



ARTAS Integrated Packaged Units for Water and Wastewater Management



Next Turbo: Why Smart Mechanics Beat Complex Electronics in the Middle East's Harshest Climates

FILTRALITE®

Cut Costs. Boost Performance. The Filtralite® Solution for Modern Desalination



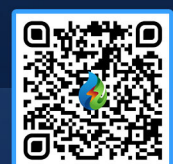
Redefining Diffusers Efficiency in WWTPs: The Innovation Behind JetFlex® SSD-Smart Strip Diffuser



VACOMASS® flexcontrol: AI-Powered Aeration Control for Maximum Energy Savings in WWTPs



Al Mousa Trading Co. & Wilo in Strategic Alliance: Powering the Future of Mega Projects with Smart Pumping Solutions





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Innovative Solutions to Achieve Sustainability in Water and Energy

From The Editor

As global water scarcity intensifies and environmental regulations become more stringent, the industry is shifting from rigid, large-scale infrastructure toward agile, integrated modular ecosystems. This issue explores how engineering design and artificial intelligence are redefining resource management, where waste is no longer a liability but an engineered asset.

ARTAŞ leads the transition to decentralized, scalable solutions with its integrated packaged units. We highlight arpak® for domestic wastewater and kimpak® for complex industrial effluents. Furthermore, armbr® systems enable high-quality water reuse, while armut® units convert organic waste into renewable energy. For high-purity needs, we examine aruf® ultrafiltration and arto®/armo® reverse osmosis systems, alongside ardes® for integrated air and odor control. The fusion of hardware with intelligence is the ultimate differentiator. We feature the VA-COMASS® flexcontrol system, which utilizes AI-driven airflow management to slash aeration energy consumption by up to 50%.

Complementing this, Jaeger Umwelt-Technik showcases its JetFlex® SSD diffusers, utilizing high-grade silicone to minimize pressure loss and operational costs (OPEX). Engineering for harsh climates requires robust design. Next Turbo Technologies demonstrates how high-speed turbo blowers thrive in extreme heat by prioritizing mechanical excellence. Additionally, we analyze the impact of high-performance filter media like

Filtralite® in large-scale desalination projects. We highlight the power of collaboration, such as the strategic alliance between Al Mousa Trading Co. and Wilo, which is powering mega-projects like “Sedra” with energy-efficient pumping solutions.

We explore the intersection of infrastructure and Artificial intelligence. Today, the “silent threats” of blockages and inefficiencies are being met by a powerful ally: Artificial Intelligence. From predictive maintenance in wastewater networks to the precision engineering of high-performance RO systems, technology is transforming reactive guesswork into proactive control.

Finally, We examine the human element, how social media is reshaping public awareness of water sustainability. As we bridge the gap between advanced engineering and community engagement, it’s clear that the future of water management isn’t just about better pipes; it’s about smarter insights.

We invite you to explore these advancements that are turning modern challenges into environmental opportunities.



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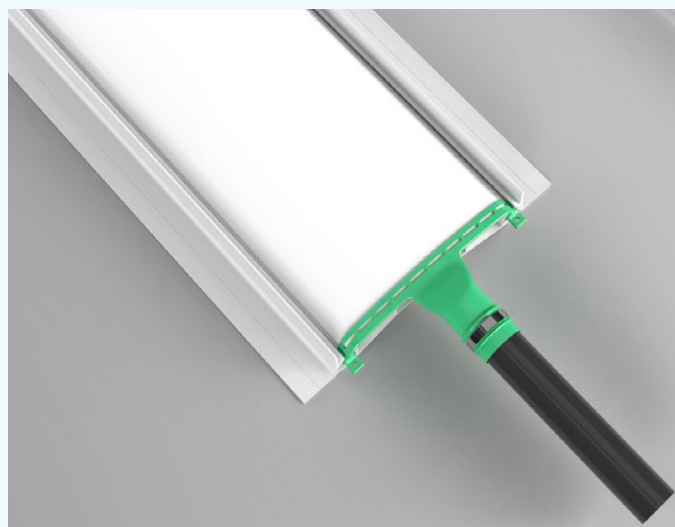


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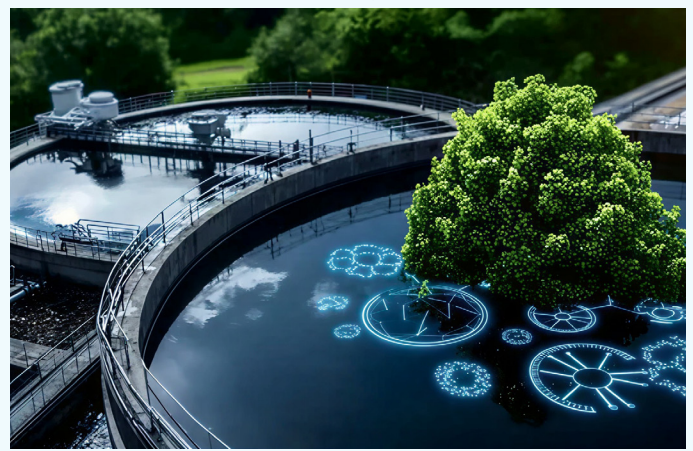
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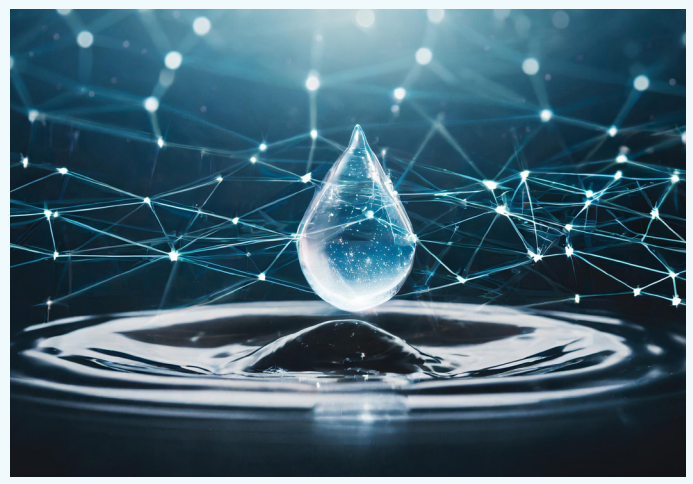


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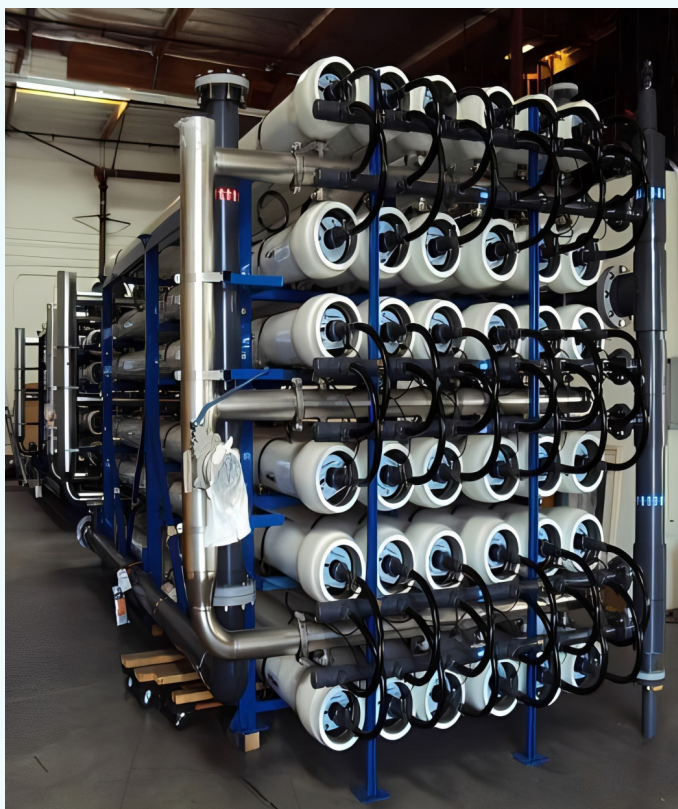
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ARTAS Umwelt Technologien GmbH



ARTAS Integrated Packaged Units for Water and Wastewater Management

As water scarcity intensifies and environmental regulations become more demanding, industries and municipalities are moving away from conventional, large-scale infrastructure toward modular, packaged systems that offer flexibility, speed, and efficiency.

Rather than investing in complex, rigid installations, decision-makers today are prioritizing solutions that can be deployed quickly, scaled easily, and deliver consistent performance under changing conditions.

ARTAS Umwelt Technologien is at the forefront of this transition, offering integrated packaged units that address water, wastewater, air, and energy challenges within a unified approach.

Decentralized Wastewater Treatment for Sustainable Community Development

• arpak® Packaged Domestic Wastewater Treatment Units

At the entry point of the water cycle, decentralized treatment plays a key role in enabling sustainable development where centralized infrastructure is limited or impractical.

arpak® systems are designed to serve populations ranging from small communities up to approximately 2,400 users, providing reliable biological treatment in a compact and fully packaged configuration.

These systems offer:

- Rapid installation with minimal civil works
- Stable performance in decentralized environments
- Scalable capacity aligned with community growth

This approach enables communities to implement self-sufficient and resilient wastewater solutions without heavy infrastructure investment.



Managing Complex Industrial Effluents with Precision

• kimpak® Packaged Chemical Treatment Units

Industrial wastewater streams often contain challenging pollutants such as heavy metals, oils, and toxic compounds that require precise and controlled treatment.

kimpak® systems integrate neutralization, flocculation, sedimentation, and flotation purposes processes into compact, skid-mounted units capable of handling flows of up to approximately 10 m³/h, while effectively targeting contaminants such as chromium, cyanide, zinc, and hydrocarbons.

This results in:

- Fast deployment with minimal footprint
- Automated and stable operation
- Reliable compliance with industrial discharge regulations

By simplifying complex chemical treatment into a packaged solution, industries gain control, efficiency, and operational flexibility.



Biological Core Treatment for Reliable Wastewater Recovery

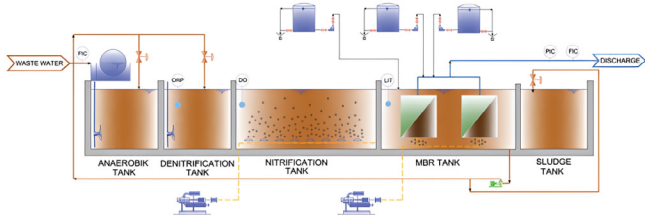
• armbr® Membrane Bioreactor (MBR) Systems

At the heart of modern wastewater treatment lies biological efficiency combined with membrane precision.

armbr® MBR systems combine advanced biological processes with PES membranes (down to ~0.04 µm), enabling stable performance even under variable load conditions. Even when influent reaches around BOD 300 mg/L and COD 600 mg/L, the system consistently produces high-quality effluent with BOD typically below 5 mg/L, TSS around 2 mg/L, & turbidity well below 0.2 NTU.

This performance enables:

- High-quality effluent suitable for reuse applications
- Reduced sludge production compared to conventional systems
- Compact, modular plant design
- Wastewater is transformed from a disposal challenge into a reliable water resource.



Advanced Filtration for Consistent Water Quality

• aruf® Ultrafiltration Systems

To ensure stability and protect downstream processes, ultrafiltration plays a critical role in modern water treatment trains.

aruf® systems provide a robust physical barrier that removes suspended solids, turbidity, and microorganisms with high efficiency. With recovery rates reaching up to 90–95%, they significantly reduce water losses while maintaining consistent output quality.

Key advantages include:

- Stable performance despite feed water fluctuations
- Reduced chemical dependency
- Ideal pretreatment for reverse osmosis systems

This ensures operational reliability and process stability across applications.



