



**ADVANCED
SOLUTIONS &
TECHNOLOGIES LTD**

Total Solutions Portfolio

CONTENTS

About Us	Page 3	MBBR Conversions	Page 24
Partnerships	Page 7	Mobile Air Grid Systems	Page 26
Pile Cloth Filters	Page 9	Diffusers	Page 28
Dissolved Air Flotation	Page 14	Maintenance	Page 30
Drum Filters	Page 18	Electrical Control Systems	Page 32
MBBR	Page 21	Contact Us	Page 34

ABOUT US

WHO WE ARE

We are a dedicated team with 40+ years of wastewater treatment expertise, delivering cost-effective, high-quality solutions. We're currently a team of three, supported by three contract engineers. We focus on long-term client partnerships through reliable service, strong technical support, and sustainable, innovative practices.



Gus Willis

Managing Director

Gus brings extensive expertise in the wastewater industry, drawing on years of leadership in sales and business development across the sector. With deep industry networks and a track-record of driving growth in water-treatment solutions, Gus is a trusted partner for clients seeking strategic insights and operational excellence in wastewater infrastructure.



Spencer Phillips

Project Manager

Spencer is an accomplished PM with over a decade of experience in engineering and utilities. He has led multi-disciplinary teams delivering complex mechanical and electrical projects with a strong focus on safety, efficiency, and quality. At AS&Tech, Spencer combines technical expertise with proven leadership to drive operational excellence and exceed client expectations.



Ashton Togneri

Operations Manager

Ashton is results-driven with a talent for streamlining processes and leading high-performing teams. With extensive experience driving efficiency and excellence, she now applies her expertise within the wastewater sector - optimising performance, ensuring compliance, and championing sustainable operations.

CORE AREAS OF EXPERTISE

MBBR Design & Technical Sales

We serve as the technical sales office and designer for mobile MBBR (Moving Bed Biofilm Reactor) treatment plants across the UK, offering both new installations and retrofits to existing wastewater treatment sites.

Innovation & Environmental Focus

With over 30 years of industry experience, the team offers consulting and technical assistance using a flexible, innovative approach – all with an emphasis on environmental sustainability and clean water solutions.

Pile Cloth Filtration (Tertiary)

In collaboration with IN-EKO, we provide advanced pile cloth filtration systems – high efficiency tertiary filters designed to deliver outstanding solid removal with minimal water loss & low energy consumption. These systems are compact, reliable, and adaptable.

Compact, High-Efficiency Treatment

AS&Tech emphasises compact, efficient wastewater treatment technologies, with 100% submerged discs and intensified compact versions. The pile cloth filter delivers high capacity on a compact footprint, with tailor-made discs from just 1m up to 3m diameter. Compact models with up to 32 discs at 2.2 maximise filtration area while minimising space & operating costs.

Retro-Fit MBBR Solutions

We specialise in integrating retro-fit MBBR systems into established wastewater treatment works, boosting capacity and efficiency while keeping costs down. This extends asset life, improves compliance, and delivers long-term performance without the need for major rebuilds.

Client Focused

We position ourselves as a small, highly responsive team focused on delivering quality, value, and strong service – aiming to convert first-time customers into long term clients through ongoing support and innovation.

DAF Solutions

We supply and support high-performance DAF systems for solid-liquid separation across municipal and industrial wastewater applications. Our offering includes compact, energy-efficient units, tailored system design, integration with existing works, and full lifecycle technical support.

