

XYLEM INDUSTRIAL SOLUTIONS

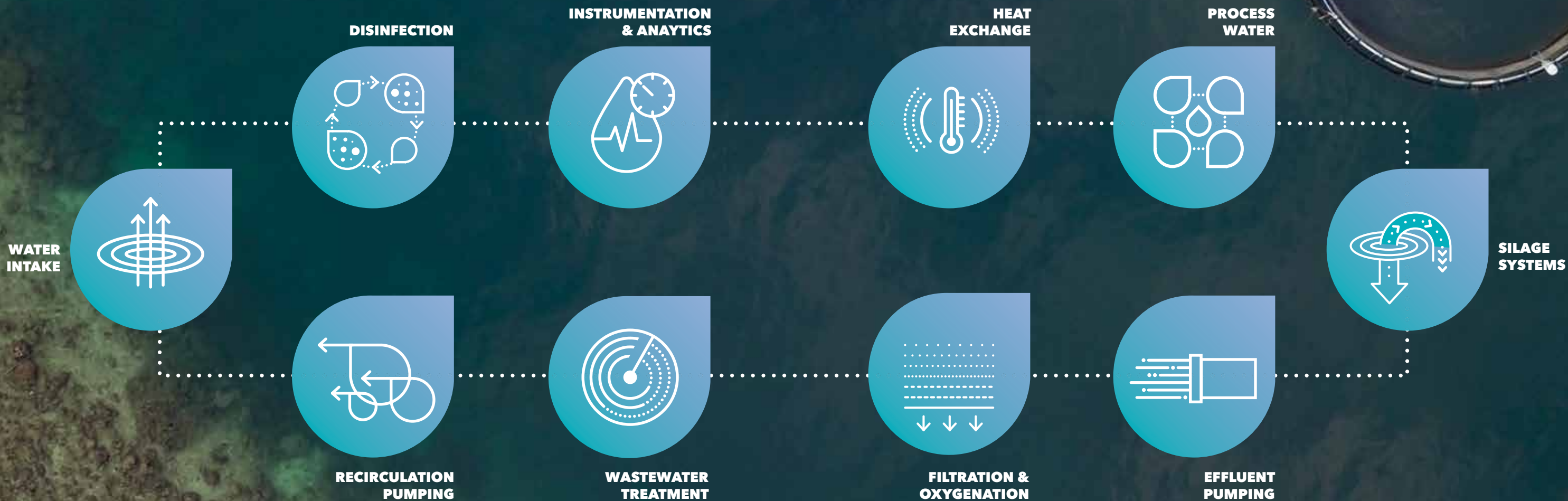
**INDUSTRIAL-STRENGTH
THINKING
SOLVES MORE THAN WATER**

AQUACULTURE

Smart water management for
healthy and sustainable production

Advanced integrated solutions for every stage.

At Xylem, we've been partnering with fish farmers, OEMs, integrators, well boat manufacturers, and processing plants for decades. From broodfish to market, we understand the challenges facing the aquaculture industry. To help you control costs while enhancing your operations, we design, manufacture, and maintain a wide range of systems for every aquaculture application.



Productive aquaculture starts with clean water.

Whether in Land-Based RAS and Flow Through Systems or Cage Farms, nothing is more critical to your success than H₂O. Water quality, however, is getting increasingly hard to maintain and monitor. With new pathogens, more frequent algal blooms, and drug-resistant sea lice, the risks to effective production and profitable growth continue to increase.

At Xylem, our water management engineers and aquaculture experts are constantly developing smarter technologies to make your job easier – and your yields higher. From better hydraulic systems that prevent sea lice to more effective solutions for pathogens, we can help you turn your biggest challenges into new opportunities.

**\$6.0
BILLION
LOSS**

BIO- SECURITY ISSUES

per year in the global aquaculture industry from diseases caused by pathogens due to bad water quality and treatment¹

**\$1.0
BILLION
LOSS**

SEA LICE

per year due to infestation of sea lice caused by inefficient intake and process water management in cages²

**\$4.0
BILLION
LOSS**

HARMFUL ALGAL BLOOMS (HABs)

is the annual worldwide economic impact of algal biotoxins on human health from seafood³

1. Source: World Bank. Reducing disease risks in aquaculture. World Bank Report #88257-GLB.

2. Source: IntraFish Media. The Sea Lice Report.

3. Source: United Nations Environment Programme. Global Environmental Outlook.

Working with Xylem means working with unrivaled experts.