High-Purity Water for Critical Industrial Applications

• arto® Reverse Osmosis Systems & armo® Mobile RO + EDI Systems

In high-tech industries such as power generation and pharmaceuticals, water purity is a critical production parameter.

arto® reverse osmosis systems provide stable removal of dissolved salts and contaminants, ensuring consistent high-quality output for demanding applications.

For more flexible requirements, armo® mobile RO + EDI systems deliver ultrapure water on demand, combining dual-pass reverse osmosis with electro-deionization in a transportable configuration, in addition to its ability to produce drinking water.

These systems enable:

- Continuous supply of ultrapure water
- Rapid deployment without permanent infrastructure
- Reliable operation during peak demand periods

Together, they transform water supply into a scalable industrial utility.



Converting Organic Waste into Energy and Value

• armut® Biogas Units

Beyond water, organic waste streams represent a significant opportunity for resource recovery.

armut® systems convert food and organic waste into renewable energy and fertilizer through controlled biological digestion processes, reducing disposal costs while generating usable outputs.

“ We are seeing a clear shift toward systems that not only treat waste but recover value from it. Energy generation from organic streams is becoming a core pillar of sustainable facility design, ”

Says Samuel Bauer
Head of Business Development Europe & Africa

This supports a transition toward a circular resource economy.



A Fully Integrated, Modular Future

The future of environmental engineering is no longer defined by standalone plants, but by integrated modular ecosystems that combine treatment, reuse, air purification, and energy recovery.

By linking all stages of the environmental cycle, these systems deliver higher efficiency, lower life-cycle costs, and significantly reduced environmental impact—while offering the flexibility required by modern industries and communities.

With more than 40 years of experience and installations across 14 countries, ARTAŞ solutions are developed in accordance with internationally recognized standards, including ISO 9001, ISO 14001, and WHG certification, ensuring reliability, quality, and environmental compliance across all applications.

In this new paradigm, water and waste are no longer liabilities—they become engineered resources within a circular system.



Air Quality as an Integrated Environmental Layer

• ardes® Odor and Gas Treatment Systems

Environmental performance extends beyond water treatment alone.

Industrial and municipal facilities increasingly require effective air treatment solutions to manage odors and gas emissions. ardes® systems handle airflow rates from approximately 2,000 to 70,000 Nm³/h, achieving high removal efficiencies of up to 98–99% for acidic gases and odor compounds.

This ensures:

- Improved occupational safety
- Reduced environmental impact
- Full regulatory compliance

Air and water are therefore treated as interconnected environmental systems.



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**VACOMASS®
Flexcontrol:
AI-Powered
Aeration
Control for
Maximum
Energy
Savings in
WWTPs**



Aeration is the single most energy-intensive process in modern wastewater treatment plants (WWTPs), often consuming up to 60–70% of the total plant energy. Conventional control systems rely mostly on dissolved oxygen (DO) measurements, sometimes supported by ammonium or nitrate data. These systems are inherently slow and imprecise due to tank size, system inertia, and the use of poorly performing valves or inadequately dimensioned blowers. Delays of 1–5 minutes are common, causing deviations of up to 1.5 mg/L in oxygen concentration. These deviations can either reduce treatment efficiency or waste energy, creating operational and economic challenges for plant operators.

Transforming Control with Real-Time Airflow Management

VACOMASS® flexcontrol, a package developed by BINDER Group and trusted by operators for over 25 years, addresses these challenges. It is a modular, PLC-based digital assistance system that functions as a SLAVE to the plant’s SCADA. The system can be applied in new installations, as well as renovation and expansion projects, with no limitation on plant size. Using advanced control logic and AI, it continuously monitors actual airflow and automatically adjusts each aeration zone in real-time.

By directly controlling blowers, pumps, and other aeration equipment, the system ensures precise, demand-driven air supply, eliminating under- and over-aeration while optimizing energy use.

Smart, Data-Driven, and Operator-Friendly

The system integrates seamlessly with SCADA via Profibus DP, Modbus, Ethernet IP, or Profinet, and allows remote monitoring and parameter adjustment. Operators can manage the system on-site through a 7-inch touchscreen or from the control room, adjusting settings at any time. VACOMASS® flexcontrol also continuously collects and analyzes process data, allowing early trend detection and process optimization. Compared to traditional stepwise valve adjustments, the system reduces actuator movement and wear, prolonging equipment life while maintaining precise airflow control.

Modular Control Architecture for Maximum Reliability

VACOMASS® flexcontrol is built on a modular control architecture where each control loop operates independently with its own dedicated processor and process-specific software. This decentralized design allows each aeration zone to be controlled individually, ensuring stable and balanced air distribution

INPUT

- Airflow
- Control valve position
- Header pressure
- temperature
- NH4-N
- Salinity
- Blower information
- DO
- NO3-N

UMTS

OUTPUT

- Control functions
- Aeration control
- Energy efficient blower control
- Sliding header
- pressure control
- Process & hardware alarms
- Safety guards
- Maintenance & Monitoring

NO BLACK BOX

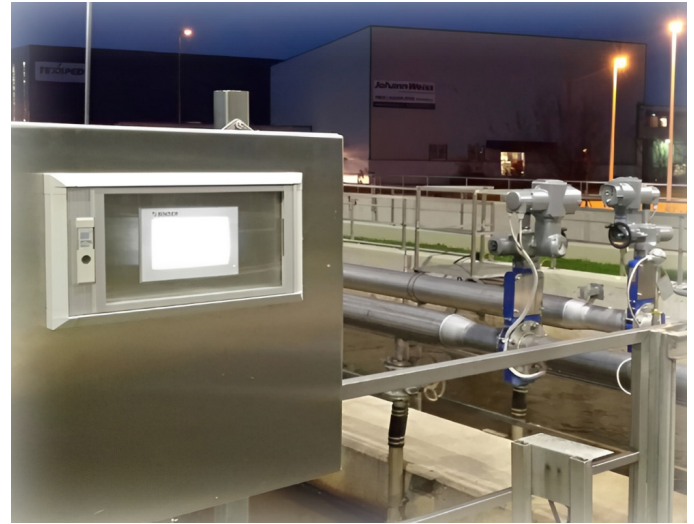
In the event of a failure in one control loop, all remaining loops continue to operate independently without interference. The system supports up to 12 control loops within a single cabinet, and multiple cabinets can be interconnected, making it suitable for both small and large wastewater treatment plants.

AI-Powered Dynamic Aeration

The heart of VACOMASS® flexcontrol lies in its AI-driven aeration logic. Unlike conventional DO-based control, the system dynamically adjusts airflow in real-time according to process demands. This ensures every aeration zone receives exactly the right amount of air, maximizing nitrogen removal efficiency and stabilizing sludge characteristics. Over-aeration and its associated risks, such as carryover of dissolved oxygen into denitrification zones or accelerated sludge mineralization, are effectively avoided. Energy savings are significant, and effluent quality becomes more consistent, even under variable loads.

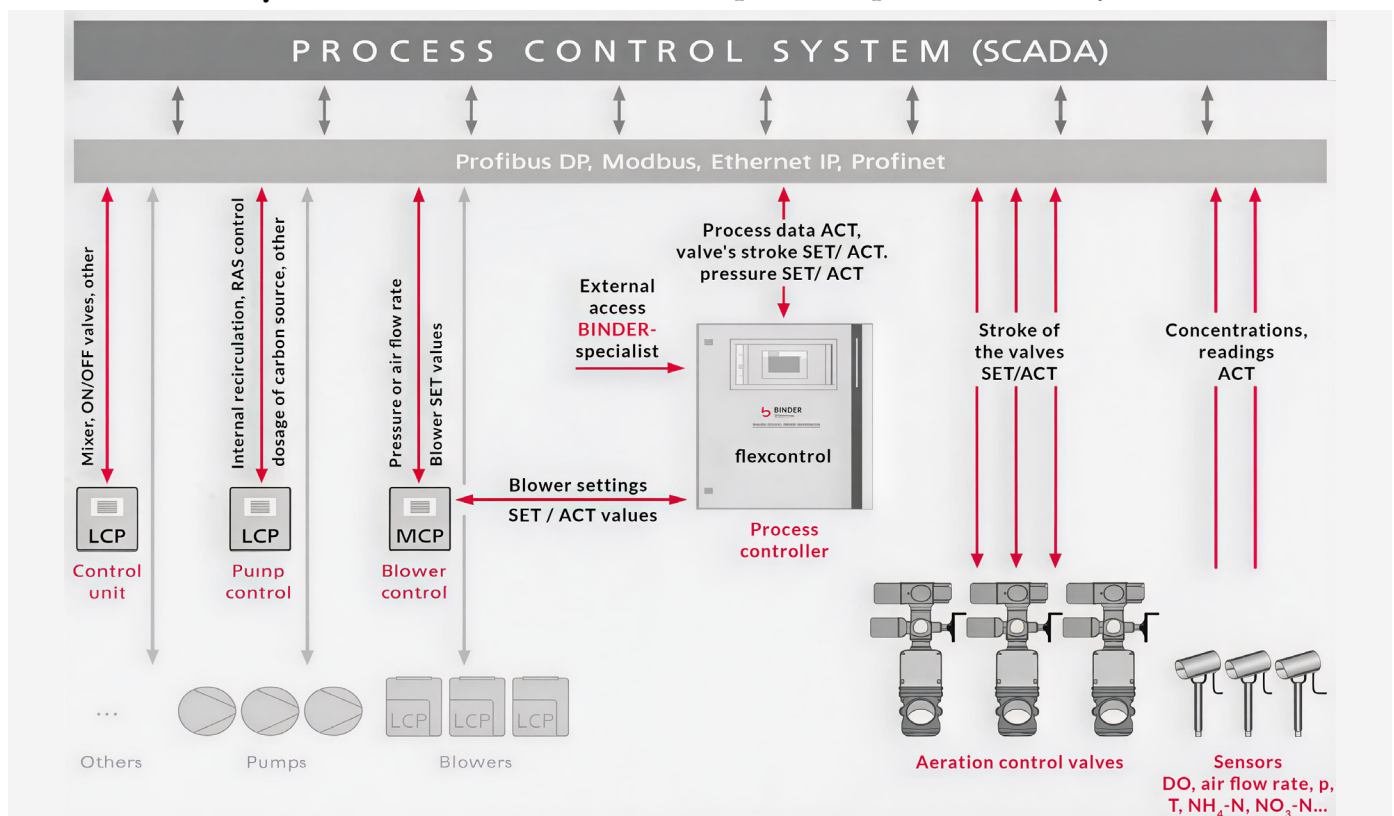
Smart Integration with SCADA and Field Equipment

At the core of a modern, high-performance wastewater facility, VACOMASS® flexcontrol



acts as an intelligent interface between SCADA and field equipment, bridging the gap between the plant's SCADA system and critical field operations.

Using advanced communication protocols such as Profibus, Modbus, and Profinet, it translates real-time data from high-precision sensors—including NH₄-N, NO₃-N, and dissolved oxygen—into immediate, precise commands for aeration valves, blowers, and other aeration equipment. Beyond aeration, the system coordinates dedicated modules for pump management (LCP) and blower synchronization (MCP), ensuring all plant components operate in perfect harmony.