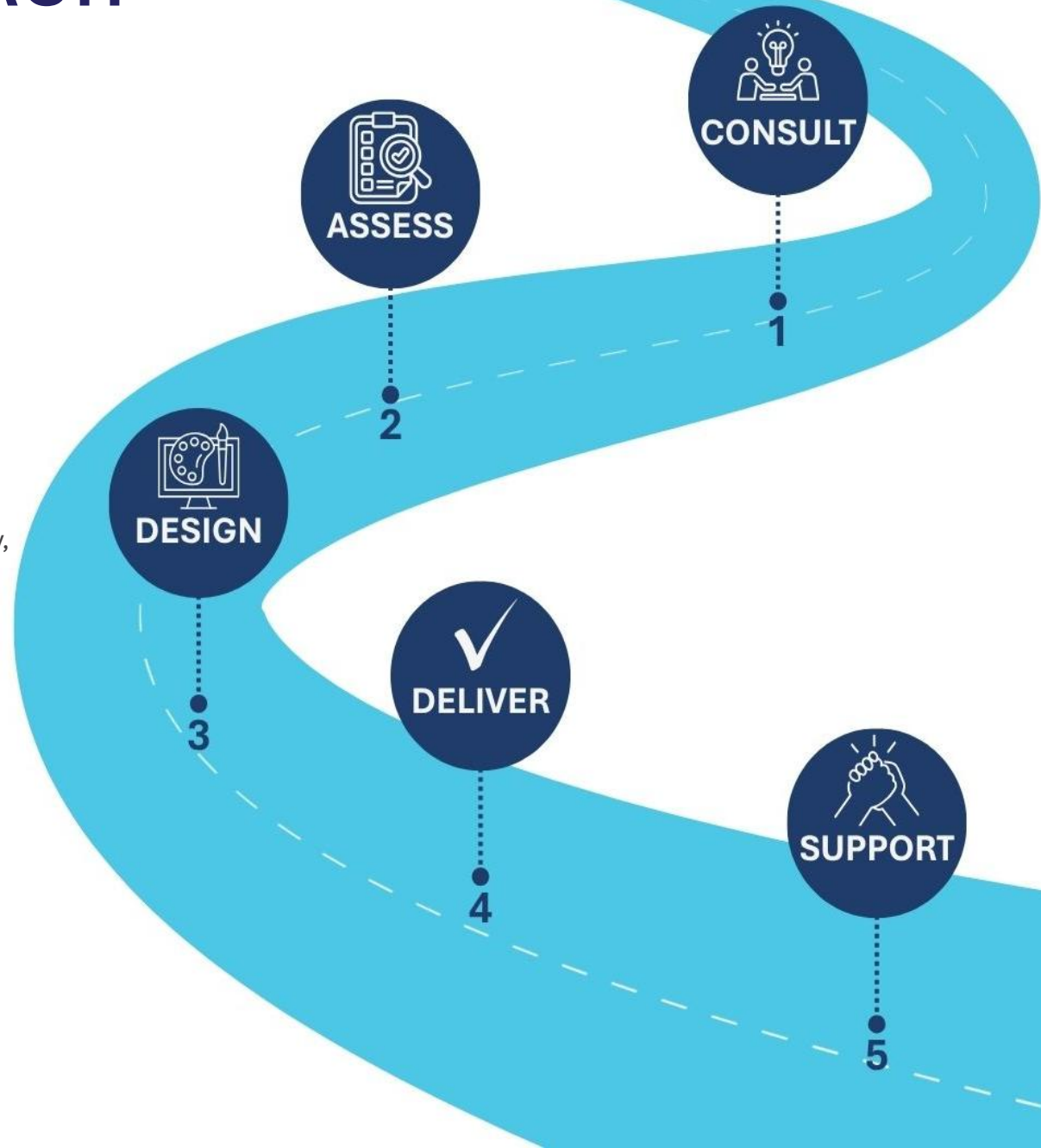
Flexible Hire & Hire-to-Purchase

We offer adaptable equipment hire packages to suit short-term needs, emergency capacity boosts, or budget-conscious projects. Options range from simple short-term hire to structured hire-to-purchase programmes, giving clients the flexibility to scale operations while spreading investment over time.

OUR APPROACH

At Advanced Solutions and Technologies Ltd, we take a structured yet flexible approach to every project, ensuring each solution is tailored to the specific needs of our clients.

From the first conversation through to installation and long-term support, our process is designed to deliver efficient, sustainable, and reliable wastewater treatment outcomes. This step-by-step method ensures clarity, consistency, and value at every stage.



1 Consult with client to fully understand their treatment challenges, flow requirements, and consent standards. Gather technical data and project objectives to shape the solution.

2 Conduct a detailed assessment of the treatment works to assess available space, hydraulic profile, existing infrastructure, and integration requirements.

3 Design a solution, optimised for performance, footprint, and cost effectiveness. Provide clear specifications and budgetary proposal for client approval.

4 Coordinate the supply of equipment and manage delivery and installation on site. Ensure minimal disruption to ongoing operations through careful planning.

5 Test and commission to confirm performance against discharge consents. Provide operator training and offer long-term service, maintenance, and technical support.

PARTNERSHIPS

PARTNERSHIPS

Stronger Together

At AS&Tech, we recognise that delivering the best outcomes for our clients depends on working with the right partners. We have built a trusted network of specialist suppliers – including steel fabricators, media and air diffuser providers, and pile cloth filter cloth manufacturers – carefully selected for their quality, reliability, and expertise.

These relationships are actively managed and continuously reviewed. We regularly assess performance, revisit costs, and explore new opportunities within the market to ensure our clients receive the most effective and competitive solutions available.

Central to this approach is our partnership with IN-EKO, whose proven technology and global experience play a vital role in the solutions we deliver. We also work closely with Steve Shapter Electrical Services, supporting the integration of robust, high-quality electrical control systems across our projects.

We stand behind the partners we choose – because strong partnerships enable stronger results for our clients.

IN-EKO

AS&Tech partners with IN-EKO, a globally established specialist in wastewater treatment technologies, to deliver reliable, high-performance solutions.

By combining IN-EKO's proven systems with our local expertise, we provide flexible, tailored solutions for municipal and industrial applications - from primary treatment through to advanced tertiary filtration.

Together, we deliver integrated systems that maximise efficiency, ensure compliance, and support long-term performance.

Proven technology. Local expertise. Better outcomes.

Steve Shapter Electrical Services

AS&Tech partners with Steve Shapter Electrical Services to deliver high-quality, bespoke electrical control systems for a wide range of applications.

By combining their specialist expertise with our process knowledge, we provide tailored control solutions built to meet exact client requirements, including WIMES-compliant panels and seamless integration with SCADA systems.

Together, we support projects from concept through to commissioning - delivering reliable, flexible systems that enhance performance, simplify operation, and ensure long-term dependability.

Specialist expertise. Integrated solutions. Reliable control.