For more than 170 years, Xylem has led the way in pumping and related technologies, including water supply, pressure boosting, industrial water management, heat transfer, treatment, wastewater and fire protection solutions. We've kept mission-critical operations running reliably in everything from nuclear power plants to navy ships to mines and more. And we're ready to help you get more from your water and fluid-management systems any time with the right combination of these great brands:

AANDERAA

BS **Bellingham
+ Stanley**

-ebro-

FLYGT

LOWARA

O-I Analytical

SI Analytics

Standard **X**change

WEDECO

godwin

WTW

YSI

Xylem Solution for Aquaculture

Xylem engineers the highest quality equipment and connects it in ways that reduce the need for water, energy and people power. We offer a full range of rugged, reliable systems for every stage of an aquaculture operation.

Pumps



Submersible Pumps

Our patented self-cleaning pumps set a high standard for reliable clog-free operation and solids control. With intelligent pump functions and advanced monitoring and control equipment, they adapt to operating conditions in real time to deliver sustained high efficiency at lower, more predictable costs.



End Suction Centrifugal Pumps

With capacities up to 4,600 m³/h, these cost-effective, rugged multipurpose end suction pumps are available in a wide range of sizes. The compact designs save space and are easy to maintain. A broad spectrum of materials and mounting options deliver quality performance specific to your application.



Multistage Pumps

With stainless steel or cast-iron construction and multiple suction and discharge orientations, these pumps deliver flows up to 1,800 m³/h and are designed to handle virtually any high-pressure application, including filtered water, water transport, and general applications.



Column Pumps

Capable of delivering operating efficiencies up to 92% and significant cost savings, Xylem's column pumps are available in multiple metallurgies, including cast irons and stainless steels. And because we mount drivers directly above the pump, you'll also see savings in floorspace and station footprint.



Automatic Self-Priming Pumps

Get automatic priming to 8.5 meters of suction lift and indefinite dry running capability for water, wastewater or industrial fluids with solids up to 125mm in diameter. Our pumps include industry-leading advanced monitoring and control technology for total peace of mind.

Packaged Pump Systems



Booster Packages

Our pre-configured variable speed pressure booster packages provide maximum value, proven reliability, superior energy efficiency and better system protection in one integrated solution with standard operating pressures up to 21 bar and flows to 132 liters per second.



Packaged Pump Stations

These packages include all necessary components for quick, easy setup and operation. Smart controllers assure reliable, optimized performance and our unique patented self-cleaning pump sump design minimizes fat and sediment build-up for optimized performance.

Mixing Equipment



Mixers

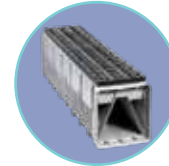
From unique adaptive mixers that set mixing output for exact process needs to submersible or dry-installed mixers and agitators, our mixing solutions have been designed to save energy and time.

Treatment Products & Systems



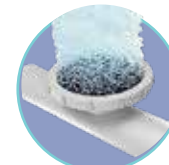
UV and Ozone Treatment Systems

Highly-efficient UV treatment and ozone oxidation systems provide chemical-free, environment-friendly solutions for disinfection and wastewater treatment – ensuring the biosecurity of your operation.



Filtration Systems

Whatever your application, we can help you design and engineer the energy-efficient, high-performance filtration system you need with the longest possible filtration cycles to meet your permit requirements at the lowest possible costs.



Biological Treatment Systems

Xylem provides biological wastewater treatment solutions such as diffused aeration, oxidation ditches, sequencing batch reactors (SBR), and state-of-the-art controls that drive efficient operations. Our advanced process performance optimizer provides real-time wastewater process measurement and control to optimize operations and reduce energy consumption while stabilizing the treatment process and maintaining effluent quality.



Silage Systems

Our silage solutions enable a more hygienic, efficient handling and treatment of dead fish. From mill pumps that reduce waste into small pieces to the mixers and circulation pumps that keep the storage tank homogenous and dissolved, we can custom engineer a system based on the exact specifications of your operation.