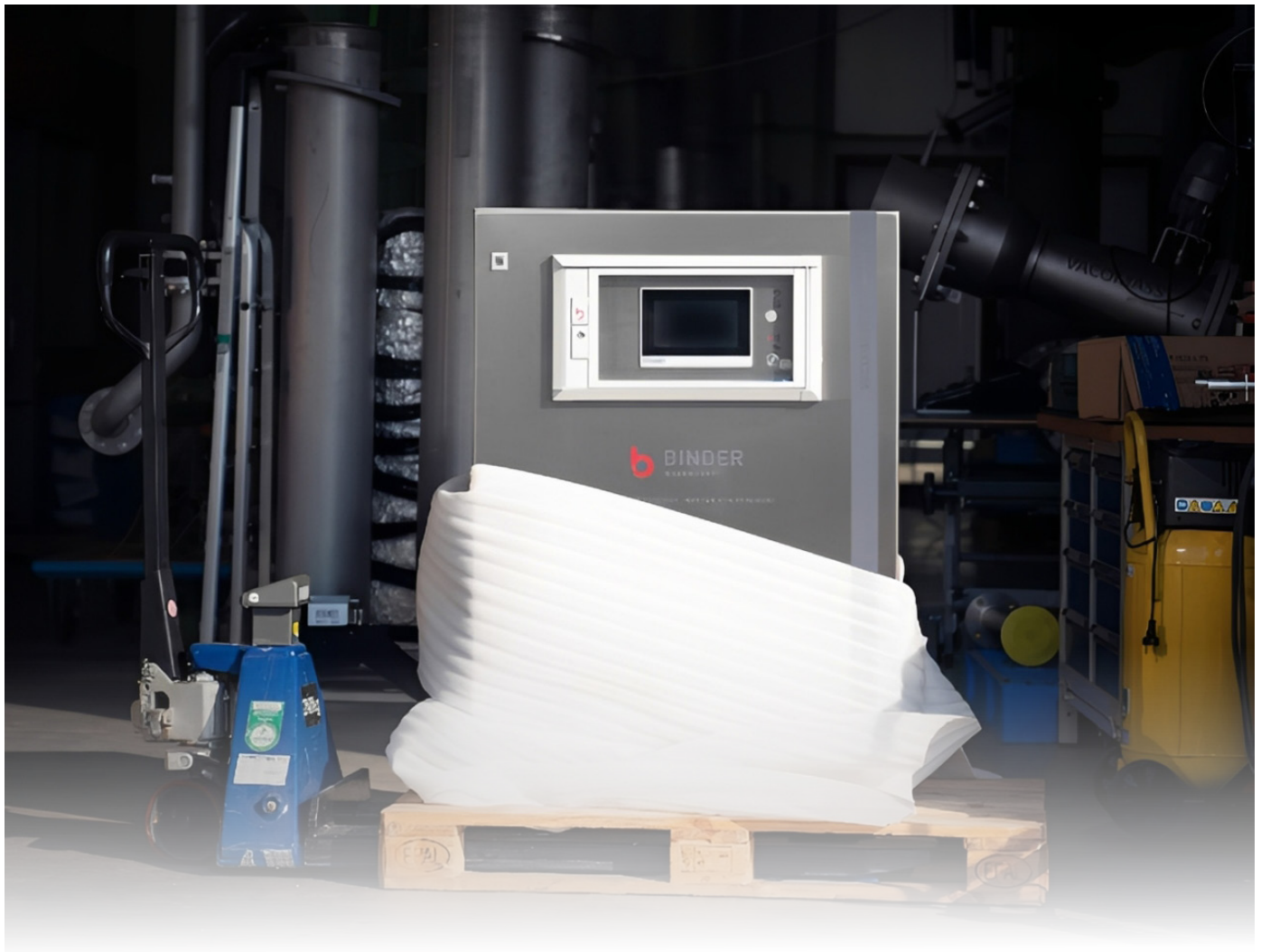
This holistic, AI-driven approach not only optimizes nutrient removal and stabilizes sludge characteristics but also eliminates energy waste. Operators can monitor and adjust parameters locally via touchscreen or remotely, allowing continuous expert supervision and maximum process reliability.

Key Advantages at a Glance

- Real-time, AI-driven airflow control
- Modular design for flexible scaling & maintenance
- Redundant PLC for maximum operational safety
- Integration with SCADA and remote access
- Reduced actuator wear & extended equipment life
- Proven 25-year track record as a tool for operators

Conclusion

In today's world, where operational and environmental challenges are increasing, smart aeration control has become essential for wastewater treatment plants. VA-COMASS® flexcontrol offers an innovative solution combining artificial intelligence, high precision, and operational flexibility, enabling significant energy savings up to 50% and improved treatment quality. Its modular design and seamless SCADA integration ensure high reliability, easier maintenance, and long-term sustainability, making it an ideal choice for any facility aiming for efficiency and cost-effectiveness.





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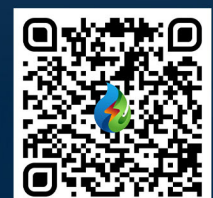
Conventional vs. Smart Aeration Control

Comparison Aspect	Conventional Control Systems	VACOMASS® flexcontrol
Control Principle	Based on dissolved oxygen (DO), sometimes NH ₄ / NO ₃	AI-driven, based on real-time airflow and process demand
Response Time	Delayed (1–5 minutes due to system inertia)	Immediate, real-time adjustment
Control Accuracy	Deviations up to 1.5 mg/L	High precision with continuous correction
Aeration Efficiency	Risk of under- or over-aeration	Optimized, demand-based aeration
Energy Consumption	Higher due to inefficiencies	Significantly reduced energy usage
Process Stability	Fluctuating performance	Stable and consistent operation
Equipment Wear	Frequent valve movement and wear	Reduced actuator movement and longer lifetime
System Architecture	Centralized and less flexible	Modular, scalable, independent control loops
Operational Reliability	Sensitive to failures	High reliability with optional redundant PLC
Integration & Monitoring	Limited SCADA interaction	Full SCADA integration with remote access

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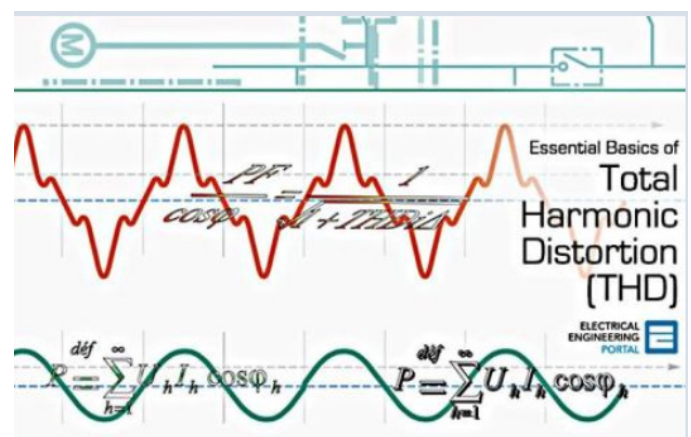
Next Turbo Blowers: Why Smart Mechanics Beat Complex Electronics in the Middle East's Harshest Climates

In the demanding landscape of wastewater treatment (WWT) across the Middle East, two factors dictate success: reliability and energy efficiency. While the industry has trended toward high-speed electronic solutions, Next Turbo Technologies is leading a mechanical revolution. By prioritizing robust engineering over fragile electronics, Next Turbo offers a solution designed to last 25+ years in environments where others fail in less than ten.

The Invisible Threat: A Deep Dive into Total Harmonic Distortion (THD)

A significant yet often overlooked risk in modern plants is Total Harmonic Distortion (THD). This phenomenon represents a distortion of the standard AC waveform.

Most high-speed turbo blowers rely on High-Frequency Variable Frequency Drives (VFDs) for regulation. These VFDs operate at several hundred Hz (up to 800 Hz) compared to the standard power grid frequency of 50/60 Hz. This massive frequency disparity creates harmonic "noise" that pollutes the entire electrical network of the plant.



The consequences of excessive THD can be fatal to electrical and electronic equipment. According to IEEE Std 519, harmonic voltage distortion should not exceed 5% to avoid erratic equipment malfunction. When this limit is breached, plants face serious operational risks:

- **Burnout and Overheating:** Cables and transformers experience abnormal heat buildup, significantly reducing their capacity and operational life.
- **Control System Chaos:** Sensitive computers and Programmable Logic Controllers (PLCs) may suffer from subtle yet damaging malfunctions, leading to sudden, unexplained plant shutdowns.
- **Grid Contamination:** High THD levels reduce the lifetime of all other drive motors connected to the same grid.

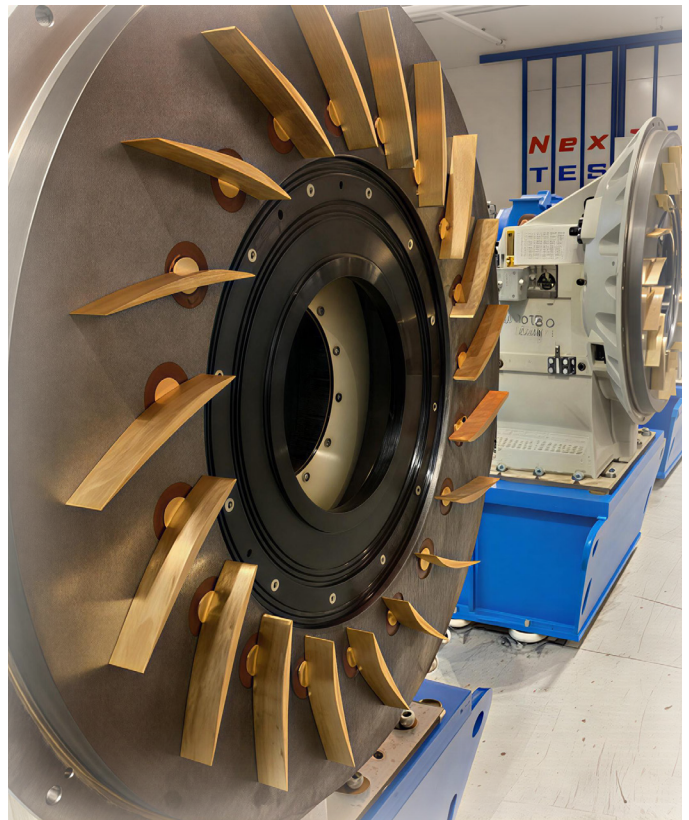
While competitors attempt to fix this with Active Harmonic Filters, these additions introduce a new set of problems. These filters are complex, expensive, and result in an additional 1.8% energy loss. In contrast, Next Turbo blowers do not use a VFD for capacity regulation. By operating at a constant speed and utilizing mechanical modulating vanes, Next Turbo eliminates the THD problem at its source, providing a secure electrical network with zero additional power losses.

Built for the 55°C Challenge: Mechanics vs. Electronics

The Middle East presents a unique "special challenge" characterized by temperatures up to 55°C, 100% humidity, and corrosive H₂S gas. In these conditions, the "Black Box" approach of electronic components (like VFDs and magnetic controllers) often leads to a limited lifespan of only 5 to 10 years.

In contrast, Next Turbo's philosophy focuses on mechanical excellence:

- ◇ **Precision Gears:** Designed according to AGMA standards for a 25+ year lifespan.



- ◇ **Resilient Bearings:** Utilizing oil-lubricated ceramic bearings that provide superior shock absorption and remain stable even during surge events.

- ◇ **Ease of Maintenance:** Unlike electronic systems that require total replacement, Next Turbo components are designed to be repaired rather than replaced.

For instance, ceramic bearing pre-load can be adjusted from the outside without opening the blower.

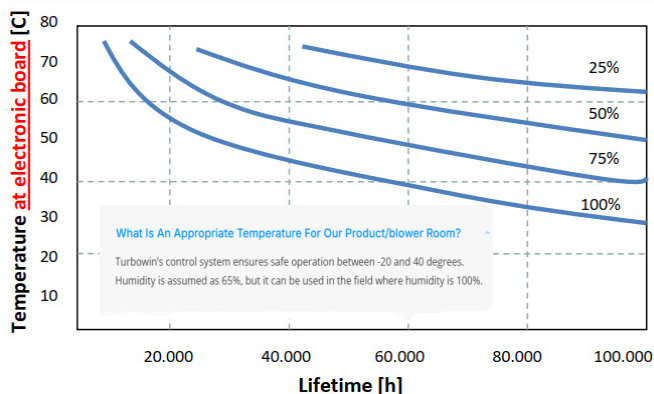
- ◇ **Precision Regulation: 40% to 100% Without Compromise**

Efficient aeration requires a wide regulation range to match fluctuating plant loads. Standard speed-controlled turbos often struggle below 75% airflow. Next Turbo's Dual Modulating Vane Control (using variable diffuser and inlet guide vanes) achieves a wide 40-100% regulation range while maintaining constant pressure. This wide range is critical because:

- **It prevents over-aeration:** Over-aeration wastes energy and can inhibit the denitrification process.