PILE CLOTH FILTERS

PILE CLOTH FILTERS

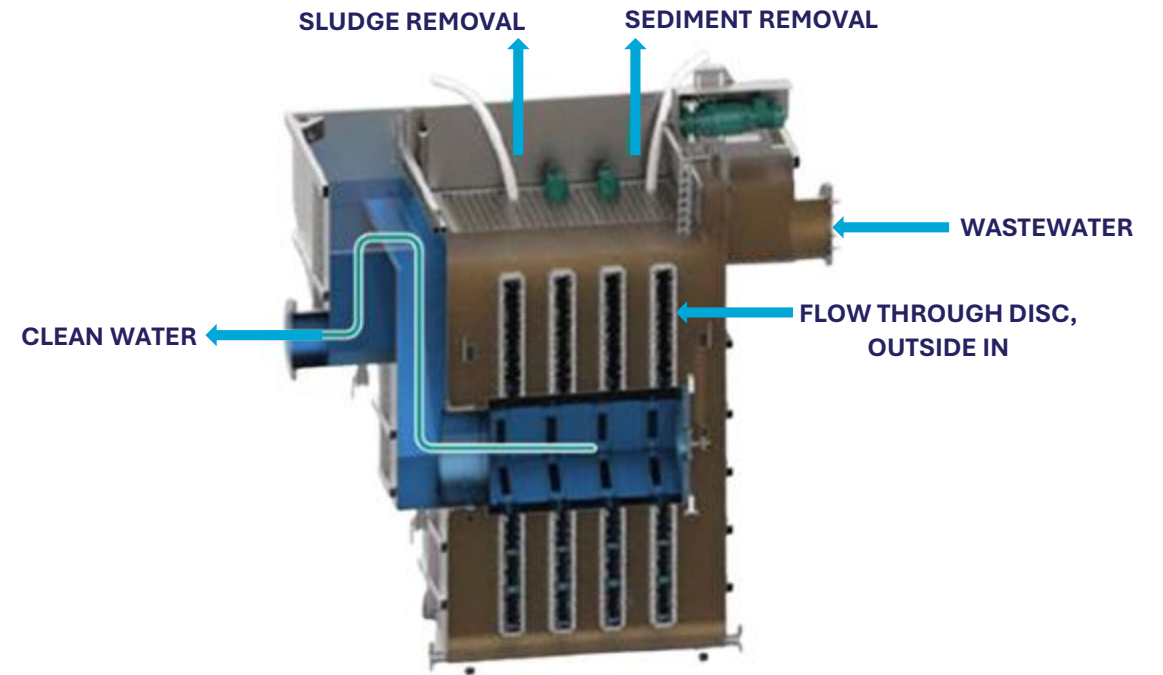
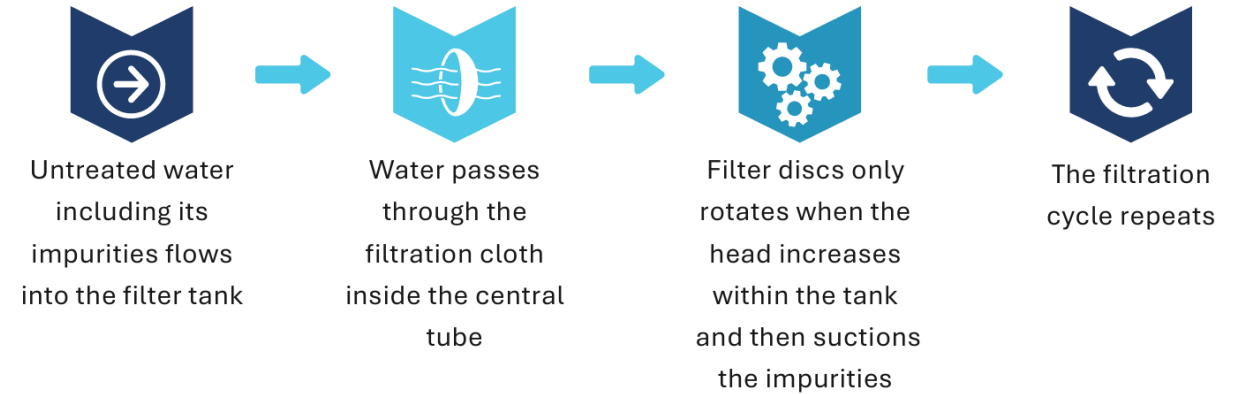


We are proud to have a partnership with IN-EKO, a global leader in water treatment innovation, to distribute pile cloth filters across the UK.

This collaboration brings state-of-the-art filtration technology to the region, delivering sustainable, high-performance solutions for municipal & industrial water treatment.

By combining IN-EKO's proven technology with Advanced Solution & Technologies' regional expertise & support, this partnership empowers water utility companies to achieve smarter, cleaner, and more resilient operations.

PILE CLOTH FILTERS & HOW THEY WORK

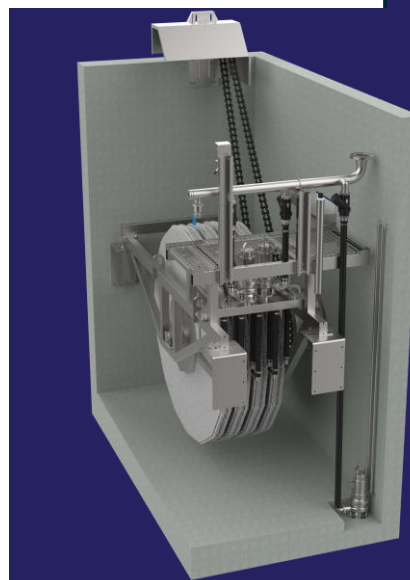
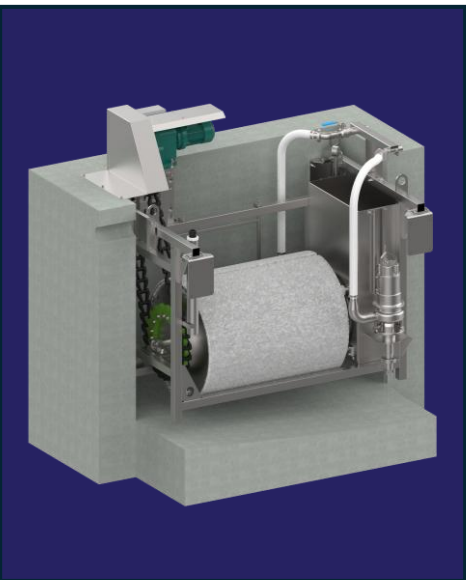


PILE CLOTH FILTERS

Key Features

The IN-EKO pile cloth filter combines precision engineering with robust materials to deliver reliable, high-capacity filtration. Its fully submerged disc design maximises surface area, while cloth filters ensure fine particle capture to 5µm ensure fine particle capture. The innovative OUT→IN principle with suction cleaning keeps operation continuous and efficient, supported by a long-life sealing system and maintenance-free chain.

Available in a flexible range of sizes - from compact 1m discs to large 3m units - the filter adapts easily to project demands. Designed for long-term performance, it can be installed in concrete channels or steel tanks, with options for covers, monitoring modules, and service platforms to suit diverse applications.