Monitoring, Analytics and Control Solutions & Services



Advanced System Intelligence

With our vast suite of intelligent analytics, monitoring, drives and controls, you get unmatched knowledge of your operations that eliminates guesswork and worry. Whether you are running a remotely installed diesel driven pump or operating a fully integrated process system, our connectivity solutions can be tailored to your exact needs.



Water Quality and Quantity Instrumentation & Sensors

Our premium laboratory, field, portable, and online instrumentation measure water velocity, flow, discharge, currents and waves, while our sensors, instruments, software, and data collection platforms make environmental water quality monitoring and testing easy.

Heat Transfer



Heat Exchangers

Whether you need pre-engineered or custom TEMA shell & tubes, brazed or gasketed plate or air-cooled heat exchangers, Xylem can help you evaluate, select, and install the right solution. Given the importance of stable water temperature in aquaculture, our heat transfer technologies perform reliably across a range of applications.

Our solutions are also available for rent

We design, engineer and manufacture our own equipment. And we rent it, too. Whether you need a fast-track, temporary fix or cost-effective long-term solution, we can help keep your operation up and running with efficiency, reliability and peace of mind. www.xylem.com/RentalSolutions

xylem
rental
solutions



LAND-BASED RAS

Recirculating Aquaculture Systems are complex. With up to 95% of the water in a RAS operation recycled, water quality is absolutely crucial to ensure optimal conditions and that the lives of hundreds of thousands of fish are not at stake. Xylem offers a range of water and wastewater management solutions to ensure safe operations of your RAS.

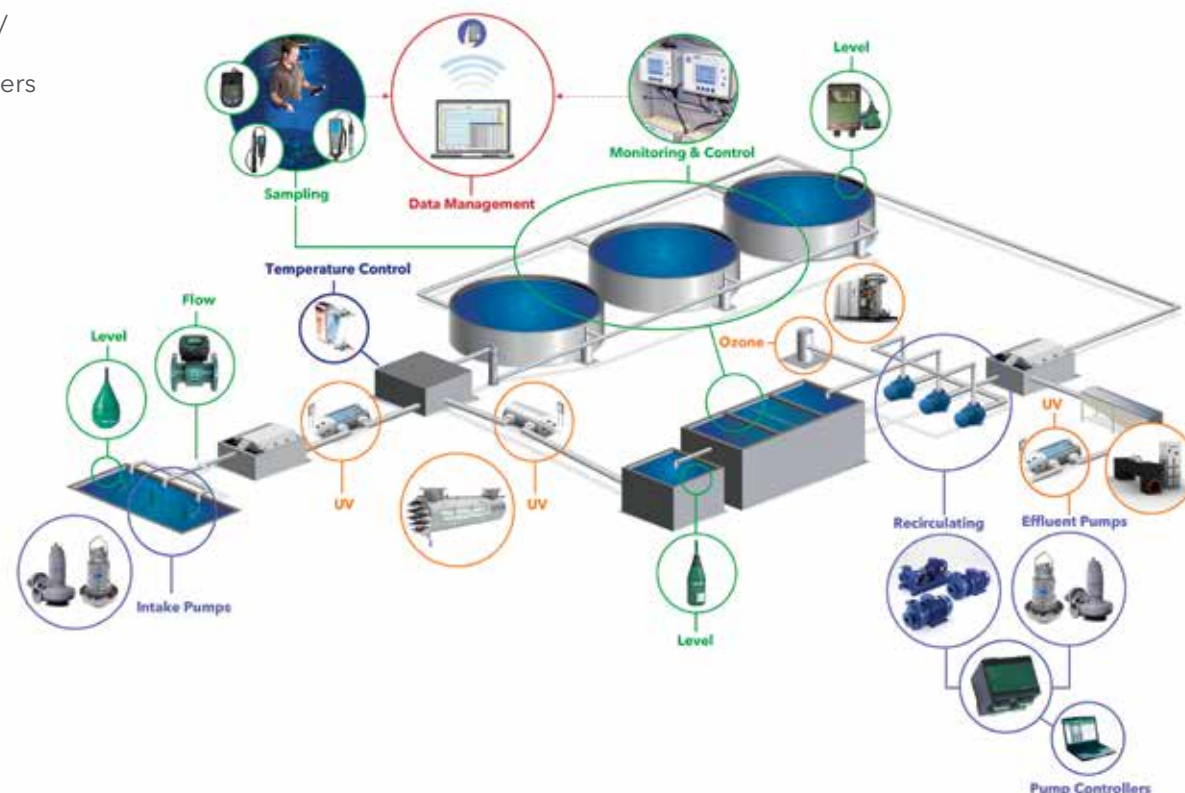
Solutions for RAS:

- Analytics
- Data Management
- Disinfection
- Pumping
- Heating / Cooling Exchangers

Featured Products:



Wedeco Acton PE
UV Systems made of PE specifically designed for Aquaculture applications



LAND-BASED FLOW THROUGH SYSTEMS

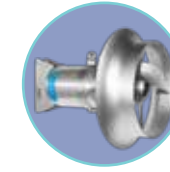
Whether the intake water is from a stream, a lake, river or deep well, the flow and movement of water is crucial in a land-based flow through system. Optimal flow rates ensure that the respiratory requirement of the species are met and metabolic wastes are flushed out.

Xylem's reliable, energy-efficient pumping equipment protects both the health of the fish and your bottom line.

Solutions for Flow Through Systems:

- Water Intake Pumps
- Intake Water Disinfection (UV)
- Propeller Pumps
- Mixers
- Sampling Instrumentation & Analytics
- Monitoring Instrumentation & Analytics
- Wastewater Pumping
- Wastewater Treatment (UV, Ozone, Biological)

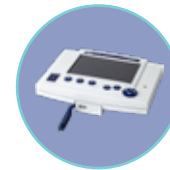
Featured Products:



Flygt 4600
Compact mixer in robust design in many execution variants



Lowara e-NSC
End suction single stage water pumps with premium efficiency



WTW IQ 2020
Multi-parameter system for up to 20 sensors with USB interface, remote maintenance and remote communication



Wedeco DURON
Flexible, modular, UV disinfection system for open channel applications

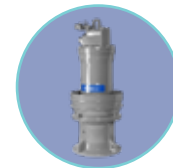


Whether offshore or on the coast, open water cage farms come with their unique set of challenges, including diseases, pathogens and parasites. Xylem's hydraulic experts have partnered with companies pioneering the latest innovations in cage design to provide pumping and treatment solutions that ensure fish welfare and minimize mortality without the use of harmful chemicals.

Solutions for Cage Farms:

- Water Intake Pumps
- Mixers
- UV and Ozone Disinfection
- Sampling Instrumentation & Analytics
- Monitoring Instrumentation & Analytics
- Chopper Pumps
- Silage Systems

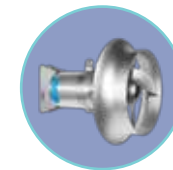
Featured Products:



Flygt 7000
Submersible Propeller pumps for cost effective transport of large volumes of water



WTW IQ Sensornet
Digital system to monitor multiple water quality parameters (O₂, NH₄, NO₃, COD, PO₄, sludge level, etc.)



Flygt 4600
Compact mixer in robust design in many execution variants



When using well boats for transporting live fish, the wells must be hygienic and the transport water changed regularly. Xylem offers pumping equipment and effective UV disinfection that provides increased biosecurity. By treating the transport water with UV, fish pathogenic agents are inactivated, which greatly reduces the risk of infection to cargo or the environment. In addition, using our ozone generators to add ozone to seawater for disinfection is an effective way to keep the tanks hygienic and clean.

Solutions for Well Boats:

- Water Intake Pumps
- Water Intake Circulation
- Chopper Pumps
- Silage Systems
- UV and Ozone Disinfection

Featured Products:



Flygt 3000
Cast iron and stainless steel submersible pumps with N technology



SMOevo^{PLUS}
Ozone System for cooling water treatment



Wedeco Quadron
Powerful and compact medium-pressure UV disinfection system with unique hydraulic design features to weather all site conditions



Hygiene is the most important factor in a processing plant. Improper handling of fish and poor hygienic conditions can not only cause millions of dollars in losses but also have adverse effects on community members and long term reputation. Xylem offers effective solutions for pumping and UV disinfection of intake water, silage systems for hygienic management of waste and recovery of by-products, sludge management and wastewater treatment solutions.