- It reduces CAPEX: Plants can use fewer, larger blowers (e.g., 4 large blowers instead of 8 small ones) to cover the same load range, reducing infrastructure costs and complexity.



The Efficiency Advantage

When comparing the entire package, Next Turbo provides an average efficiency gain of 9% to 14% over typical speed-controlled turbos. By combining customized impeller designs (optimized for specific site conditions like altitude and heat) with the elimination of VFD and filter losses, Next Turbo ensures the lowest possible Lifecycle Cost (LLC).

Conclusion

With more than 800 installations in 40 countries & over 200 projects worldwide, Next Turbo Technologies has established itself as a global leader in high-reliability integrally geared centrifugal turbo blowers. From the massive Umm Al Hayman STP in Kuwait to the high-efficiency retrofits at Jebel Ali in the UAE, Next Turbo continues to prove that smart mechanical engineering is the only sustainable path for the region's critical infrastructure.

For plants in Egypt & across the MENA region, the choice represents more than just a piece of equipment; it is a commitment to electrical security (Zero THD), peak energy efficiency (with average gains of 9% to 14%), and the rugged durability required to thrive in 55°C heat.

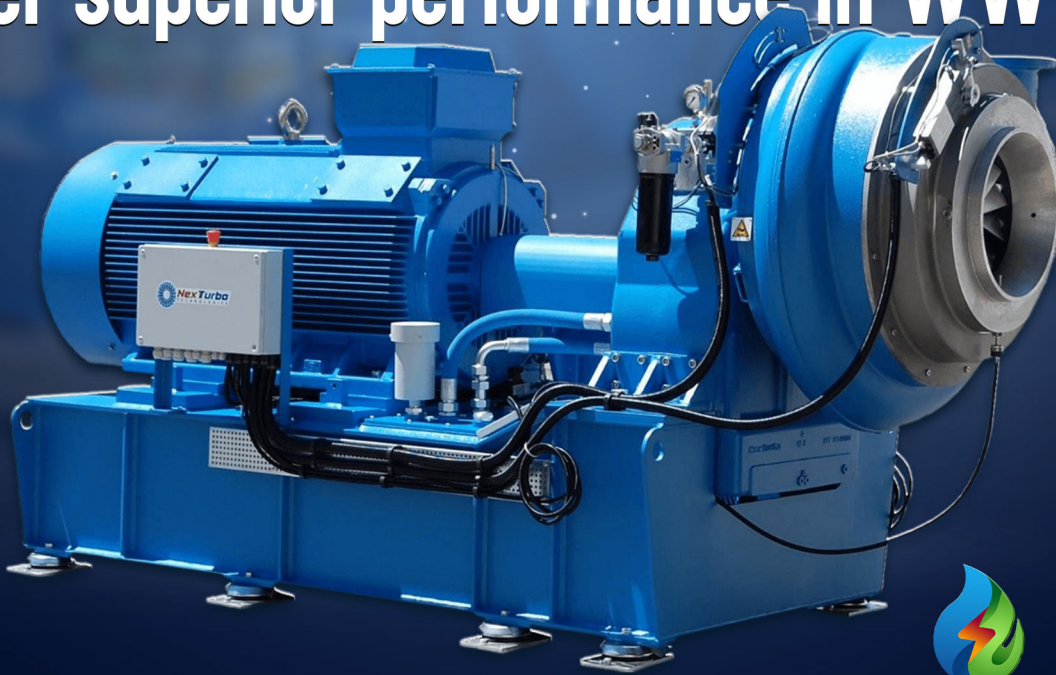
Next Turbo Technologies is not merely a supplier—it's your partner in engineering a resilient, efficient, and sustainable future for wastewater treatment.

Watch our detailed technical webinar to explore the Next Turbo evolution:



<https://youtu.be/XtgcOrPr3aY>

How can **Next Turbo** integrally geared centrifugal turbo blowers deliver superior performance in WWTPs?



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- No VFD required → zero harmonic distortion and reduced energy losses
- Wide airflow control range from 40% to 100% with stable performance
- High operating efficiency up to 84% across the full regulation range
- Robust design capable of withstanding surge events
- Heavy-duty construction with nodular cast iron casing and high-grade impellers
- High-efficiency motors IE3 / IE4 with LV, MV & HV voltage options
- Reliable operation in extreme climates from -30°C to +55°C
- Combine German expert design with Italian manufacturing
- 25+ years operational lifetime

Redefining Diffusers Efficiency in WWTPs: The Innovation Behind JetFlex® SSD—Smart Strip Diffuser

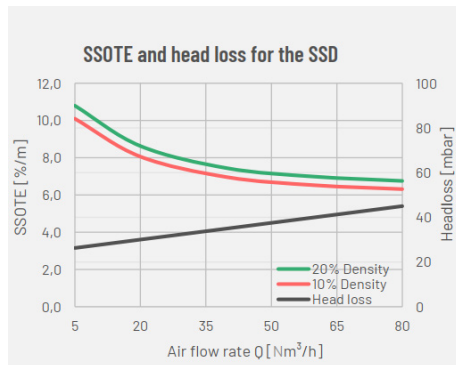


In modern wastewater treatment plants, aeration systems play a critical role in determining both treatment efficiency and energy consumption. The JetFlex® SSD (Smart Strip Diffuser) offers an advanced solution designed to maximize oxygen transfer while reducing operational costs.

Traditionally, when diffuser membranes failed, the entire unit had to be removed from the tank for replacement—a process that was both time-consuming and costly. The SSD system introduces a more practical approach, allowing faster and easier maintenance without full system dismantling.

What is SSD?

The Smart Strip Diffuser (SSD) is a high-efficiency strip-type aeration system that distributes air evenly across the tank floor. It generates ultra-fine bubbles that enhance oxygen transfer and improve biological treatment performance. Its linear design ensures uniform air distribution, eliminating dead zones and increasing system efficiency. Manufactured by Jäger EnviroTech, the SSD system reflects high German engineering standards and long-term operational reliability.



Key Advantages

- High oxygen transfer efficiency (SOTE)
- Reduced energy consumption (up to 30%) in proven case studies
- Wide airflow range
- Fast response to load variations

Operational Efficiency

The SSD design reduces the air demand required from blowers, which directly lowers energy consumption. This leads to reduced operational expenditure (OPEX) and improves overall plant performance, making it a cost-effective long-term solution.

Maintenance Benefits

One of the main advantages of the SSD system is its ease of maintenance. The membrane can be replaced quickly — within minutes — without removing the entire diffuser.

This significantly reduces downtime, labor effort, & maintenance costs compared to conventional systems.

Design Features

- Floor-mounted installation
- Reduced piping requirements
- Uniform air distribution
- No dead zones
- Improved mixing performance

Sustainability

SSD diffusers body is manufactured from recyclable TPU materials, offering a low carbon footprint and high resistance to chemicals. With a service life of up to 15 years, they provide a durable and environmentally friendly solution.

Adapted for MENA Region

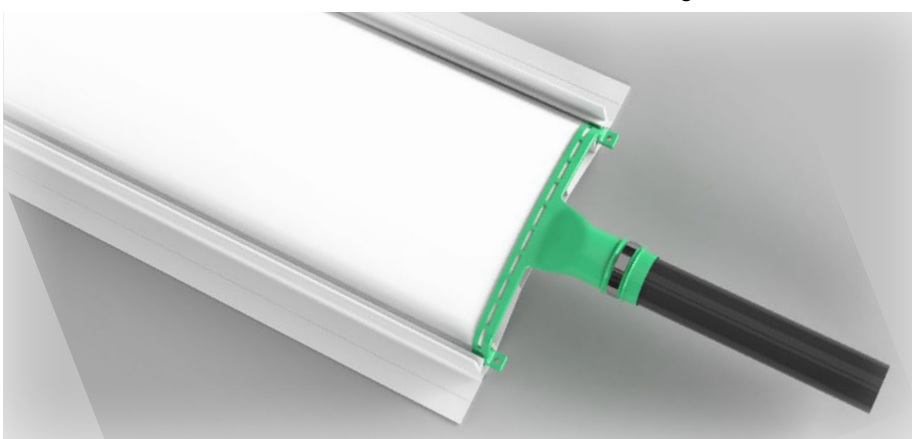
The system is designed to operate under harsh environmental conditions, including high temperatures (up to 60°C). This makes it particularly suitable for wastewater treatment plants in the MENA region.

Company Profile – Jäger Envirotech

Jäger is a German-based company specializing in environmental technology solutions since 1975. The company is known for manufacturing high-quality aeration systems with full control over production processes and strict quality assurance standards.

Key Highlights:

- German manufacturing since 1975
- ISO 9001 & ISO 14001 certified
- In-house membrane development
- Global presence in wastewater treatment projects
- Focus on innovation, sustainability, and efficiency



(Smart Strip Diffusers) from JAEGER EnviroTech

For the Designer:

- ✓ High oxygen efficiency with low head loss
- ✓ The basic structure can be manufactured locally, e.g. simple steel rails can be used

For the Contactor:

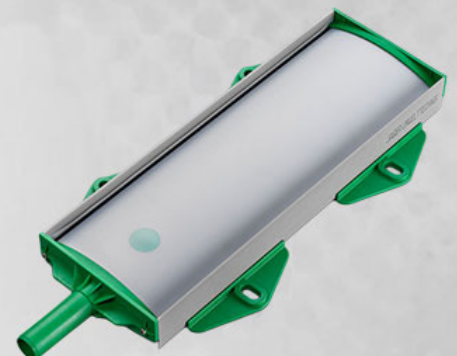
- ✓ Easy to handle
- ✓ Small packing units
- ✓ Low risk of damage, robustness
- ✓ Own added value with suppliers who operate a stainless steel production
- ✓ Manufacture of own mountings possible
- ✓ Use of steel rails is possible

For the Operator:

- ✓ High oxygen efficiency with low head loss
- ✓ Low costs and little effort for replacement
- ✓ Membrane replacement is possible in a few seconds

For Everybody:

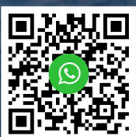
- ✓ Avoiding plastic waste through further use of the basic structure
- ✓ Use of recycled / recyclable materials
- ✓ CO₂ footprint of the product is reduced by about 25%
- ✓ No glues
- ✓ Little buoyancy for the use on liftable frame construction



Buyers Guide for Water and Renewable Energy Companies

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A close-up photograph of a water filtration process. Water is being poured from a white container into a clear plastic tray. The water is dark and contains many small, dark brown particles. The tray is tilted, and the water is flowing towards the right. The background is a blurred blue and white, suggesting a clean, industrial environment. The overall color palette is dominated by blues and whites, with the dark particles providing a stark contrast.

FILTRALITE®

**Cut Costs. Boost Performance.
The Filtralite® Solution for
Modern Desalination**

Operational efficiency has become a critical factor in the success of modern water treatment and desalination plants. Filtralite® PURE stands out as an advanced, lightweight filter media made from expanded clay, specifically engineered to enhance pre-treatment performance in desalination plants, particularly in SWRO (Sea-water Reverse Osmosis) applications. With its unique structure, it delivers superior filtration efficiency while reducing energy consumption and improving overall water quality. The Corso plant in Algeria provides a real-world example of how innovation can successfully balance high performance with reduced operational costs.