OVERALL BENEFITS



High-Quality Water Output: Removes TSS, reduces BOD, COD, and phosphorus down to 0.1mg/l, making it an excellent solution for both wastewater treatment and sensitive applications like potable water pre-treatment.



Energy-Efficient & Low-Cost Operation: Operates with continuous filtration (even during backwash), gravity flow design that saves energy, and exceptionally low power consumption – resulting in lower operational & maintenance costs.



Compact, Durable, and Versatile Design: 100% submerged with a higher filtration area per disc, long lifespan of filtration cloth, and adaptability to different sizes & industries. The design minimises installation space while offering strong resistance to influent fluctuations & shock loads.

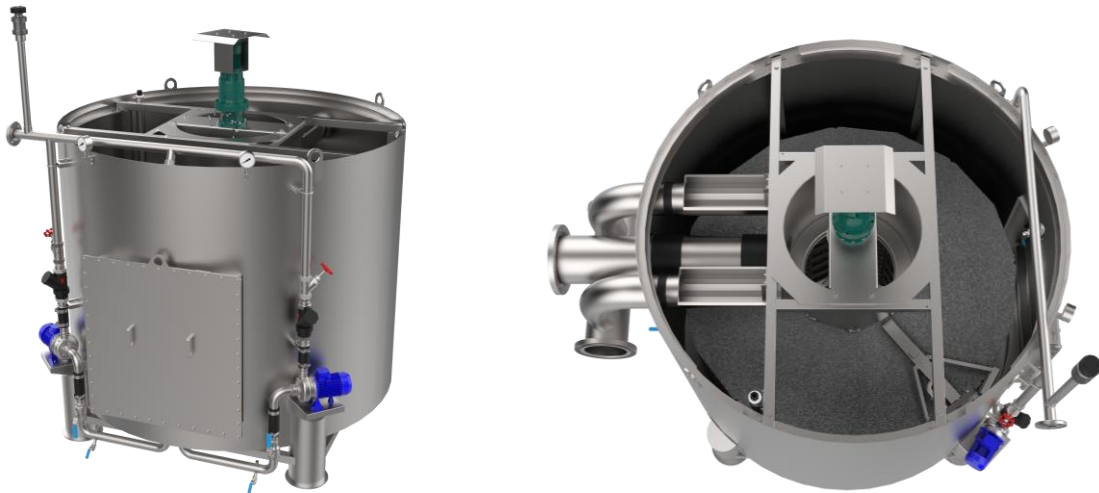
PILE CLOTH FILTERS

Vertical Pile Cloth Filtration

The IN-EKO vertical pile cloth filter is a compact, high-efficiency tertiary filtration solution designed for modern wastewater treatment. Its quiet OUT/IN vertical design enables continuous self-cleaning filtration with minimal operational disruption, while delivering high TSS removal, BOD/COD reduction, phosphorus reduction down to 0.1 mg/l, and treated effluent quality of ≤ 10 mg/l TSS.

The design is particularly well suited to UK WWTWs, where many sites are constrained, ageing, remote, or operationally complex. Its compact footprint, low operating costs, resistance to peak hydraulic loads, and integrated remote monitoring help reduce maintenance visits, simplify retrofit installations, and improve operational resilience across distributed treatment networks.

Smart filtration, maximum capacity, pure performance.



FILTER PERFORMANCE ON YOUR TERMS

Flexible Hire Options That Deliver Value.

Experience the full performance benefits of the Pile Cloth Filter without the upfront investment. Whether you prefer a full hire arrangement or a hire-to-buy pathway, we offer flexible options that let you introduce advanced filtration to your wastewater treatment works on terms that work for you.

Our Hire and Hire-to-Buy programs provide:

- Budget-friendly payment flexibility with no large capital outlay
- Immediate access to reliability and efficiency of pile cloth filtration
- A clear route to ownership if and when it fits your long-term plans
- Support and guidance from our team to tailor a solution that delivers maximum value

All hire agreements are subject to a minimum hire period of three months.

We'll work with you to understand your site and build a package that delivers proven performance, predictable costs, and real value.

Unlock superior filtration technology today, with the flexibility to choose the option that suits you best.



DISSOLVED AIR FLOTATION

DISSOLVED AIR FLOTATION

Purpose, Application & Partnership

Dissolved Air Flotation (DAF) is used to separate poorly wettable particles – such as sludge, fat, and oils – by attaching fine air bubbles that form flocs which float to the surface. It's widely applied in wastewater treatment, mineral and coal separation, and plastic recycling, especially where fats and oils disrupt downstream processes.

To enhance the availability and performance of our flotation systems, we work in partnership with IN-EKO, a recognised global supplier of advanced DAF technology. Through this collaboration, we provide robust, reliable DAF units supported by shared technical expertise and proven engineering.

Design Features

- ✓ **Rectangular tank:** more compact than circular models
- ✓ **Central contact zone:** separate inlets for raw and white water
- ✓ **Circulation circuit:** maintains air saturation
- ✓ **Chemical dosing system:** for tailored treatment
- ✓ **Sludge removal system:** blades skim floated sludge into a sludge tank

Microbubble Contact

Forms flocs that float

Surface Froth

Removed by a chain-driven blade system

Effluent Recycling

Part of the treated water recirculates for bubble generation

Chemical Treatment

If needed for pH adjustment, precipitation, or enhanced floc formation

DISSOLVED AIR FLOTATION



ALL
FOR
WATER

IN-EKO
TEAM



DAF PERFORMANCE ON YOUR TERMS

Flexible Options for DAF Units.

While our filtration systems are supported by established flexible hire and hire-to-buy pathways, we have not yet offered the same arrangements for our DAF units. However, this is something we can explore with you, particularly where there is a requirement for a minimum hire period of twelve months.