Our silage solutions are used for hygienic handling and treatment of residual raw materials. The residual raw materials from fish are loaded into an ensiling tank where a Xylem pump cuts the fish into small pieces. After cutting, formic acid is added to start the silage process.

The finished silage is then pumped into a storage tank where it is kept homogeneous and dissolved by either a mixer or a circulation pump.

Solutions for Processing Plants and By-Products Handling:

- Water Intake Pumps
- Mixers
- UV and Ozone Disinfection
- Sampling Instrumentation & Analytics
- Monitoring Instrumentation & Analytics
- Chopper Pumps
- Silage Systems
- Wastewater Pumping
- Wastewater Treatment

Featured Products:



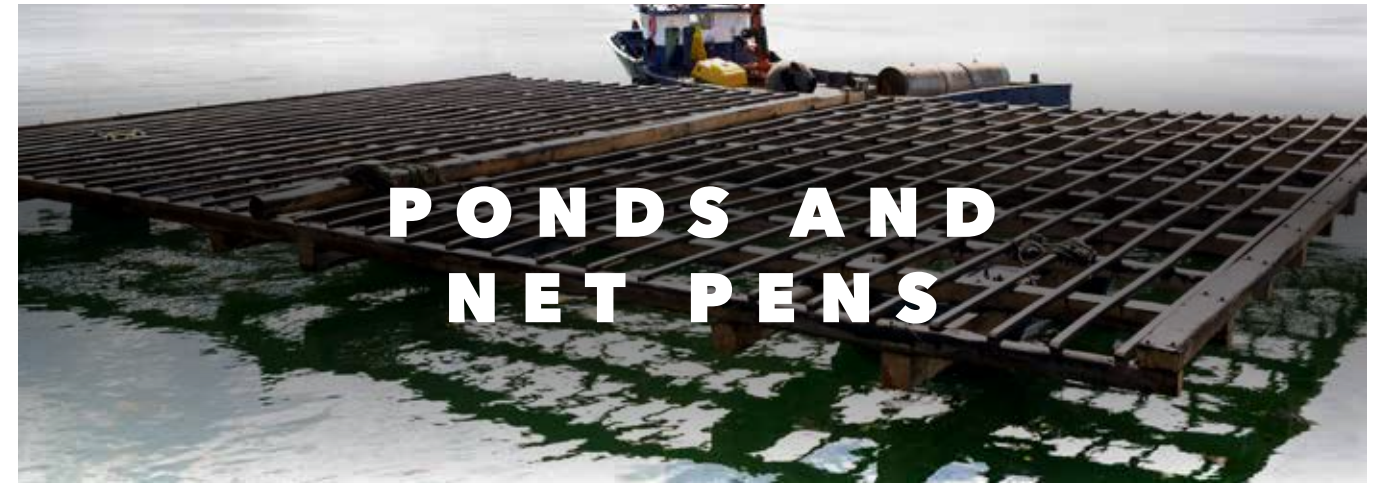
Flygt 3000
Cast iron and stainless steel submersible pumps with N technology



Silage systems
Hygienic and efficient waste handling and treatment systems



Flygt 4320
Low-speed submersible mixer with unmatched energy efficiency



Farming fish in pond is a simple and inexpensive way to fish and has a long history. For commercial fish farming ponds, fresh water supply and efficient aeration are important to solve water quality issues. Xylem offers pumps for controlled water supply from a river or canal, as well as air systems with blowers and fine bubble spreaders. Aeration of the water not only increases the amount of oxygen available to the fish, it also improves the waste removal processes.

Since water quality monitoring is crucial, Xylem offers instrumentation that measures water flow, dissolved oxygen and pH, as well as alerts operators to potential problems.