Efficiency Unleashed: How Corso Plant Transforms Desalination with Filtralite®

In 2023, the SWRO Corso plant, with a production capacity of 80,000 m³/day, officially entered operation. After extensive testing and evaluation, implementing Filtralite® proved to be a strategic decision to enhance plant efficiency and reduce operational expenses.

The system, managed by the Algerian Energy Company (AEC), integrates a dual-media filtration design combining Filtralite® with traditional sand, significantly improving the quality of produced water.

Smart Filtration Design: Performance in Numbers

The upgraded filtration system is carefully engineered to maximize efficiency, featuring:

- Filter bed depth: 1 meter (0.6 m Filtralite® + 0.4 m sand)
- Media composition: Filtralite® and sand
- Conventional comparison: sand + anthracite
- Gravel support layer: 0.2 m

This optimized configuration not only enhances filtration performance but also extends operational lifespan and reduces maintenance frequency.

Outstanding Results: Turning Efficiency into Reality

Filtralite® has demonstrated clear performance advantages within the Corso plant, delivering measurable improvements:


- Threefold increase in filter run time between backwashes
- Enhanced suspended solids removal compared to conventional systems
- Overall improved filtration efficiency
- Better removal of color and odor
- Reduced media replacement and rehabilitation costs
- SDI improvement from 4.7 to 2.23

These results translate into higher efficiency, improved sustainability, and significantly lower operating costs.

Driving Sustainability and Reducing Operational Costs

One of the key strengths of Filtralite® is its ability to balance environmental and economic performance. Thanks to its lightweight structure and high efficiency, it helps reduce energy consumption and operational strain, directly lowering both OPEX and maintenance requirements.





Additionally, fewer backwashing cycles mean reduced water and energy usage, as well as minimized operational downtime—ultimately boosting overall plant productivity.

A Clear Advantage: Filtralite® vs. Conventional Media

When compared to traditional sand and anthracite systems, the advantages of Filtralite® are clear:

- Longer filtration cycles
- Higher contaminant removal efficiency
- Lower energy and water consumption
- More stable and reliable performance

These factors position Filtralite® as a strategic upgrade for modern desalination facilities.

Conclusion: A Smarter Solution for the Future of Desalination

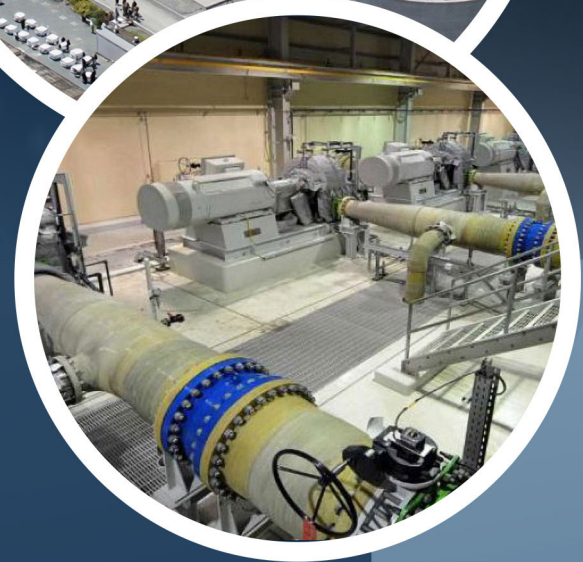
The Corso case study clearly demonstrates that investing in advanced solutions like Filtralite® PURE is more than just a technical improvement—it's a step toward a more efficient and sustainable future.

From performance to cost savings and environmental impact, Filtralite® proves to be more than just a filter media—it's a key partner in the success of next-generation desalination plants.

Cut Costs. Boost Performance. The Filtralite® Advantage at Corso Plant

Filtralite® PURE is a lightweight filter media for SWRO pre-treatment, improving water quality while reducing energy use and costs.

- **Reduced** energy consumption and lower OPEX
- **Up to 3x** longer filter run time between backwashes
- **Higher** filtration performance vs. conventional media
- **Noticeable** SDI improvement (from 4.7 to 2.23)
- **Reduced** maintenance and media replacement needs
- **A sustainable** solution boosting Corso plant productivity





Al Mousa Trading Co. & Wilo in Strategic Alliance: Powering the Future of Mega Projects with Smart Pumping Solutions

As urban development accelerates and the demand for high-performance infrastructure continues to grow, advanced pumping systems have become a critical backbone for the success of modern mega projects. In this context, the strategic partnership between Al Mousa Trading Co. and Wilo represents a powerful integration of global engineering excellence and local execution capabilities delivering reliable, energy-efficient, and technologically advanced pumping solutions across water, building services, and industrial applications.

Global Partnership Driving Engineering Excellence

This partnership combines Wilo's German engineering heritage and innovation leadership with Al Mousa Trading Co.'s strong regional expertise and project execution capabilities. The result goes far beyond equipment supply, offering fully integrated solutions that include system selection, technical support, commissioning, and strict adherence to international standards.

Every pumping system is carefully engineered & optimized based on project-specific requirements ensuring higher operational reliability, lower lifecycle costs, and enhanced efficiency across large-scale developments.

Factory Witness Test: Quality You Can Trust

As part of its strong commitment to quality assurance, Al Mousa Trading Co. conducted a Factory Witness Test (FWT) at Wilo's manufacturing facility in South Korea for the Roshan Sedra Project (Phases 3, 4 & 5).

This rigorous testing process verifies:

- Hydraulic performance under real operating conditions
- Flow stability and system reliability
- Energy efficiency and power consumption
- Full compliance with project specifications

This ensures that every pump system is validated before delivery—minimizing risks and guaranteeing optimal on-site performance.



Advanced Wilo Product Portfolio

Wilo's strength lies in its diverse and highly engineered product range, designed to meet the evolving demands of modern infrastructure.

• Wilo HELIX V

A high-pressure multistage vertical pump designed for demanding water supply and industrial applications. It offers exceptional hydraulic efficiency while significantly reducing energy consumption, with a compact design ideal for space-constrained installations.

- Applications:

Water distribution networks | High-rise buildings | Pressure boosting systems

• Wilo STAR / STAR-S

Designed for efficient water circulation in building services, this series ensures stable, quiet, and energy-efficient operation—making it ideal for HVAC and domestic systems.

- Applications:

Residential buildings | Heating & cooling systems | MEP applications

• Wilo TOP-S

A robust centrifugal pump built for continuous operation, combining high efficiency with low operating costs. Its durability and ease of maintenance make it a reliable solution for medium to large-scale projects.

- Applications:

HVAC systems | Water distribution | Commercial & industrial facilities

• Wilo SCP (Split Case Pumps)

Engineered for large-scale infrastructure, these pumps deliver high flow capacity and long-term operational stability under demanding conditions



—ideal for heavy-duty applications.

- Applications:

Water supply stations | Firefighting systems | Mega infrastructure projects

Smart Technology & Energy Efficiency

Wilo pumping systems integrate advanced smart technologies that enable real-time monitoring, optimized performance, and predictive maintenance. This intelligent approach helps reduce energy consumption while maximizing operational efficiency supporting sustainability goals and reducing overall costs.

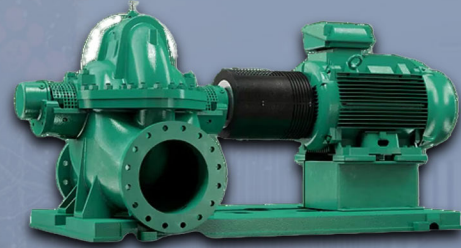
Powering the Future of Mega Projects

The Roshan Sedra Project stands as a strong example of how global expertise and local execution can deliver high-performance infrastructure solutions. Through advanced pumping technologies, strict quality control, and intelligent system design, Al Mousa Trading Co. continues to support some of the region's most ambitious developments.

By partnering with Wilo, the company ensures that every project benefits from reliability, innovation, and long-term efficiency driving the future of sustainable infrastructure.



Al Mousa Trading Co. & Wilo in Strategic Alliance: Powering the Future of Mega Projects with Smart Pumping Solutions



- Strategic partnership between Al Mousa Trading Co. and Wilo
- Implemented in Roshan Sedra Project (Phases 3-5)
- Smart, energy-efficient pumping systems
- Tested for performance and reliability (FWT)
- Lower costs, higher efficiency, and sustainable impact





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Chemist/ Mostafa Mohamed Eid

"Chemical Treatment of Industrial Wastewater"



Saturday, April 4th



8:00 to 10:00 PM
(Saudi Arabia Time)



Emrah Şamlıoğlu

"The New Generation of Advanced Packaged Water & Wastewater Treatment Units"



Friday, April 10th



8:00 to 10:00 PM
(Saudi Arabia Time)



Özgür Kavalcı



Eng. Salah Ghorab

"Energy Management Strategy"



Saturday, April 18th



8:00 to 10:00 PM
(Saudi Arabia Time)



Mrs. Manuela Charatjan

"The importance of precise aeration control valves on quality of aeration control and OPEX in WWTPs"



Friday, April 24th



8:00 to 10:00 PM
(Saudi Arabia Time)



Mr. Maher Al-Hammoud





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WATER NEWS BRIEF

April | 2026

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Flocean One Prepares for Deployment

Flocean is preparing to deploy its Flocean One project, the world’s first commercial subsea desalination plant, set to launch in Norway in 2026. The system places desalination units at depths of 400–600 meters, using natural ocean pressure to power the reverse osmosis process, significantly reducing energy consumption by up to 50%. The project builds on the success of its pilot, Flocean Zero, which demonstrated the feasibility of producing high-quality drinking water underwater. The solution also minimizes environmental impact, reduces the need for coastal land, and offers scalable potential to meet growing freshwater demands for municipalities and industries.



Ecolab to Acquire CoolIT Systems, a Global Leader in Advanced Liquid Cooling for Next-Gen AI Data Centers



Ecolab announced it will acquire CoolIT Systems, a leader in advanced liquid cooling for data centers, in a deal valued at approximately \$4.75 billion. The acquisition aims to expand Ecolab’s role in the fast-growing AI infrastructure market, where demand for efficient cooling solutions is rising due to high-performance computing needs. CoolIT’s technology, used by major chipmakers like NVIDIA and AMD, complements Ecolab’s expertise in water and energy management. The deal is expected to close in the third quarter of 2026 and will support long-term growth, with positive impacts on revenue and earnings projected in the coming years.

ACCIONA obtains AENOR’s ISO 20400 certificate for Sustainable Procurement

ACCIONA has obtained the ISO 20400 certification for sustainable procurement from AENOR, recognizing its commitment to responsible supply chain management. The certification highlights the company’s integration of environmental, social, and governance (ESG) criteria into its purchasing processes, aligned with its broader sustainability strategy. ACCIONA applies a comprehensive supplier management model to ensure compliance across all procurement stages and has implemented a sustainable procurement guide. This achievement strengthens its global reputation and supports its leadership in sustainable infrastructure and renewable energy, reinforcing its position in international sustainability rankings.



Kurita Participates in Research Association of Biomass Innovation for Next Generation Automobile Fuels (raBit) as Supporting Member

Kurita Water Industries announced its participation in the JaCER initiative (Japan Center for Engagement and Remedy on Business and Human Rights), establishing a formal mechanism to receive and address human rights complaints. This move reinforces Kurita's commitment to social responsibility and ensures respect for human rights across its operations and supply chain. The system provides a transparent channel for stakeholders to report potential violations, aligning with international standards. This initiative is part of the company's broader ESG strategy, aimed at strengthening trust with partners and communities and promoting a more responsible global business environment.



SUEZ strengthens its hazardous waste activities in France with the authorisation to expand its storage facility in Île-de-France (Villeparisis) and the signing of major new contracts



SUEZ announced it is strengthening its hazardous waste operations in France by receiving authorization to expand its hazardous waste storage facility in Villeparisis (Île-de-France). The expansion increases the site's capacity to 250,000 tonnes per year for 20 years, boosting SUEZ's hazardous waste storage capacity in France by about 30%. The Villeparisis facility, in operation since 1977, plays a key role in managing hazardous solid mineral waste from industries, construction, and local authorities. The company has also secured three major contracts worth tens of millions of euros, underscoring growth in France's hazardous waste treatment market.