If a longer-term hire or a route to ownership is of interest, we would be happy to work with you to develop a suitable solution. With the right hire duration and site requirements, we can assess whether a tailored approach could provide a practical and cost-efficient pathway forward.

We are committed to working closely with you to understand your objectives and ensure your DAF investment delivers reliable performance, predictable costs, and long-term value.

DRUM FILTERS

DRUM FILTERS

Pile Cloth Drum Filter

We are proud to partner once again with IN-EKO TEAM, as their Pile Cloth Drum Filter is a modern, high-performance solution for fine filtration, designed to deliver reliable results even under fluctuating flows and high load conditions.

Operating on an OUT-IN principle, this fully submerged drum filter uses advanced pile cloth media to provide continuous filtration - even during backwashing - while maintaining low energy consumption, quiet operation, and a compact footprint. With durable, long-life filter fabric and features such as aerosol-free cleaning and optional in-tank sedimentation, the system offers a robust, low-OPEX solution.

Suitable for municipal, industrial, and aquaculture applications, it is ideal for final effluent polishing, pre-treatment for UV or drinking water systems, and a wide range of process and cooling water uses.

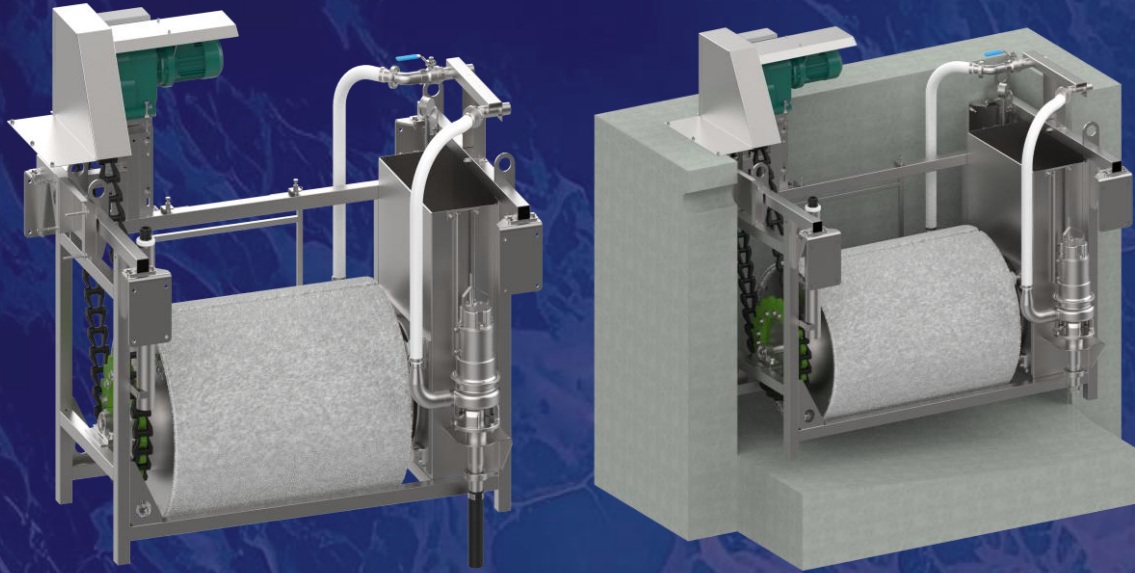
Screw Drum Filter

IN-EKO's Screw Drum Filter provides an effective, all-in-one solution for the separation, washing, dewatering, and compaction of screenings.

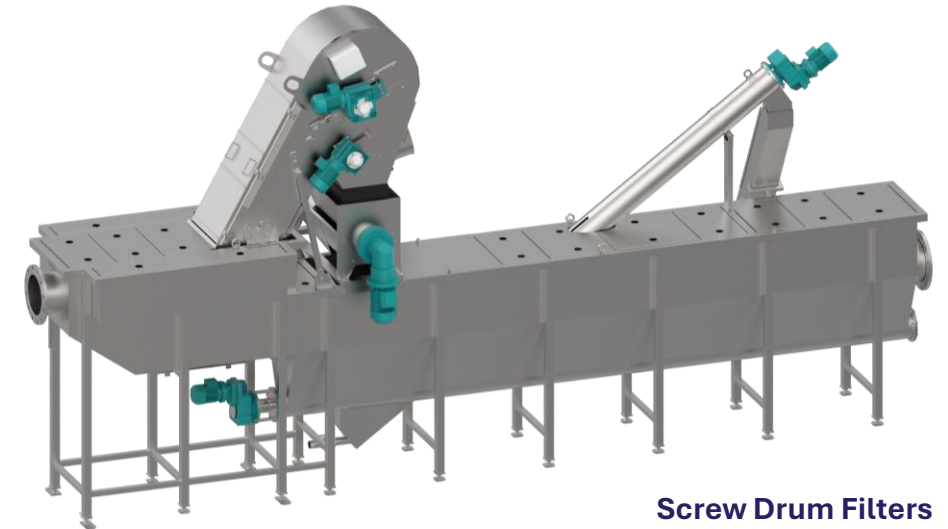
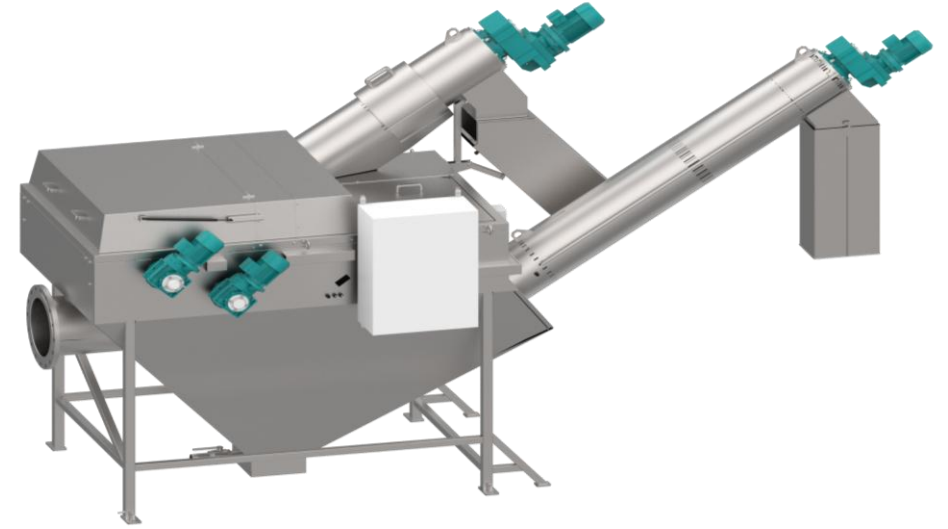
Designed for reliable coarse pre-treatment, the unit captures solids and undissolved materials from as small as 0.1 mm up to 70 × 70 mm. Using a durable stainless-steel sieve, it combines screening, transport, and pressing within a single, compact process - reducing handling requirements and improving operational efficiency.