Solutions for Ponds and Net Pens:

- Water Intake Pumps
- Propeller Pumps
- Mixers
- Automatic Self Priming Pumps
- Jet Aerators
- Sampling Instrumentation & Analytics
- Monitoring Instrumentation & Analytics
- Wastewater Pumping

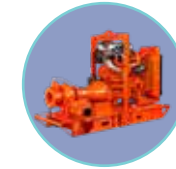
Featured Products:



Flygt Jet Aerators
Mechanical aeration systems with N technology



YSI Hand Held Instruments
Cost-effective monitoring and sampling solutions to effectively monitor and manage your aquaculture operation

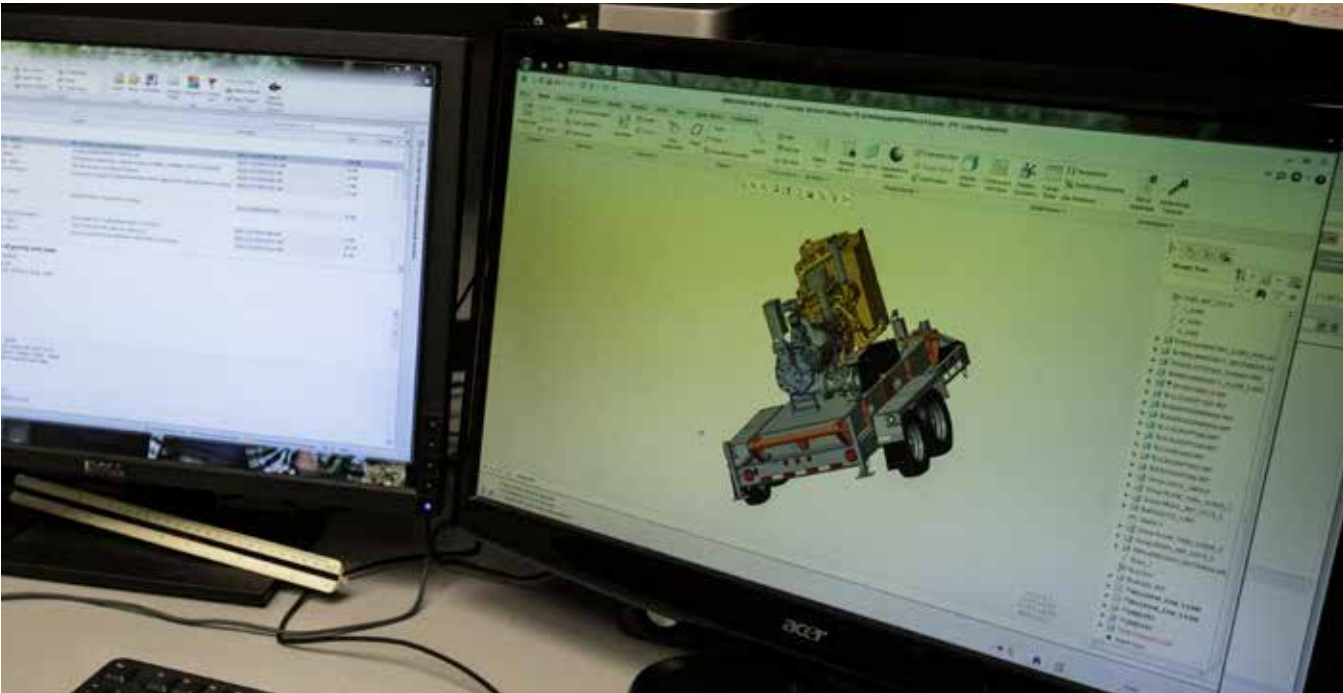


Godwin Pumps
Automatic Self-Priming Pump for construction sites and general dewatering