DuPont launches ultrafiltration modules with integrated pre-filters

DuPont has launched its new Inge™ ultrafiltration modules with an integrated pre-filter (iP-F). Unlike traditional systems that need a separate pre-filtration unit to remove debris before ultrafiltration, these modules combine both steps in a single housing, reducing plant footprint and lowering capital and operating costs. They retain the same membrane materials, certifications, and performance as existing Inge™ modules while simplifying design and improving space efficiency—especially for new installations, expansions, and containerized systems. The integrated design also ensures consistent water quality, pathogen removal, and resilience to feedwater variations.



Global Water Events

Global Water Summit

Date: From 18 to 20 May 2026

Location: Madrid, Spain

Climate extremes, rising energy demands, and pressures on capital mean the systems we rely on must adapt quickly. New technologies and AI will tackle such challenges, even as they place new demands on water. How do we strike a balance? This year's Global Water Summit is about turning that question into action.

Website: watermeetsmoney.com



WATERTECH CHINA

Date: From 9 to 11 June 2026

Location: Shanghai National Exhibition & Convention Center

WATERTECH CHINA 2026 is a premier water industry event, recognized as a significant “industry benchmark.” Building on the achievements of its previous edition, the event will take place from June 9 to June 11, 2026, at the renowned National Exhibition and Convention Center (NECC) in Shanghai.

Website: watertechsh.com



8th Annual International Conference and Exhibition Desalination Latin America

Date: 17 & 18 June 2026

Location: Santiago, Chile

The international investment conference and exhibition “Desalination Latin America” is the only business platform for developing effective strategies, sharing experiences, presenting new investment projects & innovations, and consolidating efforts of governments and businesses to implement desalination projects & to increase water supplies all over Latin America.

Website: desalinationlatinamerica.com



Indo Water 2026 Expo & Forum

Date: From 11 to 13 August 2026

Location: JIExpo Kemayoran, Jakarta, Indonesia

Join at Indo Water 2026 Expo & Forum, the Indonesia's No. 1 International Water and Wastewater Technology Event. Through exhibitions, conferences, seminars, and workshops, connect industry leaders, innovators, and professionals to showcase the latest technologies & solutions in water resource management, sewerage, industrial wastewater, purification, and irrigation.

Website: indowater.com



Aquatech Mexico

Date: From 1 to 3 September 2026

Location: Centro Banamex ,Av. del Conscripto
311, Mexico City

On 1st to 3rd September 2026, Aquatech Mexico will take place. You're invited to join other professionals, experts and investors interested in doing business in the water technology industries in the Americas. Join 3 action-packed days that provide the ideal platform to make profitable business relationships, exchange ideas and learn all about opportunities in this specific region for the water technology.

Website: aquatechtrade.com/mexico



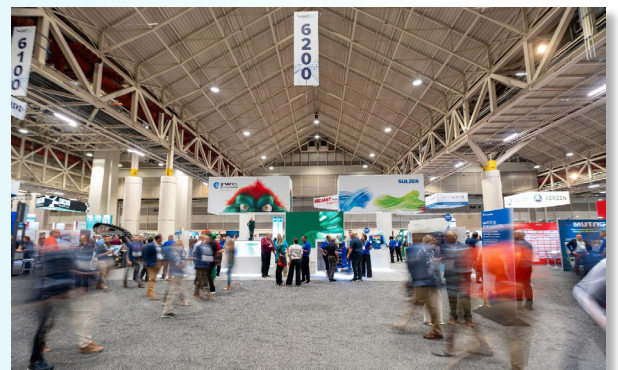
WEFTEC 2026

Date: From 28 to 30 September 2026

Location: Ernest N. Morial Convention Center |
New Orleans, La. USA

Solving water challenges takes more than great ideas, it takes connection, collaboration, and action. At WEFTEC 2026, you'll find all three through cutting edge solutions, hands on learning experiences, and a global network of water professionals.

Website: weftec.org



FiltXPO 2026

Date: 28 & 29 October 2026

Location: Minneapolis Convention Center,
Minneapolis, Minnesota

Grow your business by connecting with decision-makers across diverse industries who are actively sourcing advanced filtration and separation solutions. Engage with 1,200+ filtration professionals from around the world. Expand your North American market reach. Generate leads across high impact sectors, including: Water and Wastewater Treatment, Power Generation, Oil & Gas.

Website: filtxpo.com



Aquatech China

Date: From 28 to 30 October 2026

Location: 2345 Long Yang Road Pudong New Area
201204, China

China is making monumental investments in this sector, recognizing the critical need to address water shortages in its cities. With a mandate for cities to reclaim 25% of used water, the commitment is clear. This drive is further evidenced by the planned construction of 100 new sewage treatment plants.

Website: aquatechtrade.com/shanghai



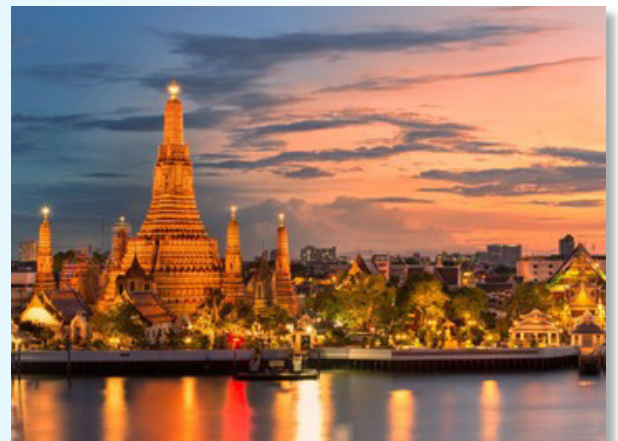
Aquatech Asia

Date: From 25 to 27 November 2026

Location: Queen Sirikit National Convention
Center, Bangkok


The most recent addition to the well-known Aquatech portfolio is Aquatech Asia, which will be present at flagship trade shows in China, Mexico, and Amsterdam. Southeast Asian water experts, innovators, and decision-makers will come together at Aquatech Asia.

Website: aquatechtrade.com/asia





**Beyond Traditional Water:
Enter the Age of AI-Driven
Efficiency**



In a world where water scarcity, climate change, and rapid urbanization are placing unprecedented pressure on resources, the water sector is undergoing a profound transformation. At the heart of this shift is Artificial Intelligence (AI) no longer a futuristic concept, but a powerful operational force reshaping how water is managed, treated, and distributed. Today, AI is redefining operations, enhancing efficiency, and enabling faster, smarter decision-making. It is accelerating the transition from conventional systems to intelligent, data-driven ecosystems marking the beginning of a new era: smart water.

A Critical Turning Point for Water Systems

Water utilities worldwide are facing increasing pressure due to:

- Rising demand for clean water
- Aging infrastructure

- High operational and energy costs
- Significant water losses (Non-Revenue Water)

Traditional approaches are no longer sufficient. AI introduces a smarter paradigm—transforming vast amounts of data into actionable intelligence.

Turning Data into a Competitive Advantage

Modern water systems generate massive volumes of data through sensors, meters, and SCADA platforms. AI converts this data into real-time insights that empower operators to act with precision and speed.

This enables:

- Continuous system monitoring
- Predictive maintenance
- Automated process optimization
- Faster, data-driven decision-making

The industry is shifting from reactive operations to predictive, proactive management.

Innovation in Action: AI Transforming Real Operations

- Talking to Water Plants: The Rise of AI Assistants

A groundbreaking collaboration between Veolia and Mistral AI is redefining plant operations.

By leveraging advanced AI assistants powered by Large Language Models (LLMs), operators can now “interact” with treatment systems in real time.

Key capabilities:

- Instant access to operational data
- Real-time system insights
- Optimized maintenance strategies
- Enhanced decision support

Impact:

- Improved operational safety
 - Reduced system failures
 - Greater transparency
 - Increased efficiency

Reimagining Water Reuse at Massive Scale

In the United States, xAI—founded by Elon Musk—is partnering with Cerafiltec to develop one of the world's largest ceramic membrane bioreactor (MBR) systems.

Project highlights:

- Location: Memphis, United States
- Capacity: 49.2 million liters/day
- Purpose: Supporting large-scale data centers

Why it matters:

- Reduces reliance on freshwater resources
- Enhances reuse efficiency
- Supports sustainable industrial growth

Winning the Battle Against Water Loss

Water loss remains one of the sector's most critical challenges.

A collaboration between GWF and Microsoft is tackling this issue using AI-powered analytics.

Results:

- Up to 35% reduction in losses
- Millions of liters saved
- Lower infrastructure costs

Global deployment:

Europe, the UK, South Africa, and the United States.

From Treatment Plants to Intelligent Ecosystems

AI is transforming conventional treatment facilities into intelligent, self-optimizing ecosystems.

Key benefits:

- Continuous optimization
- Reduced human error
- Lower energy consumption
- Improved water quality

The result is more resilient and adaptive operations.

Predict Before It Breaks: The Power of AI Maintenance

Instead of reacting to failures, AI enables predictive maintenance anticipating issues before they occur.

Benefits:

- Reduced downtime
- Lower maintenance costs
- Extended asset lifespan
- Smarter resource allocation

Predictive maintenance is no longer optional it's a strategic advantage.





Cut Costs, Save Energy, Drive Sustainability

Water operations are energy-intensive but AI is changing that.

Applications:

- Pump optimization
- Smarter aeration control
- Reduced energy waste
- Energy load balancing

Outcome:

- Lower operational costs
- Reduced carbon footprint
- Stronger sustainability performance

Water Quality, Reinvented by Intelligence

Ensuring water quality is mission-critical and AI elevates it to a new level.

Capabilities:

- Real-time monitoring
- Early contamination detection
- Automated treatment adjustments
- Predictive risk analysis

This ensures safer water and higher operational confidence.

Smart Cities Demand Smarter Water Systems

As cities evolve, water infrastructure must keep pace.

AI enables:

- Demand-driven distribution
- Integration with smart grids
- Faster emergency response
- Enhanced urban resilience

Water becomes a core pillar of smart city ecosystems.

The Next Wave: Where Innovation is Heading

The future of AI in water is already unfolding.

Key trends:

- AI-powered desalination
- Autonomous treatment plants
- IoT-integrated monitoring systems
- Climate-resilient predictive analytics

These innovations will define the next generation of water infrastructure.

A Market Full of Opportunity

AI in water is not just innovation it's a strategic investment.

Why it matters:

- High return on investment
- Sustainability alignment
- Operational excellence
- Competitive advantage

Early adopters are shaping the future of the industry.

The Future is Smart. The Future is Now.

The AI revolution in water is not coming—it is already here. From intelligent treatment plants to self-optimizing networks, AI is redefining every stage of the water cycle. In a world where every drop matters, intelligence is the ultimate differentiator.





The End of Blockages: How AI is Powering Unstoppable Flow

In modern infrastructure whether in water networks, wastewater treatment plants, or industrial processing systems blockages are more than just an inconvenience. They are a costly, disruptive, and sometimes hazardous challenge that can compromise efficiency, damage equipment, and interrupt operations. Traditionally, preventing blockages has relied on routine maintenance, manual inspections, and reactive responses. But today, a new approach is reshaping the industry: Artificial Intelligence (AI). AI is not just a buzzword it is becoming a practical, powerful tool for predicting, preventing, and managing blockages before they escalate into major problems. By combining data analytics, machine learning, and real-time monitoring, AI offers a proactive strategy that transforms how systems are designed, operated, and maintained.