Suitable for both municipal wastewater treatment and a wide range of industrial applications, the Screw Drum Filter delivers high-performance solids removal with a large filtration area and simplified operation, making it a practical and dependable choice for modern treatment systems.

DRUM FILTERS



Pile Cloth Drum Filters



Screw Drum Filters

MBBR

MBBR

Smarter Treatment. Smaller Footprint.

The AS&Tech Moving Bed Bio-Reactor (MBBR) system delivers advanced biological wastewater treatment with superior efficiency and higher loading rates than traditional Submerged Aerated Filters (SAFs).

A standard CB500 SAF provides 500 PE capacity – the same footprint in an MBBR delivers up to 750 PE.

Modular. Scalable. Efficient.

Our modular MBBR cell systems are engineered for flexibility: easily transportable to restricted or remote sites, quick to connect and commission on arrival, and expandable by linking multiple units for larger projects.

Each cell is filled with 50% biofilm media as standard, extendable to 70% for increased treatment capacity. The largest single MBBR treats up to 1,500 PE, outperforming comparable systems.

Precision Engineering. Reliable Control.

All AS&Tech electrical control panels are built in-house at our workshop in Tiverton to meet both WIMES and specific water utility standards. Each installation can include an integrated acoustic enclosure, GRP kiosk housing, and fully compliant electrical control system.

Client Success

During trials at Cullompton WWTW, our mobile MBBR system delivered over 90% ammonia removal & up to 86% BOD reduction, demonstrating its ability to significantly enhance treatment performance – even under increased flow conditions.



MBBR

How It Works

System Configuration

The MBBR uses multiple compartments tailored to treatment needs:

- Initial stages remove BOD
- Subsequent stages enable ammonia removal via nitrification

Its modular design allows scalable capacity & optimisation for varying influent loads

Biofilm Media Operation

The reactor contains plastic carrier media with a large specific surface area, allowing biofilm attachment.

The movement of the media regulates biomass accumulation, eliminating the needs for scour cycles and screens within each compartment retain media with minimal head loss.

