, minimising installation and overall project costs. The screw itself has specially designed flights to ensure efficient operation both as a pump and a generator.

Lower Bearing

At the lower end of the screw, a bearing is installed to keep the screw in place and to absorb the radial forces. Landustrie has developed three types of lower bearings to suit different applications:

The ECO-friendly bearing is sealed for life and requires no annual maintenance. The design of the ECO-friendly bearing allows for 3-dimensional self-alignment, which also absorbs the expansion and contraction of the screw in changing temperatures. With no grease pump or lubrication lines, it is quicker and easier to install and it can be retro-fitted to existing installations to reduce maintenance costs.

Alternatively, there are two grease-type bearings: conventional and long life. These more conventional bearings have a similar installation time and operational costs. The long life bearing offers a longer operational lifetime due to its special 3-dimensional self-alignment.

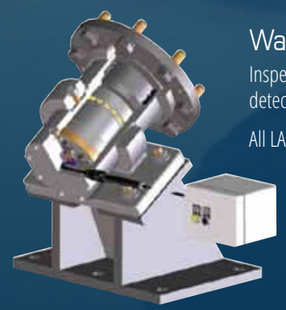
Foot bearing

Upper Bearing

The standard upper bearing is a LANDY foot-mounted bearing, which is specially-designed by Landustrie and is mounted on a foundation adjacent to the drive unit. If a watertight connection between the drive unit and the screw is not required, a LANDY foot-mounted bearing is the one to choose.

The LANDY wall-mounted bearing is a unique bearing fully designed, tested and patented by Landustrie. The bearing is mounted to the wall with special anchors, instead of to the floor. Using a special seal on the outside and an extra concrete closure on the inside, the connection between the drive unit and the screw can be made completely gas- and airtight. This is a clear advantage when hazardous gases may be present with the water that is being pumped.

Wall bearing

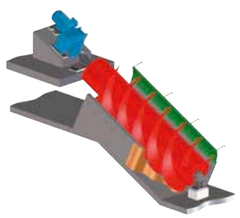


Water-in-oil detection

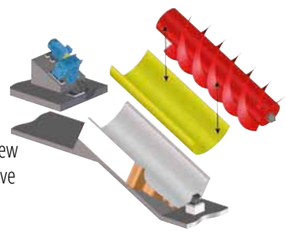
Inspection of the lower bearing can be challenging so Landustrie invented the water-in-oil detection alarm, which can be installed as part of a new project or on existing installations.

All LANDY Eco-friendly lower bearings can be fitted with the water in-oil detection system.

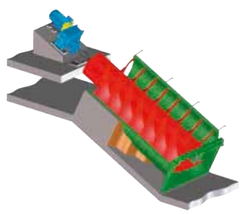
Concrete trough
The trough shape is made of concrete. The screw is used to create the exact clearance, by using a special mortar and rotating at low speed. The drive unit is attached to a concrete foundation.



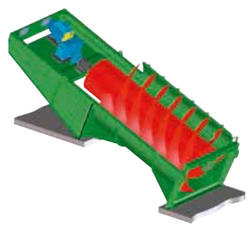
Casting mould
A Landustrie casting mould (yellow) is used for concreting the trough. After casting, the mould is removed and the screw is placed into position. The drive unit is attached to a concrete foundation.



Steel trough suitable for grouting
The steel trough is fastened to the structure and then cast with concrete. The drive unit is attached to a concrete foundation.



Compact trough
This trough is fully self supporting, including the drive unit. At both ends there will be a small foundation where the trough will be attached.



Service for any screw pump

Landustrie offers both maintenance and repair solutions for any screw pump installation. Its experienced service department can handle both routine maintenance as well as urgent repairs when or wherever they may occur.

In addition, replacement parts are usually available from stock and can be quickly dispatched to site for quick maintenance, ensuring that and down-time for maintenance is minimised.

The Archimedes screw pumps are always installed by dedicated ECS service teams. The team can also carry out re-scredding troughs, service work and general maintenance of screw pumps.

Refurbishment

ECS can restore the quality, performance and reliability of any existing screw pump installation. These projects offer improved cost and energy efficiency compared to the original installation

After sales

The extensive knowledge of the manufacturing process and decades of experience of operating and maintaining Archimedes screw pumps, makes ECS the clear choice to provide full after sales support for any screw pump. The specially-trained engineers can deliver on-site support as well as repairs, problem solving, training and upgrades to all types of screw pump.

ECS provides Sales & Service support for all makes and models of Archimedes Screw Pump.

For more information: info@ecseng.co.uk

Additional services

More than Archimedes Screw Pumps
ECS Engineering Services has over 20 years experience in delivering high quality, reliable and cost effective engineering solutions, specialising in bespoke design and construction of water, energy and environmental processing and management projects.

Metal Fabrication
Using our large capacity in-house fabrication services, which have CE Marking approval to EXC3 in combination with our well equipped and highly skilled engineers we can complete structural steelwork, bespoke fabrication work and access metalwork to the highest standards.

Water Control
ECS has the expertise and capacity to design and install a wide range of water control engineering products and projects from Archimedes screw pumps to high quality weirs, flap valves, sluices, water barriers and penstocks.

Site Services
With a complete range of site services available, ECS offers a full turnkey project managed service for mechanical and electrical installations. Typical projects include managing civils contractors and supplying pipework, mobile cranes and dive teams, to ensure that every project is installed and commissioned to the highest standard.

Environmental
While we maintain accreditations in BS EN ISO 9001, 14001 and 18001, our safety systems have also been recognised as some of the best in the industry by UVDB and RoSPA. ECS offers a range of energy saving products and services, providing designs, construction, materials and working practices that have a lower impact on the environment.

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