The True Cost of a Silent Threat

Blockages can occur in various systems: pipelines, filtration units, pumps, valves, and drainage networks. Their causes range from sediment buildup and biofilm formation to grease accumulation and foreign object intrusion. Regardless of the source, the consequences are often the same:

- Reduced flow efficiency
- Increased energy consumption
- Equipment wear and failure
- Unplanned downtime
- High maintenance costs

From Guesswork to Intelligence: A New Operational Era

AI introduces a fundamental shift from reactive maintenance to predictive intelligence. Instead of waiting for a blockage to occur, AI systems continuously analyze data to detect early warning signs and predict potential issues.

This is made possible through:

- **Sensor Integration:** Flow rates, pressure levels, temperature & vibration data are collected in real time
- **Machine Learning Models:** Algorithms learn from historical data to identify patterns associated with blockages
- **Anomaly Detection:** AI detects deviations from normal system behavior before they escalate

For example, a slight but consistent increase in pressure combined with a minor drop in flow rate could indicate early-stage buildup inside a pipe. AI systems can flag this condition immediately, allowing operators to take preventive action.

Always On, Always Aware: The Power of Real-Time Insight

One of the most valuable advantages of AI is real-time monitoring. Instead of periodic inspections, systems are continuously observed, providing a dynamic view of performance.

AI-driven platforms can:

- Send instant alerts when abnormal conditions are detected
- Prioritize issues based on severity
- Recommend corrective actions
- Integrate with maintenance scheduling systems

This reduces response time significantly and ensures that minor issues are addressed before they evolve into full-scale blockages.



Maintenance, Reinvented: Smarter Decisions, Better Results

Traditional maintenance strategies often rely on fixed schedules—cleaning pipes every few months or inspecting pumps at regular intervals. While this approach is simple, it is not always efficient. Some components may be serviced unnecessarily, while others may fail before their scheduled maintenance.

AI enables condition-based maintenance, where actions are taken based on actual system performance rather than predefined timelines.

Benefits include:

- Reduced maintenance costs
- Extended equipment lifespan
- Improved resource allocation
- Minimized downtime

For instance, instead of cleaning an entire pipeline network, AI can identify specific sections that require attention, saving both time and resources.



Resilient Water Systems Start with Intelligent Monitoring

In water and wastewater treatment plants, blockages are a common and persistent issue. Screens, filters, aeration systems, and sludge handling units are all susceptible to clogging.

AI can play a critical role in:

- **Screening Optimization:** Detecting when screens are approaching capacity and need cleaning
- **Filter Performance Monitoring:** Identifying clogging trends in sand or media filters
- **Aeration Efficiency:** Monitoring airflow distribution and preventing diffuser blockage
- **Sludge Management:** Predicting thickening or dewatering issues

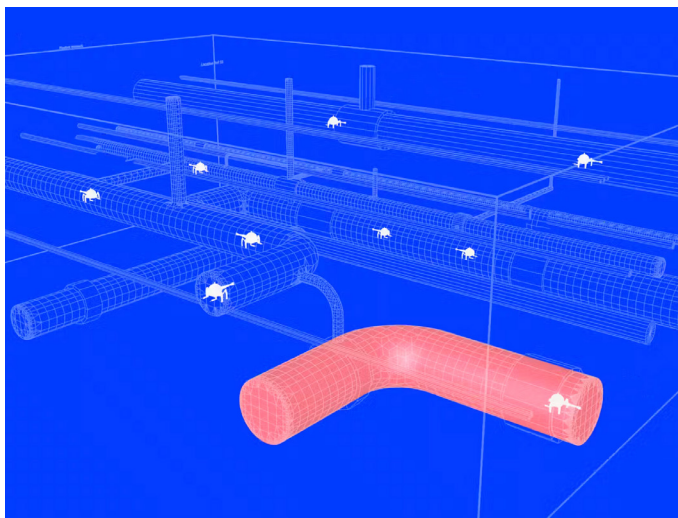
By integrating AI into plant operations, operators gain deeper insight into system behavior and can maintain optimal performance with fewer disruptions.

Beyond Water: Protecting Critical Industrial Processes

AI-driven blockage prevention is not limited to water systems. It is equally valuable in industries such as:

- Food and beverage processing
- Oil and gas pipelines
- Chemical manufacturing
- Pharmaceutical production

In these sectors, blockages can affect product quality, safety, and compliance. AI helps ensure consistent flow conditions and reduces the risk of contamination or process failure.



From Challenge to Competitive Advantage: A Real-World Transformation

Consider a mid-sized wastewater treatment facility that frequently experienced pipeline blockages due to grease and organic buildup. Despite regular maintenance, unexpected clogs caused operational delays and increased costs.

After implementing an AI-based monitoring system:

- Sensors were installed to track flow and pressure in key pipeline segments
- Machine learning models were trained using historical blockage data
- The system began identifying early signs of buildup

Within months, the facility reported:

- A significant reduction in emergency maintenance incidents
- Improved system reliability
- Lower operational costs
- Better compliance with environmental standards

Real Case Study: Thames Water – United Kingdom

Faced with recurring sewer blockages caused by grease accumulation and solid waste (fatbergs), Thames Water one of the largest water utilities in the UK needed a smarter, more proactive solution.

In collaboration with Xylem, the company implemented intelligent monitoring and data-driven analytics to better manage its sewer network and predict blockages before they occurred.

Implementation included:

- Installing sensors to monitor flow and pressure across critical network points
- Applying advanced analytics to detect abnormal patterns
- Identifying high-risk blockage zones within the network

Results achieved:

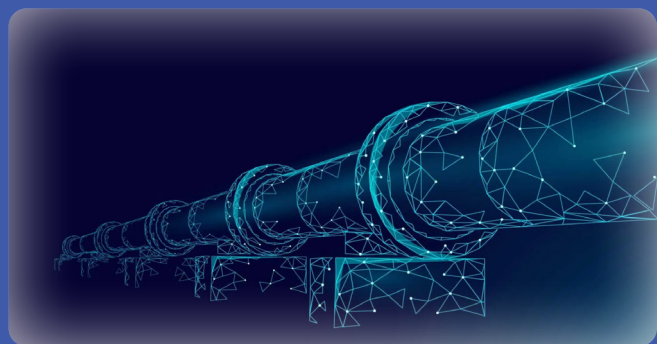
- Significant reduction in unexpected sewer blockages
- Improved operational efficiency
- Lower emergency maintenance costs
- Enhanced service reliability

What It Takes to Succeed: Key Considerations

While AI offers powerful advantages, successful implementation requires careful planning. Key considerations include:

- **Data Quality:** AI systems rely on accurate and consistent data
- **Integration:** Infrastructure must support sensors and monitoring platforms
- **Expertise:** Skilled teams are needed to manage and interpret systems
- **Initial Investment:** Upfront cost is offset by long-term savings

However, as technology continues to evolve, these barriers are becoming easier to overcome.



Engineering the Future: Where AI Meets Infrastructure

The role of AI in preventing blockages is only expected to grow. Future developments may include:

- Fully autonomous systems capable of self-adjusting operations
- Advanced digital twins simulating real-time performance
- Integration with IoT networks for expanded data visibility
- AI-driven design optimization to minimize risks from the start

As these innovations mature, the concept of “zero unplanned downtime” becomes increasingly achievable.

Conclusion: Keep the Flow Moving, Intelligently

Preventing blockages is no longer just about cleaning and maintenance it is about intelligence, prediction, and control. AI empowers organizations to move beyond reactive strategies and adopt a proactive, data-driven approach that enhances efficiency, reduces costs, and ensures system reliability.

In a world where infrastructure demands are constantly increasing, the ability to maintain uninterrupted flow is a competitive advantage. AI is not just helping to prevent blockages it is redefining how systems operate at their core.



AI



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Modern Awareness: How Social Media is Changing the Way People Understand Water



Imagine scrolling through your phone and coming across a short video showing a glass of crystal clear water, followed by a shocking fact: clear water is not always safe water. Within seconds, you start thinking about the water you drink every day, where it comes from, and what might be inside it. This is the power of modern communication. Today, social media is no longer just entertainment; it has become a major tool for education, awareness, and public engagement, especially when it comes to water. People usually focus on water only when there is a shortage, a visible pollution issue, or a health concern. However, with increasing environmental challenges, growing populations, and climate change, water awareness has become more important than ever. Social media platforms are now playing a key role in shaping how individuals understand water quality, water safety, and water sustainability.

Why Water Awareness Matters More Than Ever

Water is directly linked to public health, food production, & economic development. Safe drinking water protects communities from disease, while clean water sources support agriculture and industry.

Unfortunately, many regions around the world face problems such as contamination, aging infrastructure, drought, and excessive consumption. In many cases, people may not realize how fragile water systems can be. A small change in weather patterns, a local industrial discharge, or even poor household plumbing can affect water quality. Raising awareness is the first step toward improving water habits and encouraging responsible water use.

Social Media as a Modern Educational Platform

In the past, people learned about water issues mainly through schools, newspapers, or government announcements. Today, information spreads much faster through platforms like Facebook, Instagram, YouTube, TikTok, and LinkedIn. Educational content can reach millions within hours, especially when it is presented in a simple and engaging format. Short videos, infographics, and interactive posts can explain complex topics such as water pollution, filtration, desalination, and wastewater treatment in a way that the public can easily understand. Social media allows experts, environmental activists, and even ordinary individuals to share experiences and knowledge, making water-related discussions more accessible than ever.



Community Engagement and Local Awareness

One of the strongest advantages of social media is its ability to connect communities. Water issues are often local. Different cities and regions face different challenges, such as groundwater contamination, drought, or poor distribution systems.

Through social media, communities can share local news, raise concerns, and encourage participation in initiatives such as beach clean-ups, river protection programs, and water-saving campaigns. Local engagement turns online awareness into real-world action, which is the most important goal of any water-related communication.

How Social Media Can Shape Future Water Behavior

Social media does not only spread information; it shapes attitudes. When people repeatedly see content about water scarcity, pollution, or conservation, their mindset begins to change. Over time, awareness can lead to better habits, such as fixing leaks, reducing unnecessary water usage, and supporting sustainable practices.

In addition, digital awareness can create public pressure for better water policies and infrastructure improvements. When water becomes a trending topic, it forces more people, including decision makers, to pay attention. This is how social media can influence the future of water management on both individual and societal levels.

Conclusion

Water is a resource that impacts every aspect of life, yet many people still lack basic knowledge about where their water comes from and how to protect it. In today's world, social media has become one of the most effective tools for improving public understanding of water issues. A single post, video, or infographic can spark curiosity, spread awareness, and inspire action. Modern water awareness is not just about knowing facts; it is about changing behavior. And as long as social media continues to connect people globally, it will remain a powerful platform for promoting water safety, conservation, and sustainability for future generations.

The Challenge of Misinformation

While social media can be a powerful tool for learning, it also has a major downside: misinformation spreads quickly. People may share incorrect tips about drinking water safety, boiling water, or home filtration methods without verifying the facts. Some viral posts may exaggerate risks, while others may underestimate serious problems.

This creates confusion and can lead to poor decision-making. That is why reliable water education must focus not only on sharing information but also on encouraging critical thinking and promoting trustworthy sources. The most effective awareness content is clear, evidence-based, and supported by scientific explanations.


What Kind of Water Content Creates Real Impact?

Not all content attracts attention, and not all awareness posts lead to action. The most successful water-related content usually connects directly to daily life. People respond strongly to topics that affect their families, health, and expenses.

Examples of highly engaging water content include:

- Quick facts about water consumption and waste
- Simple explanations of common water problems like hardness, salinity, and chlorine taste
- “Myth vs. Fact” posts about water safety
- Visual comparisons of polluted and clean water sources
- Tips for reducing household water usage
- Educational posts about plastic waste and its impact on oceans and rivers

When information is presented in a relatable way, it becomes more memorable and more likely to influence behavior.