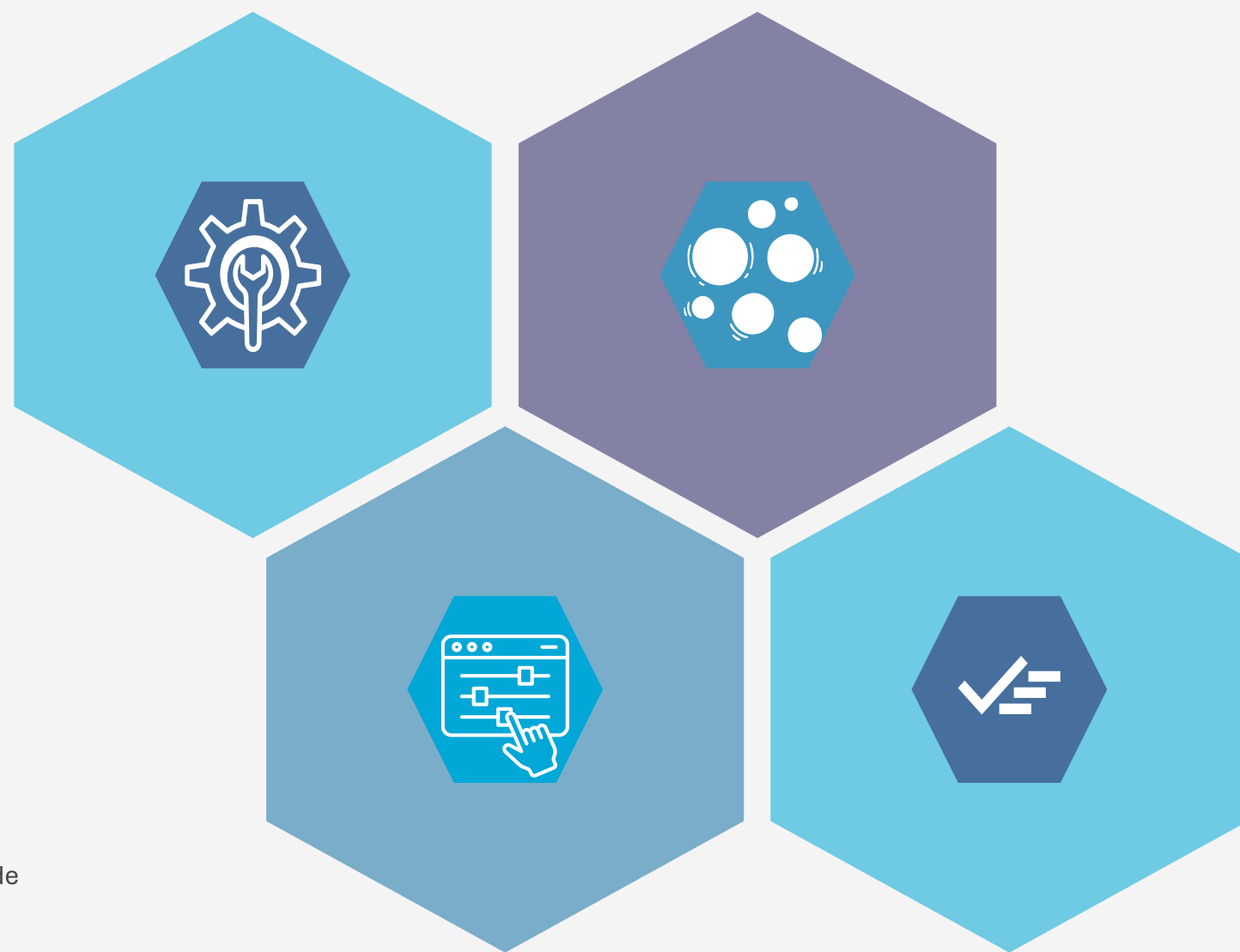
Aeration & Mixing

Each compartment includes multiple air diffusers. These diffusers provide uniform air distribution for effective mixing energy & maximise oxygen transfer efficiency for optimal biological activity.

Air Supply & Control

A blower skid supplies airflow through a common manifold, connected at ground level.

Airflow rate is automatically controlled by a dissolved oxygen meter (DO), ensuring optimised biological treatment & reduced energy consumption.



MBBR CONVERSIONS

MBBR CONVERSIONS

Proven Expertise in MBBR Conversions

With decades of hands-on experience in biological wastewater treatment, we've delivered MBBR conversions that consistently boost plant performance, extend asset life, and help clients meet tougher environmental standards without costly new infrastructure.

Transforming Existing Plants Into High-Efficiency Reactors

Our team specialises in converting traditional activated-sludge and fixed-film systems into modern MBBR treatment processes. By integrating carrier media into existing tanks, we unlock significantly higher biological capacity while keeping civil modifications to a minimum.

Key Advantages We Deliver:

- Up to 35% increased treatment capacity using existing tanks volumes
- Major improvements in ammonia and BOD reduction, even under variable loading
- Compact, flexible upgrades ideal for space-constrained sites
- Minimal downtime through rapid, well-planned installation sequences

Fast, Reliable, Low-Disruption Upgrades

Our conversion approach is engineered for speed and certainty. In recent projects, we've completed full MBBR retrofits in a matter of days – enabling sites to return to compliance quickly and maintain continuous operations with minimal disruption.

Performance That Speaks For Itself

Post-conversion systems routinely achieve:

- High-efficiency nitrification with up to 90% ammonia removal
- Robust biofilm stability that self-adjusts to load variations
- Consistent treatment performance across seasonal changes

Tailored Solutions for Every Site

Whether the objective is improved nutrient removal, increased flow capacity, or compliance with tightening permits, we design each MBBR conversion to align with the site's existing assets, hydraulic limitations, and operational requirements.

Client Success

At Lustleigh WWTW, a constrained site with access limitations was successfully upgraded using a modular MBBR retrofit. Delivering ammonia compliance without increasing the footprint – providing a flexible, cost-effective upgrade.

MOBILE AIR GRID SYSTEM

A close-up, macro photograph of several large, clear water bubbles. The bubbles are filled with water and contain many smaller, even tinier bubbles, creating a textured, cellular appearance. The lighting is bright, causing some highlights and shadows on the bubble surfaces.

MOBILE AIR GRID SYSTEM

Rapid, Reliable Oxygen Transfer – Wherever You Need It

Our mobile air grid system delivers powerful, high-efficiency aeration in a fully portable format, giving operators the flexibility to boost oxygen transfer capacity exactly when and where it's needed. Built from robust 304-grade stainless steel, each modular grid houses precision-engineered silicone diffusers, ensuring uniform air distribution and exceptional durability in demanding wastewater environments.

Designed for total ease of deployment, the system features quick-release Camlock connections, integrated lifting lugs and purpose-built chains, enabling fast assembly, removal and compact storage. Twin side-channel blowers, coupled with an intelligent control panel housed within a secure container, deliver consistent, controllable airflow with minimal operator intervention.

Whether responding to seasonal load increases, temporary treatment demands or emergency resilience needs, the mobile air grid system offers a turnkey, self-contained aeration solution that moves with your operational priorities – and performs from the moment it hits the water.

Client Success

Our custom air grid system proved so effective at Wadebridge WWTW that, once relocated to Newquay, the team chose to keep it permanently installed. Now Wadebridge has returned to us to build a new one – a testament to performance that speaks for itself.

DIFFUSERS

DIFFUSERS

Silicone Fine Bubble Diffusers

Our silicone fine bubble diffusers - available in both 10" and 12" disc formats - are designed to deliver consistent, high-efficiency aeration across a wide range of treatment systems. Built in silicone as it provides a longer life than other types of materials, our diffusers produce a steady stream of fine bubbles that maximise oxygen transfer while keeping energy use low.

We keep both diffuser sizes in stock, so whether you're planning a new installation or need a quick replacement, we can support you when it matters most.

How It Works

Air passes through the silicone membrane and is released as fine bubbles. These rise slowly through the water, increasing oxygen transfer and supporting effective biological treatment.

The membrane naturally opens under pressure and closes when airflow stops - helping prevent blockages and ensuring reliable, low-maintenance operation.

Key Benefits

- ✓ High Efficiency
- ✓ Lower Energy Costs
- ✓ Clog Resistant
- ✓ Durable Materials
- ✓ Even Aeration
- ✓ Low Maintenance
- ✓ Flexible Options



MAINTENANCE

MAINTENANCE

Expert Servicing to Keep Your Site Flowing.