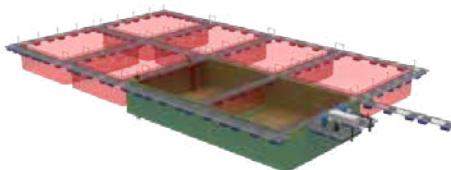
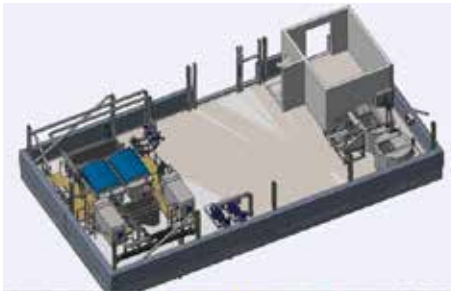
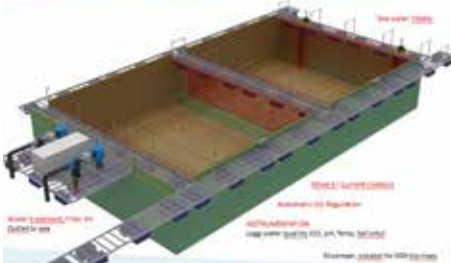
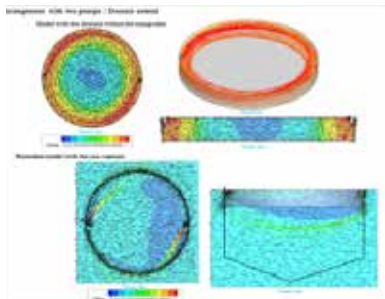
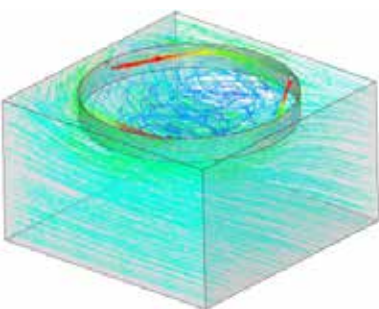
Lowara e-NSC
End suction single stage water pumps with premium efficiency

Together we can build the fish farm of the future.



With our deep knowledge of aquaculture, we are constantly looking for ways to improve the engineering of your operations. From CFD analysis and dimension calculations to designing entire mechanical systems, our expertise is always available. Our customers have partnered with us in a number of development projects that have resulted in innovative new technical solutions.

- Intake Water Systems with UV and Ozone Disinfection for RAS, Blood Water Systems, Silage Systems, Water Quality Monitoring Systems
- Innovative hydraulic designs for semi-closed and closed fish farms including control of inlet water, wastewater management, dead fish handling and water quality monitoring solutions
- Automation and controls, program development and programming
- CFD analysis and flow analysis



Our people make the difference

Industrial-strength thinking helps us engineer, design and manufacture the highest quality pumps and related equipment. But that's not all. We apply the same dedication and expertise to every aspect of our relationship with you. Our people – and how they partner with you – are what makes Xylem the right choice for your industrial water and fluid management solutions.

Our expertise solves the challenge

Nobody spends more time thinking about industrial water and fluid management. With hundreds of thousands of customers and millions of installations, we have more experience across more types of challenges, and can design solutions that provide more value today and tomorrow.

Total peace of mind

Maybe you need help deciding whether to refurbish or replace existing equipment. Maybe you need to find a way to lower operating costs or troubleshoot an issue. Maybe you want to outsource maintenance and upkeep. Or maybe you need a flexible way to pay for new equipment. Whatever you need to support your industrial water and fluid management process, we do it. Our portfolio of services will give you total confidence in your system 24/7.

Industrial-strength parts & support

Xylem designs equipment for reliability, longevity and low total cost of ownership. That said, there will come a time when routine maintenance is necessary to maintain peak performance. Genuine Xylem parts ensure optimal, reliable performance of your Xylem equipment and can be delivered directly to you or with technical support. If you prefer to handle upkeep yourself, we have you covered:

- 24/7 field support
- Custom engineering
- Operator training
- Equipment service training
- Technical coaching
- Genuine parts kits



xylem
watermark®
Because Every Drop Counts

Committed to solving water

The facts speak for themselves: worldwide, 844 million people lack access to clean drinking water. 443 million school days are lost to water-related illness. 361,000 children under 5 die from diarrheal diseases every year. And 90% of natural disasters are water related. It's clear the world is facing unprecedented water challenges brought on by population growth, urbanization, shrinking fresh water supplies and increasing storm severity.

At Xylem, we take our role as leaders in water and fluid management seriously and are committed to finding solutions to the world's most pressing water challenges. Our mission is to provide and protect safe water resources for communities in need around the world, and to educate people about water issues.

Industrial-strength thinking solves more than water.

For over 170 years, Xylem has led the way in water and fluid management. We can analyze, customize, engineer, and install a complete solution that will help you focus on your core business, build profitability and solve complex challenges the right way. Give us a call to see what industrial-strength thinking can solve for you.

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to [Xylem.com](https://www.xylem.com)



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