Designing the Future of Water: Smart Engineering for High-Performance RO Systems

Reverse osmosis (RO) systems have become a cornerstone in producing high-quality water across municipal, industrial, and seawater desalination applications. Today, success no longer depends solely on component efficiency; it is driven by the quality of engineering design and its ability to deliver maximum performance at the lowest possible operational cost. Modern RO system design integrates technological innovation, advanced data analytics, and energy optimization to ensure long-term stability, reliability, and sustainability.

Design Starts with Water: Understanding Your Feed

A successful RO system begins with a comprehensive understanding of feed water characteristics. This has evolved beyond traditional laboratory testing to include:

- Real-time water quality monitoring
- AI-driven predictive analytics
- Digital monitoring platforms

Key parameters include:

- Total Dissolved Solids (TDS)
- Silt Density Index (SDI)
- Scaling and fouling potential
- Organic and microbial load

Takeaway: Accurate water characterization enhances system design, optimizes component selection, and minimizes operational risks.

Design Flux: A Critical Parameter

Flux—defined as permeate flow per unit membrane area—is one of the most influential design parameters in RO systems:

- Higher flux = lower capital cost
- Lower flux = improved membrane life and operational stability

Engineering Insight: A balanced flux is essential. Excessively high flux accelerates fouling and increases operating costs, while conservative flux ensures long-term performance and reliability.

Recovery Rate: Balancing Output and Risk

Recovery rate represents the percentage of feed water converted into permeate:

- Higher recovery = increased water production
- However, higher recovery also leads to:
 - Increased scaling risk
 - Higher operating pressure
 - Greater membrane stress

Modern Approach: Dynamic recovery control rather than fixed recovery enables a balance between production efficiency and membrane protection.



System Configuration: Stage Design Matters

RO array configuration plays a critical role in hydraulic performance and recovery optimization:

- Single-stage systems: Simple and suitable for low-recovery applications
- Multi-stage systems: Enable higher recovery, balanced flux, and optimized pressure distribution

Common configuration: 2:1 Array

Impact: Proper staging reduces membrane stress, minimizes fouling, and extends system lifespan.

Membrane Innovation: The Core Evolves

Membrane technology continues to advance, delivering:

- Low-energy membranes
- Fouling-resistant coatings
- High salt rejection performance

Leading companies such as DuPont Water Solutions and Toray Industries are driving this innovation.

Result: Higher productivity, reduced energy consumption, and enhanced long-term stability.



Energy Efficiency: From Cost to Competitive Advantage

Energy consumption remains one of the largest operational costs particularly in seawater desalination.

Modern solutions include:

- Energy Recovery Devices (ERDs)
- High-efficiency pumps
- Optimized hydraulic design

Technologies developed by Energy Recovery Inc. have significantly reduced energy consumption and operating costs.

Smart RO Systems: The Digital Era

RO systems are now evolving into intelligent, data-driven platforms through the integration of:

- SCADA systems
- AI-based predictive maintenance
- Real-time performance optimization

Benefits:

- Early fouling detection
- Automated pressure adjustments
- Stable and consistent system performance

Pretreatment: The First Line of Defense

Effective pretreatment is essential to protect membranes and ensure long-term stability:

- Ultrafiltration (UF)
- Dissolved Air Flotation (DAF)
- Advanced chemical dosing

Engineering Impact:

- Reduced fouling rates
- Extended membrane lifespan
- Fewer chemical cleaning cycles
- Improved operational stability



Sustainability & Brine Management

Environmental responsibility is now a key driver in RO system design:

- Zero Liquid Discharge (ZLD)
- Water reuse strategies
- Mineral recovery technologies

Design for Operability: Simplicity = Efficiency

A well-designed RO system is not only efficient but also easy to operate and maintain:

- Modular system design
- Automated Cleaning-in-Place (CIP)
- Easy access to critical components

Outcome: Reduced downtime, simplified operation, and improved system reliability.

Case Study | Sydney Desalination Plant

Project Overview

A large-scale seawater reverse osmosis (SWRO) facility, the Sydney Desalination Plant plays a critical role in securing water supply for Sydney, Australia. The plant is operated and maintained by Veolia Water Technologies as part of a long-term partnership.

Capacity: ~250,000 m³/day

Technology: Seawater Reverse Osmosis (SWRO)

Engineering Challenges

- Variable seawater quality and seasonal fluctuations
- Strict environmental and sustainability requirements
- High energy demand associated with SWRO processes
- Need for reliable, continuous water supply during drought periods

Engineering Solutions Applied

- Optimized multi-stage RO system design for balanced performance
- Integration of Energy Recovery Devices (ERDs) to reduce energy consumption
- Advanced pretreatment systems to protect membranes and reduce fouling
- Full reliance on renewable energy sources to offset power consumption
- Implementation of digital monitoring and control systems for real-time optimization

Results Achieved

- Reliable production of high-quality drinking water
- Significant reduction in energy-related environmental impact
- Stable system performance under varying feed water conditions
- Enhanced membrane lifespan and reduced maintenance frequency



Conclusion | Engineering is the Real Differentiator

In a market where technologies and components are increasingly similar, engineering design becomes the true differentiator, shaping the overall efficiency, reliability, and sustainability of RO systems. A well-engineered system goes beyond component selection to integrate optimized design parameters, smart configurations, and advanced monitoring capabilities, ultimately delivering higher productivity, lower operational costs, extended equipment lifespan, and consistently stable, reliable performance even under varying operating conditions.

Buyers Guide for Water and Renewable Energy Companies

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Gestamp and Iberdrola sign a 10-year agreement for the supply of clean energy in Europe

Iberdrola and Gestamp have signed a 10-year Power Purchase Agreement (PPA) for the supply of 660,000 megawatt hours of 100% renewable energy to Gestamp’s European plants. The agreement, covering 34 megawatts of capacity, consists of 80% wind and 20% solar energy, ensuring stable, competitive pricing aligned with Gestamp’s sustainability goals. This partnership underscores both companies’ commitment to a sustainable industrial model focused on electrification and energy efficiency. Iberdrola aims to strengthen its role in the industrial sector and enhance its PPA portfolio, contributing to the decarbonization of the automotive supply chain.



Zhong Baoshen Attends Boao Forum for Asia Annual Conference 2026, LONGi’s “Solar-Storage-Hydrogen” Strategy. Empowers China-Australia Green Cooperation



The Boao Forum for Asia Annual Conference 2026, held in Hainan, focused on “Shaping the Common Future” amid geopolitical shifts and climate governance needs. A key event was the China-Australia Entrepreneur Dialogue, where LONGi’s chairman, Zhong Baoshen, discussed enhancing economic cooperation and green development. He highlighted the impact of a recent Memorandum of Understanding on trade, which reduced costs for Australian solar projects. LONGi’s “Solar-Storage-Hydrogen” strategy aims to address energy transition challenges. Zhong emphasized collaboration with Australian institutions and the need for unified green standards to support renewable projects, as Australia pursues its 2030 renewable energy target.

TotalEnergies and Masdar to form \$2.2 billion Joint Venture to Accelerate Renewable Energy Growth in Asia

Masdar and TotalEnergies have formed a joint venture (JV) to develop renewable energy projects across Asia, including solar, wind, and battery storage in countries such as Azerbaijan, Indonesia, and Japan. The JV aims for a portfolio capacity of 3 GW of operational assets and 6 GW in advanced development by 2030. Dr. Sultan Al Jaber of Masdar emphasized the UAE’s leadership in renewable energy, while TotalEnergies’ CEO Patrick Pouyanné highlighted the collaboration’s potential to create significant market value. Headquartered in Abu Dhabi, the JV will employ around 200 staff and is pending regulatory approvals for finalization.



Vestas wins 62 MW onshore order in Germany

Vestas announced that it has won a contract to build a 62 MW onshore wind power project in Germany. The contract includes the supply and installation of wind turbines, as well as a service agreement to guarantee operation and maintenance. The project is scheduled to be completed in the coming years according to the timeline specified in the agreement. This contract is part of the company's activities in the European wind energy market, where it continues to develop new renewable energy projects.



Goldwind Statement on the European Commission's Investigation under the Foreign Subsidies Regulation



The European Commission announced an in-depth investigation into Goldwind Science & Technology Co., Ltd.'s operations in the EU wind power market under the Foreign Subsidies Regulation (FSR). Goldwind will cooperate fully with EU authorities during the investigation. The company emphasizes compliance and maintains robust governance and internal controls across all markets, including the EU, where operations continue normally. Goldwind is committed to technological innovation and quality, believing that a fair international trade environment is vital for addressing climate change. The company aims for constructive dialogue with the Commission to clarify facts and focus on sustainable energy solutions.

Impact of Middle East conflict on Shell activities

Shell Plc reported that its operations in the Middle East have been affected by the ongoing regional conflict. In Qatar, liquefied natural gas production was halted in early March 2026 following attacks on energy facilities. A fire also occurred at the Pearl GTL plant but was quickly contained with no reported injuries. The company confirmed that all personnel are safe and is working closely with partners and authorities to assess damage and restore operations. Shell noted that these disruptions may impact global energy markets and supply, while it continues monitoring the situation and taking measures to manage operational risks.



Global Energy Events

Renewables Procurement & Revenue Summit

Date: 20 & 21 May 2026

Location: Hilton London Tower Bridge

The Renewable Procurement & Revenue Summit 2026 brings together the UK and Ireland's renewable energy ecosystem to address these realities head on. Over two days, featuring dedicated Buyer and Seller streams, the Summit blends plenary discussions, expert panels, case studies, executive interviews, and peer to peer roundtables to deliver actionable insights on market trends, risk mitigation, and innovative contracting solutions.

Website: renewablerevenue.co.uk



The Battery Show Europe

Date: From 9 to 11 June 2026

Location: Messe Stuttgart, Germany

Join Peers at the Leading Meeting Place for the Advanced Battery and H/EV Technology Community. Meet battery manufacturers, suppliers, engineers, thought leaders, and decision makers for a conference and battery tech expo focused on the latest developments in the advanced battery and automotive industries.

Website: thebatteryshow.eu



PV ModuleTech USA

Date: 16 & 17 June 2026

Location: Napa, USA

The event will gather the key stakeholders from solar developers, solar asset owners and investors, PV manufacturing, policy making and all interested downstream channels and third-party entities

Website: pvtechconferences.com/pv-moduletech-usa



Intersolar Europe

Date: From 23 to 25 June 2026

Location: At Messe München

As the world’s leading exhibition for the solar industry, Intersolar Europe demonstrates the enormous vitality of the solar market. For more than 30 years, it has been providing a networking opportunity for the key players from manufacturers, suppliers and distributors to installers, service providers, project developers, planners and start-ups all under the motto “Connecting Solar Business”.

Website: intersolar.de



International Energy Storage & Battery Conference & Exhibition

Date: From 9 to 11 October 2026

Location: Shanghai World Expo Exhibition and Convention Center

Council (Preparatory), New Energy Industry Association for Asia and the Pacific, European Association of Energy Storage Trade, China Electric Power Construction Association, Shanghai Federation of Industrial Economics, Shanghai New Energy Industry Association, and the SNEC PV, Storage & Hydrogen Energy Alliance, the SNEC ES+ 13th (2026) International Energy Storage & Battery Conference & Exhibition (abbreviated as “2026 SNEC ES+ Exhibition”) will be grandly held.

Website: energystorageexpo.org



Battery Asset Management Summit Europe 2026

Date: 2 & 3 December 2026

Location: Hotel nhow Roma, Italy

Europe saw unprecedented growth in energy storage last year, with a record-breaking 12GW installed, and Battery Energy Storage Systems (BESS) continued to dominate this expansion. What continued to set this summit apart was the strength of its community. Through technical workshops and structured networking, stakeholders came together not only to learn but also to work through the real operational challenges shaping Europe’s storage landscape.

Website: batteryeurope.solarenergyevents.com





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