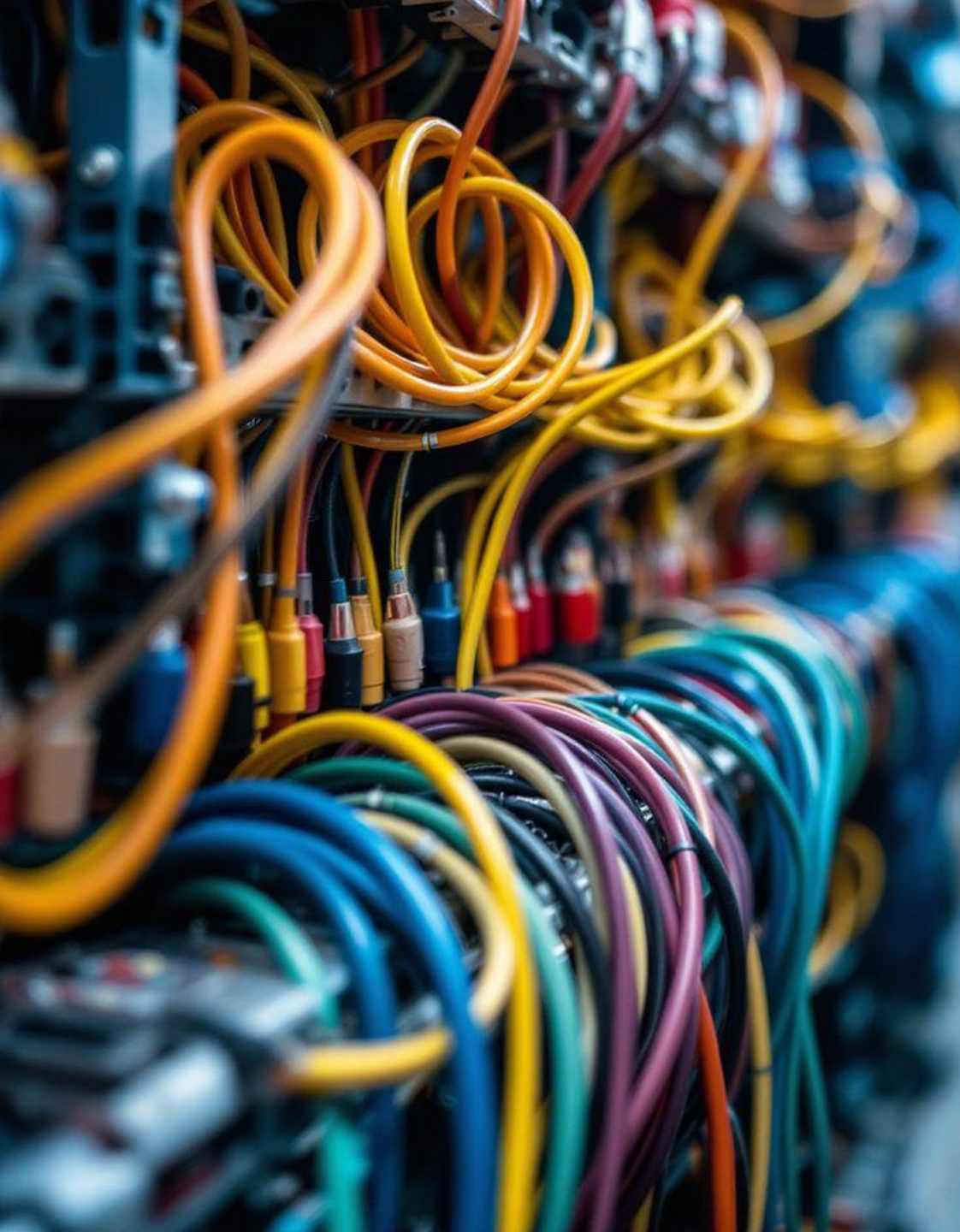
At AS&Tech, we provide comprehensive servicing, pile cloth cleans, and general maintenance for wastewater treatment sites, ensuring your operation performs at its best all year round. Available on both annual service contracts and ad-hoc callouts, our support covers everything from equipment refreshes and deep cleans to proactive checks that keep your systems running smoothly and efficiently.

Our specialist engineers work to maintain and optimise your treatment processes, helping you reduce downtime, extend asset life, and consistently exceed consent requirements. Whether it's routine preventative maintenance or a one-off intervention, AS&Tech ensures your site remains compliant, reliable, and future-ready.

Let us handle the servicing – so you can focus on what matters most: keeping your operation flowing.



ELECTRICAL CONTROL SYSTEMS



ELECTRICAL CONTROL SYSTEMS

Custom Control Systems. Intelligent by Design.

Advanced Solutions and Technologies Ltd. designs and manufactures bespoke electrical control panels in-house, built to WIMES specifications where required. We offer enclosures in Glass Reinforced Plastic (GRP), powder-coated mild steel, and stainless steel, with software platforms tailored to each client's needs.

Our systems support a wide range of applications, including MBBR systems and pile cloth filters. Touchscreen interfaces, alarm configurations, and control logic are fully customisable and can be seamlessly integrated with SCADA systems. A 180 mm touchscreen comes as standard, with alternative sizes available.

With over 60 years of combined electrical and mechanical engineering experience, our team delivers robust, reliable solutions across industries such as food processing, chemical treatment, metal production, and wastewater treatment. We also collaborate with specialist software engineers experienced in Siemens, Eaton, Allen Bradley, and other leading platforms, ensuring globally informed, high-performance systems.

All control panels and interfaces are designed around client-specific requirements, with flexible configurations for both operation and alarm management. Typical alarm monitoring includes system-critical functions such as pump and blower failures, drive motor faults, backwash systems, and high-level alerts - tailored to suit each application.

From concept to commissioning, we work closely with our clients to deliver fully integrated, precision-engineered control solutions.

LET'S CHAT!



hello@asandtech.com



+44(0)7921 488505



www.asandtech.com

